CITY COUNCIL REGULAR MEETING AGENDA

REGULAR COUNCIL MEETING
TUESDAY
SEPTEMBER 5, 2023

COUNCIL CHAMBERS
211 WEST ASPEN AVENUE
3:00 P.M.

All City Council Meetings are live streamed on the city's website (https://www.flagstaff.az.gov/1461/Streaming-City-Council-Meetings)

PUBLIC COMMENT

Verbal public comments may be given through a virtual public comment platform or in-person

If you want to provide a verbal comment during the Council Meeting, use the link below to join the virtual public comment room.

VIRTUAL PUBLIC COMMENT WAITING ROOM

Written comments may be submitted to publiccomment@flagstaffaz.gov. All comments submitted via email will be considered written comments and will be documented into the record as such.

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1. CALL TO ORDER

NOTICE OF OPTION TO RECESS INTO EXECUTIVE SESSION

Pursuant to A.R.S. §38-431.02, notice is hereby given to the members of the City Council and to the general public that, at this regular meeting, the City Council may vote to go into executive session, which will not be open to the public, for discussion and consultation with the City's attorneys for legal advice on any item listed on the following agenda, pursuant to A.R.S. §38-431.03(A)(3).

2. ROLL CALL

NOTE: One or more Councilmembers may be in attendance through other technological means.

MAYOR DAGGETT
VICE MAYOR ASLAN
COUNCILMEMBER HARRIS
COUNCILMEMBER HOUSE
COUNCILMEMBER MATTHEWS
COUNCILMEMBER MCCARTHY
COUNCILMEMBER SWEET

3. PLEDGE OF ALLEGIANCE, MISSION STATEMENT, AND LAND ACKNOWLEDGEMENT

MISSION STATEMENT

The mission of the City of Flagstaff is to protect and enhance the quality of life for all.

LAND ACKNOWLEDGEMENT

The Flagstaff City Council humbly acknowledges the ancestral homelands of this area's Indigenous nations and original stewards. These lands, still inhabited by Native descendants, border mountains sacred to Indigenous peoples. We honor them, their legacies, their traditions, and their continued contributions. We celebrate their past, present, and future generations who will forever know this place as home.

4. PUBLIC PARTICIPATION

Public Participation enables the public to address the Council about an item that is not on the agenda. Comments relating to items that are on the agenda will be taken at the time that the item is discussed. If you wish to address the Council at tonight's meeting, please complete a comment card and submit it to the recording clerk as soon as possible. Your name will be called when it is your turn to speak. You may address the Council up to three times throughout the meeting, including comments made during Public Participation. Please limit your remarks to three minutes per item to allow everyone an opportunity to speak. At the discretion of the Chair, ten or more persons present at the meeting and wishing to speak may appoint a representative who may have no more than fifteen minutes to speak.

5. COUNCIL LIAISON REPORTS

6. APPOINTMENTS

Pursuant to A.R.S. §38-431.02, notice is hereby given to the members of the City Council and to the general public that the City Council may vote to go into executive session, which will not be open to the public, for the purpose of discussing or considering employment, assignment, appointment, promotion, demotion, dismissal, salaries, disciplining or resignation of a public officer, appointee, or employee of any public body...., pursuant to A.R.S. §38-431.03(A)(1).

A. **Consideration of Appointments:** Commission on Inclusion and Adaptive Living

STAFF RECOMMENDED ACTION:

Make four appointments to terms expiring March 2026.

7. CONSENT ITEMS

All matters under Consent Agenda are considered by the City Council to be routine and will be enacted by one motion approving the recommendations listed on the agenda. Unless otherwise indicated, expenditures approved by Council are budgeted items.

A. **Consideration and Approval of Contract:** Verkada Security Services Through CTS LLC. in the amount of $184,788.62.

STAFF RECOMMENDED ACTION:

1. Approve the Cooperative Purchase Contract for Verkada Security Services Through CTS LLC in the amount of $184,788.62 utilizing cooperative contract #2024-12 with funding located in GL # 001-06-152-0512-03-4224 ; and
2. Authorize the City Manager to execute the necessary documents.

B. **Consideration and Approval of Contract:** Cooperative Purchase Contract with Carahsoft Technology Corporation for OpenGov Asset Management/Work Order Software in the amount of $95,188.01.

STAFF RECOMMENDED ACTION:

1. Approve the Cooperative Purchase Contract with Carahsoft Technology Corporation for OpenGov Asset Management/Work Order Software in the amount of $95,188.01; and
2. Authorize the City Manager to execute the necessary documents.

C. **Consideration and Approval of Contract:** A Cooperative Purchase Contract with Pueblo Mechanical and Controls, LLC to remove and replace the boilers at the Flagstaff City Hall Building in the amount of $305,745.58 utilizing the Mohave Educational Services Cooperative Contract #19F-PMAC2-0904.

STAFF RECOMMENDED ACTION:

1. Approve the Cooperative Purchase Contract with Pueblo Mechanical and Controls, LLC to remove and replace the boilers at the Flagstaff City Hall Building in the amount of $305,745.58 utilizing the
   Mohave Educational Services Cooperative Contract #19F-PMAC2-0904; and
2. Authorize the City Manager to execute the necessary documents.

D. **Consideration and Approval of a Contract:** A Construction Manager at Risk (CMAR) Construction Services Contract for the Annual Street Maintenance and Overlay Fall 2023 Program to C and E Paving & Grading, LLC in the amount of $4,902,067.20.

STAFF RECOMMENDED ACTION:

1. Approve the Annual Street Maintenance Overlay Fall 2023 Program and execute a CMAR Contract with C and E Paving & Grading, LLC for a Guaranteed Maximum Price (GMP) of $4,902,067.20 (which includes an Owner's Contingency of $20,000.00); and
2. Authorize the City Manager to execute the necessary documents.

E. **Consideration of Ratification of Funding Agreement:** City Council Ratification of Funding Agreement No. 801-23 between the City of Flagstaff and Arizona Department of Housing

STAFF RECOMMENDED ACTION:

Ratify the Funding Agreement No. 801-23, between the City of Flagstaff and Arizona Department of Housing for the City of Flagstaff Emergency Unsheltered Homeless Services program, utilizing $840,000.00 in FY23 S.B. 1720 Homeless Shelter and Services Funds

F. **Consideration and Approval of Grant Agreements:** Approve Grant Agreements between the City of Flagstaff and community partners utilizing $902,352.00 in funding from the American Rescue Plan Act Coronavirus Local Fiscal Recovery Funds for Housing Assistance Projects

STAFF RECOMMENDED ACTION:

1. Approve Grant Agreements with the following organizations, utilizing a portion of the American Rescue Plan Act Coronavirus Local Fiscal Recovery Funds for Housing Assistance Projects:

    1. **Project No: CL6321S** (Affordable Housing):
        - $397,398.00 to Habitat for Humanity of Northern Arizona for the Starter Homes at Timber Sky Project

2. **Project No: CL6321T** (Services for the Unhoused):
   - $199,006.00 to Catholic Charities Community Services, Inc. for the Homeless Outreach and Housing Connections Project
   - $46,250.00 to Homeless Youth Connection for the Flagstaff Transitional Living Project

3. **Project No: CL6321D** (Other Housing Assistance):
   - $200,000.00 to DNA People's Legal Services for the Housing Stability Legal Services Project
   - $59,948.00 to the Salvation Army for the Eviction Prevention Project; and

2. Authorize the City Manager to execute the necessary documents for all agreements.

G. **Consideration and Approval of Contract:** Supplemental Project Agreement with Coconino National Forest in the amount of $409,995.63 for fire control feature preparations via tree thinning on the Flagstaff Ranger District of the Coconino National Forest.

STAFF RECOMMENDED ACTION:

Approve the supplemental project agreement with the Coconino National Forest in the amount of $409,995.63.

H. **Consideration and Approval of Contract:** This Supplemental Project Agreement is between the City of Flagstaff and the U.S. Department of Agriculture,Coconino National Forest for the implementation of cultural resource surveys.

STAFF RECOMMENDED ACTION:

Approve the Supplemental Project Agreement with the Coconino National Forest in the amount of $1,153,736.50.

8. PUBLIC HEARING ITEMS

A. **Public Hearing, Consideration and Possible Adoption of Ordinance No. 2023-21:** A public hearing, consideration and adoption of an Ordinance of the City Council of the City of Flagstaff, extending and increasing the corporate limits of the City pursuant to the provisions of Title 9, Chapter 4, Arizona Revised Statutes, by annexing approximately 1.82 acres of land located at 2445 S. Woody Mountain Road, which certain land is contiguous to the existing corporate limits of the City of Flagstaff, and establishing city zoning for said land as Rural Residential (RR); providing for severability, authority for clerical corrections, and establishing an effective date. ***(Liv Timber Sky Annexation)***

STAFF RECOMMENDED ACTION:

At the September 5, 2023 Council Meeting:
1) Hold public hearing
At the September 19, 2023 Council Meeting:
2) Read Ordinance No. 2023-21 by title only for the first time
3) City Clerk reads Ordinance No. 2023-21 by title only (if approved above)
At the October 3, 2023 Council Meeting:
4) Read Ordinance No. 2023-21 by title only for the final time
5) City Clerk reads Ordinance No. 2023-21 by title only (if approved above)
6) Adopt Ordinance No. 2023-21

9. DISCUSSION ITEMS

A. Introduction of Rate Study Team for the City of Flagstaff Water, Reclaimed Water, and Wastewater Cost-of-Service, Rates and Fees Study

STAFF RECOMMENDED ACTION:

Staff are available for questions and would like input from City Council on the process, outreach plan, and any other related questions.

B. Progress report regarding the 10-Year Housing Plan and bond fund program implementation

STAFF RECOMMENDED ACTION:

Informational only

10. FUTURE AGENDA ITEM REQUESTS

After discussion and upon agreement by three members of the Council, an item will be moved to a regularly-scheduled Council meeting.

A. Future Agenda Item Request (F.A.I.R.): A Citizens' Petition titled Walk by Default setting on pedestrian traffic lights in Flagstaff

STAFF RECOMMENDED ACTION:

Council direction.

B. Future Agenda Item Request (F.A.I.R.): A request by Councilmember Matthews to place on a future agenda a discussion about a sound study regarding the pickleball courts at Bushmaster Park

STAFF RECOMMENDED ACTION:

Council direction.

C. Future Agenda Item Request (F.A.I.R.): A request by Vice Mayor Aslan to place on a future agenda a discussion about developing court amenities for city parks, specifically basketball and Bankshot.

STAFF RECOMMENDED ACTION:

Council direction.

D. Future Agenda Item Request (F.A.I.R.): A request by Vice Mayor Aslan to place on a future agenda a discussion about local breweries and increasing the square footage for retail space in light industrial zones

STAFF RECOMMENDED ACTION:

Council direction.

11. PUBLIC PARTICIPATION

12. INFORMATIONAL ITEMS TO/FROM MAYOR, COUNCIL, AND STAFF, AND FUTURE AGENDA ITEM REQUESTS

13. ADJOURNMENT

CERTIFICATE OF POSTING OF NOTICE

The undersigned hereby certifies that a copy of the foregoing notice was duly posted at Flagstaff City Hall on _____, at _____ a.m./p.m. in accordance with the statement filed by the City Council with the City Clerk.

Dated this _____ day of _____, 2023.

_____
Stacy Saltzburg, MMC, City Clerk

THE CITY OF FLAGSTAFF ENDEAVORS TO MAKE ALL PUBLIC MEETINGS ACCESSIBLE TO PERSONS WITH DISABILITIES. With 48-hour advance notice, reasonable accommodations will be made upon request for persons with disabilities or non-English speaking residents. Please call the City Clerk (928) 213-2076 or email at stacy.saltzburg@flagstaffaz.gov to request an accommodation to participate in this public meeting.

NOTICE TO PARENTS AND LEGAL GUARDIANS: Parents and legal guardians have the right to consent before the City of Flagstaff makes a video or voice recording of a minor child, pursuant to A.R.S. § 1-602(A)(9). The Flagstaff City Council meetings are live-streamed and recorded and may be viewed on the City of Flagstaff's website. If you permit your child to attend/participate in a televised Council meeting, a recording will be made. You may exercise your right not to consent by no allowing your child to attend/participate in the meeting.

6. A.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Stacy Fobar, Deputy City Clerk
Date:	08/31/2023
Meeting Date:	09/05/2023

TITLE:

Consideration of Appointments: Commission on Inclusion and Adaptive Living

STAFF RECOMMENDED ACTION:

Make four appointments to terms expiring March 2026.

Executive Summary:

The Commission on Inclusion and Adaptive Living consists of seven citizens serving three-year terms. The commission's goals are to expand educational opportunities; improve access to housing, buildings, and transportation; have greater participation in recreational, social, and cultural activities; encourage greater opportunity for employment; and expand and strengthen rehabilitative programs and facilities. There are currently four seats available, due to two resignations and two seats which have reached the end of their terms. Due to the vacant positions, the commission is having a hard time reaching quorum at their meetings. Staff is asking that Council at least fill the two vacant positions. One of the current commissioners has reached his term limit, so he is not eligible to reapply, while the other commissioner has reapplied for his seat. It is important to fill vacancies on Boards and Commissions quickly so as to allow the Commission to continue meeting on a regular basis.

There are four applications on file for consideration by the Council, they are as follows:

- Keith Becker (current commissioner)
- Michele Eisenberg (new applicant)
- Susan Purrington (new applicant)
- Russell Randall (new applicant)

In an effort to reduce exposure to personal information the applicant roster and applications will be submitted to the City Council separately.

COUNCIL APPOINTMENT ASSIGNMENTS: Councilmember House, Councilmember Harris, Councilmember Sweet, and Mayor Daggett

Financial Impact:

These are voluntary positions and there is no budgetary impact to the City of Flagstaff.

Policy Impact:

None

Connection to PBB Priorities/Objectives, Carbon Neutrality Plan & Regional Plan:

Inclusive and Engaged Community

- Foster community pride & civic engagement by increasing opportunities for public involvement, in line with best practices & legal requirements
- Enhance community involvement, education & regional partnerships to strengthen the level of public trust

Has There Been Previous Council Decision on This:

None

Options and Alternatives:

1. Appoint two Commissioners: by appointing two members at this time, the Commission on Inclusion and Adaptive Living will have five members who are serving in unexpired seats and two who are serving in expired seats.
2. Appoint four Commissioners: by appointing four members at this time, the Commission on Inclusion and Adaptive Living will have be at full capacity which will allow the group to more easily reach quorum and continue meeting to provide recommendations to the City Council.
3. Table the action to allow for further discussion or expand the list of candidates.

Community Benefits and Considerations:

The City's boards, commissions, and committees were created to foster public participation and input and to encourage Flagstaff citizens to take an active role in city government.

Community Involvement:

INFORM: Board members and City staff have informed the community of these vacancies through word of mouth in addition to the posting on the City's website.

Attachments: Commission on Inclusion and Adaptive Living Authority

CHAPTER 2-18
COMMISSION ON DISABILITY AWARENESS

SECTIONS:

2-18-001-0001 COMMISSION ESTABLISHED, DUTIES
2-18-001-0002 MEMBERS AND TERMS:
2-18-001-0003 ORGANIZATION:

2-18-001-0001 COMMISSION ESTABLISHED, DUTIES:

There is hereby established the Commission on Disability Awareness. It shall be the Commission's duty to advise the City Council on all issues affecting the City of Flagstaff in relation to individuals with disabilities and shall include, but not be limited to:

A. Review of City compliance with the Americans with Disabilities Acts and the Arizonans with Disabilities Acts.

B. Review of City programs, activities, services and procedures to ensure all citizens are afforded equitable access to same.

C. Develop and transmit recommendations to the City Council to assist the City Council in developing policies to respond to the concerns and needs of those with disabilities.

D. Provide a public forum for identifying and discussing issues of interest relating to individuals who are disabled, physically or mentally, and to act as an information and referral group to assist individuals, organizations, and employers in efforts to aid members of the community toward greater independence and community interactions.

E. Increase community awareness of the real contributions made by citizens of the community who are disabled and to provide recognition for employers, employees, students, teachers, parents, and professionals who further the goals of disability awareness and inclusion. (Ord. 1780, 11/17/92)

(Ord. No. 1780, Enacted, 11/17/92)

2-18-001-0002 MEMBERS AND TERMS:

The Commission shall consist of seven (7) members who shall be appointed by the City Council based upon the recommendations of the Committee/Commission. The Commission and the City Council will make every effort to recruit and appoint those individuals most directly involved and concerned with the obligations of the Americans with Disabilities Act. Commission members shall serve staggered, three (3) year terms.

In the event a member's term expires, that member shall continue to serve until reappointed or replaced by the City Council. (Ord. 1780, Enacted, 11/17/1992; Ord. 1833, Amended, 05/03/1994; Ord. 2007-31, Amended 07/23/2007; Ord. 2014-28, Amended, 11/18/2014)

2-18-001-0003 ORGANIZATION:

A Chairperson and other Commission officers shall be selected by a majority vote of those members present at a meeting called for that purpose for a term of one (1) year. The Commission shall meet at such times, dates and locations as determined by the members except that the Chairperson may call a special meeting with not less than twenty-four (24) hours' notice. All other rules of procedure shall be established by the members so long as said rules are consistent with State law, the City Charter, the Board and Commission Members' Rules and Operations Manual, and the ordinance codified in this section.

A Commission member who is absent from three (3) consecutive regular meetings may have their remaining term terminated by a vote of the City Council upon recommendation of the Commission. (Ord. 1780, Enacted, 11/17/1992; Ord. 2007-37, Amended 07/24/2007; Ord. 2014-28, Amended, 11/18/2014)

7. A.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Sam Beckett, Public Works Streets Section Director

Co-Submitter: Marshall Ronningen

Date: 08/31/2023

Meeting Date: 09/05/2023

TITLE:

Consideration and Approval of Contract: Verkada Security Services Through CTS LLC. in the amount of $184,788.62.

STAFF RECOMMENDED ACTION:

1. Approve the Cooperative Purchase Contract for Verkada Security Services Through CTS LLC in the amount of $184,788.62 utilizing cooperative contract #2024-12 with funding located in GL # 001-06-152-0512-03-4224 ; and
2. Authorize the City Manager to execute the necessary documents.

Executive Summary:

Facilities Maintenance established the Facilities Advisory Committee (FAC) in 2021 to assist in better communications and coordination between divisions for the maintenance and management of facilities. This coordination of the organization has allowed for good discussion of similar problems and successes while building a more robust and resilient facilities network city-wide. This committee has been tremendously successful in finding significant financial savings and finding areas of improvement in the current management of city facilities. The FAC was tasked to investigate enhanced security services and protocols at the city facilities.

The FAC stood up a Security Advisory focus group which vetted these concerns and then worked down the path of brain storming sound security enhancement ideas and projects. One of the proposed projects is to enhance and modernize city access control systems. This would include a transition to more user-friendly RFID controlled doorways reducing the need for unlocked doors and manual keypads. The other piece of the project was adding additional video surveillance points across specific city facilities. After the research and vetting by the security subcommittee they were able to find Verkada Security Services system that meets all City's operational needs and IT requirements. Verkada is a current service provider for the city and has delivered a great product. This proposal is to take City Hall security to the next level by enhancing access control points and greatly improve the video surveillance.

Financial Impact:

Facilities Maintenance was approved for funding through the FY24 budget process and would utilize funding in GL account # 001-06-152-0512-3-4224.

Policy Impact:

Policy impacts from enhancing building security and security process would set the tone that the city takes employee security seriously and is committed to creating a stronger and healthy work environment while ensuring citizen safety when visiting city facilities in a proactive manner.

Connection to PBB Priorities/Objectives, Carbon Neutrality Plan & Regional Plan:

Priority Based Budget Key Community Priorities and Objectives

Safe and Healthy Community- Ensure the built environment is safe through the use of consistent standards, rules & regulations, & land use practices. This project directly support this PBB priority to ensure we provide the most robust and safe environment we can to current infrastructure.

Has There Been Previous Council Decision on This:

No

Background/History:

The Purchasing Department Staff has reviewed the competitively solicited cooperative purchase options available and confirmed that Arizona State Procurement Office Contract Number CTR 0056380 with Corporate Technology Solutions, LLC. is valid and within the scope of the materials and services requested.

Attachments: Verkada Cooperative Contract 2024-12
Verkada Quote for Services
CTR056380

COOPERATIVE PURCHASE CONTRACT
Contract No. 2024-12

This Cooperative Purchase Contract is made and entered into this _____ day of _____, 20_____by and between the City of Flagstaff, Arizona, a political subdivision of the State of Arizona ("City") and Corporate Technology Solutions LLC, an Illinois Limited Liability Company ("Contractor").

RECITALS:

A. Contractor is a fully authorized vendor of Verkada hardware and software.

B. The State of Arizona, Procurement Department, Public Sector conducted a competitive and open procurement process through Request for Proposal Solicitation No. BPM003541 that resulted in Contract No. CTR056380 with Contractor ("Agency Contract"); and

C. The City has authority to enter into a cooperative purchase contract with Contractor utilizing the Agency Contract.

AGREEMENT:

NOW THEREFORE, in consideration for the mutual promises contained herein, the parties agree as follows:

1. Materials and or Services Purchased: Contractor shall provide to the City the materials and or services, as specified in the Scope of Work attached as *Exhibit A*, and in accordance with the Agency Contract. A general description of materials and/or services being purchased is:

City Hall Verkada Security Systems 5 Year License Option

2. Specific Requirements of City: Contractor shall comply with all specific purchase and delivery requirements and/or options of City, as specified in the Scope of Work attached as *Exhibit A* and incorporated by reference.

3. Payment: Payment to Contractor for the materials and or services provided for **one hundred eighty-four thousand seven hundred eighty-eight dollars and sixty-two cents ($184,788.62) in addition to other fees and taxes**; made in accordance with the price list and terms set forth in the Agency Contract.

4. Terms and Conditions of Agency Contract Apply: All provisions of the Agency Contract documents attached as *Exhibit B*, including any amendments, are incorporated in and shall apply to this Contract as though fully set forth herein. Contractor is responsible for promptly notifying City in writing of any changes to the Agency Contract, including, specifically changes in price for materials and/or services.

5. Certificates of Insurance: All insurance provisions of the Agency Contract shall apply, including any requirement to name the City as an additional insured. Prior to commencing performance under this Contract, Contractor shall furnish City with a copy of the current Certificate of Insurance required by the Agency Contract.

6. Term: This Cooperative Purchase Contract shall commence upon execution by the Parties and shall continue until expiration or termination of the underlying Agency Contract, unless sooner terminated by City in writing.

7. Renewal: This Cooperative Purchase Contract shall be automatically renewed if the underlying Agency Contract is renewed, for the same renewal period, unless City provides advance written notice to Contractor of its intention to non-renew.

CORPORATE TECHNOLOGY SOLUTIONS, LLC:

By:_____

Title:_____

CITY OF FLAGSTAFF

By:_____

Title:_____

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney's Office

EXHIBIT A
SCOPE OF WORK
(attached)

1. QUOTE #22827 FROM CORPORATE TECHNOLOGY SOLUTIONS, LLC

EXHIBIT B
AGENCY CONTRACT
(attached)

1. Agency Contract Award Request for Proposal Solicitation No. BPM003541
2. Contract Amendment Summary
3. Corporate Technology Solution Pricing

PHOENIX TUCSON

Project Name

City of Flagstaff – City Hall Verkada Security Systems 5 Year License Option

Presented To

CITY OF FLAGSTAFF

Proposal/and Scope of Work

Due Date:
6/27/2023

Respectfully Submitted By:
Curtis Johnson
O: (480) 377 - 0225 Ext:238
M: (602) 397-0688
cjohnson@ctscabling.com
State Contract# CTR056380

Corporate Technology Solutions, LLC
1971 E 5th St., Ste 111
Tempe, AZ 85281
O: 480-377-0225
www.ctscabling.com

SCOPE OF WORK

CTS will provide and install a Verkada fully integrated hardware and software solutions consisting of video surveillance, access control, and alarm systems.

Access Control:
CTS will provide and install access control at (30) locations as identified per the drawings and per the below scope of work. Scope of work door numbers coincide with the drawings. A 5- year Verkada access control license for each door has been included.

Door #1: This location will only be fitted with door contacts and a motion request to exit for monitoring purposes.

Door #2: Existing devices will be reused as the temporary solution until the door opening is replaced. Existing magnetic lock, push to exit, request to exit, and door contacts will be used. Existing card reader will be replaced with a Verkada card reader.

Door #3: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #4: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #5: Existing cylindrical keypad and electrified strike will be reused. Door contact, request to exit, and Verkada card reader will be installed.

Door #6: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #7: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #8: New panic devices with surface mounted vertical rods will be installed over existing devices. One leaf will be electrified, and the second leaf will only have a request to exit. New ADA push buttons, door contacts, and Verkada card reader will be installed. Existing auto operator to remain in place and is assumed to have necessary relay inputs for integration to the access control system.

Door #9: Existing magnetic lock will be removed. Existing electrified strike and request to exit motion will be reused. A Verkada card reader will be installed.

Door #10: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed. Surface mount conduit at this location will be required due to block walls.

Door #11: New panic devices with surface mounted vertical rods will be installed over existing devices. One leaf will be electrified, and the second leaf will only have a request to exit. New door contacts and Verkada card reader will be installed.

Door #12: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #13: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #14: Existing magnetic lock will be removed. Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #15: Existing magnetic lock will be removed. Existing cylindrical lock will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed. Cylindrical lock will need to be changed to a storeroom function lock, not included in this bid.

Door #16: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #17: Existing panic devices will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #18: Existing electrified strike will be reused. A door contact, request to exit, and Verkada card reader will be installed.

Door #19: Existing opening does not currently meet fire code. A new panic device with electrified trim, door contact, request to exit, and Verkada card reader will be installed.

Door #20: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #21: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #22: Existing electrified strike will be reused. A door contact, request to exit, and Verkada card reader will be installed.

Door #23: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #24: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #25: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #26: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #27: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #28: Existing opening does not currently meet fire code. A new panic device with electrified trim, door contact, request to exit, and Verkada card reader will be installed.

Door #29: Existing cylindrical keypad will be left in place. An electrified strike, door contact, request to exit, and Verkada card reader will be installed.

Door #30: New panic devices with surface mounted vertical rods will be installed over existing devices. One leaf will be electrified, and the second leaf will only have a request to exit. New ADA push buttons, door contacts, and Verkada card reader will be installed. Existing auto operator to remain in place and is assumed to have necessary relay inputs for integration to the access control system.

Access Control Cabling:
New access control cables will be routed from each door to the designated IDF where the Verkada controllers will be installed.

IDF:
Multiple IDF locations will be utilized for the Verkada controllers and power supplies. Doors will be grouped based on area and proximity to IDF locations. A network port will be required for each Verkada controller.

Proposal assumes utilizing customers' existing patch panels and network switches. Any additional power requirements needed for the access control power supplies are to be provided by customer.

Programming:
Proposal assumes exporting existing access control database to a CSV file and importing into Verkada. New access levels and user groups will be programmed. Proposal assumed utilizing customers existing credentials.

Video Surveillance:
CTS will provide and install Verkada cameras in (14) locations as identified per the drawings. (5) cameras will be exterior and (9) will be interior. A 5-year Verkada camera license has been included for each camera.

Camera Cabling:
New category 6 cables will be routed from nearest IDF to each camera.

Proposal assumes utilizing customers' existing patch panels and network switches.

Alarm System:
CTS will provide and install a Verkada alarm system for the (5) panic button locations as identified per the drawings. For the panic buttons to be programmed for dispatch to local authorities an alarm panel is required. Included with the alarm system is an alarm console that will be installed locally in a location that is TBD. A 5-year license is required and has been included for the alarm system monitoring services, alarm panel, and alarm console.

Once all devices have been installed, they will be programmed, tested, and confirmed with end user. (8) hours of customer training have been included.

Exclusions/Assumptions:

- Patch panels and switches by end user.
- Fire alarm relays required to be by end user fire alarm provider.
- Patching, painting, or drywall repairs.
- Network ports and parameters by end user.
- 120V by end user.
- Proposal assumes normal work hours (between 5 a.m. and 5 p.m.)
- Permitting Exluded

PROVISIONS

All OSP (outside plant cabling) are estimates only. CTS will verify the actual lengths prior to installation with true tape and provide a credit or cost impact document before the installation.

Any additional work not specified in this scope of work or any additional work request from customer will result in a CTS change order.

Due to the fluctuation and continued increases in costs and shipping, this proposal pricing is good for a period of 30 days unless otherwise noted.

Where material prices fluctuate, CTS reserves the right to adjust pricing if there are changes in material pricing. Written documentation from our suppliers to verify this condition can be provided.

Customer is responsible for any freight charges if the customer requests an expedited time frame.

CTS will require a project schedule showing all times the facility will be available. Including but not limited to, facility events, closures or limitations that may affect continuous work. Without a schedule, there is no way for CTS to commit to an end date for completion. Delays in the schedule will delay the completion date. Any requested overtime to improve the completion date will constitute a change order.

Any schedule changes or project delays due to work areas not being available during the scheduled time, and or any other interruptions outside of CTS control, including but not limited to delay by other trades or customer could result in additional cost to customer. Written notification is required 5 days prior to any schedule changes.

This SOW assumes normal day shift of 8 continuous working hours between 5am and 5 pm, unless otherwise specified and agreed to in writing. Any work outside of this time frame may be subject to additional shift premiums.

This SOW includes one mobilization only. Changes that required additional starts and stops may be subject to additional charges via a change order. This would include, but not limited to, storage, equipment rentals, travel expenses, and other expenses incurred.

This quotation assumes that all existing and new conduits are properly sized with pull string installed and that any new conduits, pathways, wire mold, power poles, core holes, sleeves, and floor boxes, not mentioned in the above scope of work, will be provided and installed by other vendors and will be ready prior to cable installation.

Phone Systems, Network Devices, Active Equipment are not included, unless otherwise stated in the scope of work.

Any other Control Components are NOT included in this proposal as directed, unless otherwise specified. It is the assumption that the owner will provide its own system to perform the functions as needed.

Patch Cords are not included unless otherwise stated in the scope of work.

All Contracts and/or Purchase Orders will be subject to monthly progress billings.

Retention dollars are to be paid within 60 days after the completion of our original scope of work, regardless of the total job completion.

Any project valued at $2500 or above is subject to a pre-lien.

Effective Jan 1, 2015, customer is responsible for supplying CTS with Arizona Transaction Privilege Tax Exemption Form (TPT 5000) or Prime Contractor's Certificate (TPT 5005) as applicable.

Credit card payments shall be assessed a 3.5% convenience fee.

COSTS	
Materials	144,185.00
Labor	27,366.00
Misc	
Sub Total	171,551.00
Tax Rate	9.181%
Material Tax	13237.62
Labor Tax	0.00
Total	**184,788.62**

PRODUCT	PART NUMBER	DESCRIPTION	UOM	QTY
Windy City	556600	Cat6 Plenum White	LF	2,000
Windy City	7' Path Cable	7' Patch Cables Cat6	EA	1
Windy City	NJ446100	4 element Cable CMP	LF	6,000
Windy City	2204P-WHT	22-4 UNSHIELDED STRANDED PLENUM	LF	500
Leviton	47613-EZC	RJ45 Connector (50 pack)	EA	1
ADEMCO	ODC59A	OVERHEAD DOOR MAGNETIC CONTACT	EA	3
GRI	180-RS-12	Door Contact	EA	36
Verkada	CD52-256-HW	Indoorm Dome Camera 5MP	EA	8
Verkada	CF81-30E-HW	Fisheye Camera 30 Days	EA	1
Verkada	CD62-30E-HW	4k Dome Camera 30 Days	EA	5
Verkada	ACC-MNT-3	L Mount Bracket	EA	5
Verkada	LIC-5Y	5 Year Camera License	EA	14
Verkada	AD-32HW	Card Reader	EA	30
Verkada	LIC-AC-5Y	5 Year Door License	EA	30
HES	8300C	Electrified Strike	EA	12
HES	5200C	Electrified Strike	EA	5
HES	9400	Electrified Rim Strike	EA	1
Bosch	DS160	Motion Request to Exit	EA	23
Von Duprin	99EO-626	Rim Exit Device	EA	2
Von Duprin	M996L-RV-626-06-LHR	Motor R&V Lever Trim	EA	2
Von Duprin	050251-00	RX Swtich Kit	EA	2
GMS	R118SC26DA2	Rim Cylinder	EA	2
CMA	ETH8W4545-626 CH-BB79	Transfer Hinge	EA	2
Von Duprin	RX-QEL-9927-NL-F-643E-36	Electrified SVR Exit only with RX	EA	3
Von Duprin	RX-9927EO-F-643E-36-LHR	SVR Exit only with RX	EA	3
Keedex	KL38B	Door Loop	EA	6
GMS	R118SC10BA2	Rim Cylinder	EA	3
BEA	10PBS1	Push Plate	EA	4
BEA	10BOX475SQSM	Push Plate Surface Mount Box	EA	4
BEA	10TD433PB9V	RF Transmitter 433 Mhz	EA	4
BEA	10RD433	Wireless 433 Mhz Receiver	EA	4
BEA	10BR3X	Programmable 3 relay logic module	EA	2
Verakada	BC51-HW	Alarm Console	EA	1
Ademco	Husk-20	Panic Button	EA	5
CTS	CTS	Labor to remove existing devices/equipment	EA	1
CTS	CTS	Misc. Connectors/Mounting Hardware	EA	1
Consumables	CTS	Velcro, tape, labels, jet line, etc	EA	1
Tamarco	2" J-Hook Clip-on	2" J-Hook Clip-on Comfort Cradle	EA	125
Tamarco	3' hanger	solid hanger w/shot	EA	125
INTERSTATATE BAT	SEC1075	12V 7AH BATTERY	EA	15

Verkada	AC41-HW	4 Door Controller	EA	7
Verkada	AC62-HW	16 Door Controller	EA	1
Verkada	AC-BAT-4AH	4AH Batter for AC41	EA	7
Verkada	AC-BAT-18AH	18 AH Batter for AC62	EA	1
Verkada	BP41-HW	Alarm Panel	EA	1
Verkada	LIC-BA-5Y	5 Year Alarm License per site	EA	1
Verkada	LIC-BC-5Y	5 Year Alarm Console License	EA	1
Verkada	LIC-BP-5Y	5 Year Alarm Panel License	EA	1
LSP	FPO75/150-C4D8E1	300W, 4 Door Access Dual Voltage	EA	1
LSP	FPO150/150-C8D8E2	300W, 8 Door Access Dual Voltage	EA	3
LSP	FPO150/250-2C82D8E4	400W, 16 Door Access Dual Voltage	EA	1
CTS	CTS	Panduit Lay In for IDF's	EA	1
Labor Only	CTS	Labor to program and test	EA	1
Labor Only	CTS	Project Management Hours	EA	1
Labor Only	CTS	Owner Training	EA	1
CTS	CTS	Travel Expenses	EA	1

Payment Terms: Net 30 (Monthly Project Billing Applies)

Material: FOB – Project Site

Print Name: _____

Accepted by: _____

Title: _____

Date: _____

P.O. # _____

Billing Address: _____

	Contract Amendment II		Arizona Department of Administration General Services Division 1400 W. Washington St., Ste. B200 Phoenix, AZ 85007
	Contract ID: **CTR056380** Contractor: **CORPORATE TECHNOLOGY SOLUTIONS, LLC**		
	Extension #2	Date: 6/12/2023	

SECURITY AND PROTECTION SYSTEMS

1. The above-mentioned contract is hereby amended as follows:

   a. In accordance with the Special Terms and Conditions, Section 3.2 Contract Extensions, the above referenced contract shall be extended from 7/28/2023 to 7/28/2024.

      i. 2 optional extensions remaining of a 5-year contract

   b. All Terms, Conditions and Provisions of the contract shall remain unchanged and apply during the renewal period unless otherwise amended.

ALL OTHER REQUIREMENTS, SPECIFICATIONS, TERMS AND CONDITIONS REMAIN UNCHANGED

ACKNOWLEDGEMENT AND AUTHORIZATION

This change order shall be fully executed upon the approval electronically in APP by an authorized representative of the Contractor and applied to the contract in APP by the Procurement Officer or delegate.

	Contract Amendment I	Arizona Department of Administration General Services Division 1400 W. Washington St., Ste. B200 Phoenix, AZ 85007
	Contract ID: **CTR056380** Contractor: **CORPORATE TECHNOLOGY SOLUTIONS, LLC**	
	Extension #1 / Date: 6/14/2022	

SECURITY AND PROTECTION SYSTEMS

1. The above mentioned contract is hereby amended as follows:

   a. In accordance with the Special Terms and Conditions, Section 3.2 Contract Extensions, the above referenced contract shall be extended from 7/28/2022 to 7/28/2023.

      i. 3 optional extensions remaining of a 5 year contract

   b. All Terms, Conditions and Provisions of the contract shall remain unchanged and apply during the renewal period unless otherwise amended.

ALL OTHER REQUIREMENTS, SPECIFICATIONS, TERMS AND CONDITIONS REMAIN UNCHANGED

ACKNOWLEDGEMENT AND AUTHORIZATION

This change order shall be fully executed upon the approval electronically in APP by an authorized representative of the Contractor and applied to the contract in APP by the Procurement Officer or delegate.

Request for Proposal

Solicitation No. BPM003541

Security and Protection Systems - Statewide

Arizona Department of Administration
General Services Division
1400 W. Washington St., Ste. B200
Phoenix, AZ 85007

Offer and Acceptance Form

SUBMISSION OF OFFER: Undersigned hereby offers and agrees to provide Security and Protection Systems - Statewide in compliance with the Solicitation indicated above and our Offer indicated by the latest dated version below:

Initial Offer:	6/9/21	Curtis Johnson		
	Date	Signature		
Revised Offers:				
	Date	Signature	Date	Signature
	Date	Signature	Date	Signature
Best and Final Offer:				
	Date	Signature		

Corporate Technology Solutions, LLC
Offeror company name

Curtis Johnson
Signature of person ~~authorized to sign~~ Offer

1971 E 5th St., Ste 111
Address

Curtis Johnson – Security Division Mgr
Printed name and title

Tempe AZ 85281
City | State | ZIP

Curtis Johnson – Security Division Mgr
Contact name and title

27-0884582
Federal tax identifier (EIN or SSN)

480-377-0225 x238
Contact phone (office)

602-397-0688
Contact phone (mobile)

Cjohnson@ctscabling.com
Contact Email Address

CERTIFICATION: By signature in the above, Offeror certifies that it:

1. will not discriminate against any employee or applicant for employment in violation of Federal Executive Order 11246, [Arizona] State Executive Order 2009-9 or A.R.S. § 41 – 1461 through 1465;
2. has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted offer. Failure to provide a valid signature affirming the stipulations required by this clause will result in rejection of the Offer. Signing the Offer with a false statement will void the Offer, any resulting contract, and may be subject to legal penalties under law;
3. complies with A.R.S. § 41-3532 when offering electronics or information technology products, services, or maintenance; ad
4. is not debarred from, or otherwise prohibited from participating in any contract awarded by federal, state, or local government.

ACCEPTANCE OF OFFER: State hereby accepts the initial Offer, Revised Offer, or Best and Final Offer identified by the latest date and number at the top of this form (the Accepted Offer). Offeror is now bound (as Contractor) to carry out the Work under the attached Contract, of which the Accepted Offer forms a part. Contractor is cautioned not to commence any billable work or to provide any material or perform any service under the Contract until Contractor receives the applicable Order or written notice to proceed from the Procurement Officer.

State's Contract Number is: CTR056380 **Contract Effective Date:** July 28, 2021

Crista Clevenger 7/23/2021
Procurement Officer Signature Award Date

Crista Clevenger, Procurement Manager
Procurement Officer Name Title

Notice Page

1.0 What the State Is Soliciting

The Arizona Department of Administration, General Services Division, its Agencies, Boards and Commissions (the State), as well as Cooperative Members, as authorized under A.R.S.§ 41-2501 is seeking proposals from qualified contractors to provide services, equipment and materials on an as-needed basis for Access Control Systems, Intrusion Systems, and Closed Circuit Television (CCTV).

The State anticipates awarding multiple Contracts to begin providing services by a target date of July 28, 2021.

The Special Terms and Conditions provide a more detailed definition of Eligible Agencies.

List of all state agencies is available at: https://azdirect.az.gov/agencies

Active Co-Op Members List is available at: https://spo.az.gov/procurement-services/cooperative-procurement/state-purchasing-cooperative .

OFFERORS SHOULD READ THE ENTIRE SOLICITATION CAREFULLY.

2.0 How and When Proposals Are Due

PROPOSAL DUE DATE AND TIME: Wednesday, June 9, 2021 at 2:00 PM Arizona Time

Proposals will only be accepted **online in "The State's e-Procurement System" at https://app.az.gov until the "Bid/Offer Due Date" indicated in "The State's e-Procurement System" for the Solicitation No. shown at the top of this page**. Proposals must be in the States possession online no later than the deadline indicated.

Submit technical inquiries about navigating and/or submitting proposals in the State's e-Procurement System to the State's e-Procurement System Help Desk:

- by phone at (602) 542-7600, option2; or
- by email to app@azdoa.gov

LATE PROPOSALS WILL NOT BE CONSIDERED. No extension or grace period will be given for delays or incomplete proposals caused by internet connectivity problems, file uploading difficulties, or misunderstanding of the requirements or procedures for online submission in "The State's e-Procurement System".

3.0 Pre-Offer Conference

The State **WILL NOT** conduct a Pre-Offer Conference for this Solicitation.

4.0 Inquiries

Any question related to this Request for Proposal shall be submitted utilizing the State's "**Discussions with Buyer**" Tab in the e-procurement system. The Offeror shall not contact or ask questions of the department for which the requirement is being procured.

Arizona Department of Administration
General Services Division
1400 W Washington St., Suite B200
Phoenix, AZ 85007

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Special Terms and Conditions 14
Uniform Terms and Conditions 40

Solicitation Summary

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1.0 Introduction

The Arizona Department of Administration, General Services Division (hereinafter referred to as the "State") invites proposals from qualified Contractors to provide all services, equipment and materials for Access Control Systems, Intrusion Systems, and Closed Circuit Television (CCTV) for an eligible agency on an as-needed basis.

The State is seeking to establish one or more “statewide” contracts with qualified Contractors to begin providing services by a target date of July 28, 2021

2.0 Purpose and Background

The purpose of this solicitation is to conduct a competitive process, in accordance with Arizona Revised Statues (A.R.S.) §41-2501 to create a contract(s) from which the State and its Cooperative Members (hereinafter referred to as Eligible Agencies) may acquire these products and services.

3.0 Definitions

Actual Parts Manufacturer - A manufacturer of equipment parts supplied direct to original equipment manufacturers for incorporating into the production equipment and/or resale as replacement parts. The original equipment manufacturer is the actual parts manufacturer for those parts produced solely by it.

Consumable Products – Products that are depleted or degraded while directly performing the services required by this contract.

Drive Time – An hourly labor rate paid to compensate the primary worker along with any additional helpers for their time spent traveling between the Contractor’s facility and the service location.

Emergency Repair – This is a priority designator that places this project above all others. A project with an “emergency” designator is to be given necessary resources until completed.

Facilities Maintenance Coordinator (FMC) – The individual responsible for the department surveillance of the work in accordance with the contract. The FMC communicates with the Contractor on needed services and repairs. The FMC will participate in periodic quality inspections. The FMC will contact the Contractor to request a repair or service.

Helper – If necessary, additional workers may be used to complete a project. Helpers have separate line items for their labor rates.

Original Equipment Manufacturer – The manufacturer of the complete production equipment whether assembled from parts of its own manufacturer or from parts or components furnished by other manufacturers or a combination of both.

Preventive Maintenance (PM) – That service performed by the Contractor on a scheduled basis, which is designed to keep the equipment/systems in proper operating condition. It includes a verification of proper tolerances (tightness, fluid levels, voltages, etc.), and adjustments or other actions as necessary and appropriate in accordance with the manufacturer’s maintenance specifications and as authorized in the work order.

Rework – To work again or to work again an additional time.

Trip Charge – A fee paid to compensate the Contractor for the distance (per mile) traveled by its employees for round trips greater than 50 miles from the Contractor's facility to the service location.

Quality Control – Those actions taken by the Contractor to control the production of services so that they meet the requirements of the contract.

Quality Control Inspection (QC) – Those actions taken by FMC to check maintenance and repair services to determine if they meet contract requirements.

4.0 General Requirements

4.1 Contractor(s) may be required to ensure that the facilities are in compliance with all existing standards, codes, rules and regulations.

4.2 Contractor(s) are encouraged to offer any additional services their company provides and must indicate those services in their proposal.

4.3 Contractor(s) must ensure all equipment is compatible to the best industrial standards and must function as designed after installation.

4.4 All necessary wiring, fasteners, fittings, hardware, anchors, or other necessary miscellaneous items, except specialty equipment, to successfully provide the services required herein shall be provided by the Contractor(s) at no additional cost to the Eligible Agency.

4.5 Contractor(s) must designate a single point of contact to be the liaison for state information technology staff to handle the day to day operations.

4.6 Contractor(s) may not apply surcharges for transportation, fuel, energy, insurance or any other reason throughout the duration of the contract(s).

4.7 Contractor(s) must guarantee workmanship at Contractors' expense for a period of twelve (12) months from the date of installation.

4.8 Work shall be performed in accordance with manufactures' recommendations and with all current local codes, regulations, and installation guidelines.

4.9 The awarded Contractor(s) may be required to do some work after normal business hours; however, it is anticipated that most work will be completed during normal business hours.

4.10 Once the Contractor has possession of the equipment to be installed, the responsibility of all equipment, including storage during installation work, shall be at the awarded Contractors expense when storage space is unavailable at the jobsite.

4.11 Contractor(s) staff is responsible for performing a standard site walk-through.

4.12 Contractor(s) shall provide competent personnel able to perform the specific scope of work required.

4.12.1 Due to the nature of these scopes of work and the liability involved, each Eligible Agency will have the final determination of competency in all matters regarding personnel provided by the Contractor.

5.0 Maintenance and Repair of All Systems and Response Times, (including Emergency Repair) Unless previously agreed upon by eligible agency:

5.1 Normal Response to trouble calls within 8 hours, including weekends and holidays.

5.1.1 Rural Area Normal Response to trouble calls within 8 hours, including weekends and holidays.

5.2 Emergency Response to trouble calls within 2 hours, including weekends and holidays.

5.2.1 Rural Area Emergency Response to trouble calls within 4 hours, including weekends and holidays.

5.3 Repair Technicians must carry adequate hardware inventory to replace, repair, and/or maintain each system at the dispatched location.

5.3.1 Contractor(s) will be responsible for any additional expenses and mileage resulting from inadequate hardware inventory to replace, repairs, and/or maintain each system.

5.4 Repair Technicians must be prepared to provide an immediate replacement for defective equipment and **shall not** remove a defective unit without an immediate replacement.

5.5 Replacement and repair of equipment must be provided at a specific location, or within an assigned geographical area inside a location.

6.0 Access Control Systems – Category 1

The Access Control Systems category includes all aspects of Access Control System Services, including but not limited to the following services:

6.1 Consulting;

6.2 Inspection as required by the using eligible agency;

6.3 Installation of new systems;

6.4 Replacement or upgrade of existing systems;

6.5 Removal of existing systems;

6.6 Integration of various types of systems;

6.7 Provide and install all related equipment and miscellaneous items such as wire, fasteners, hardware, etc. that may be needed to compete the scope of work;

6.8 Provide programming and work individually with eligible agencies information technology staff when installing new or maintaining previously installed systems; and

6.9 Contractor(s) must possess the ability to provide individual access codes and provide all access codes and access procedures to the eligible agency.

7.0 Intrusion Systems – Category 2

The Intrusion Systems category includes all aspects Intrusion System Services, including but not limited to the following services:

7.1 Consulting;

7.2 System Monitoring:

7.2.1 Provide a 24-hour UL Listed Station

7.2.2 Provide Backup communication if requested by eligible agencies, i.e. radio or cell phone

7.3 Inspections as required by the eligible agency;

7.4 Installation of new systems;

7.5 Replacement or upgrade of existing systems;

7.6 Removal of existing systems;

7.7 Integration of various types of systems;

7.8 Provide and install all related equipment and miscellaneous items such as wire, fasteners, hardware, etc. that may be needed to complete the scope of work;

7.9 The work provided within this section includes a complexity of various single zone and multi-zoned systems, including circuit boards, communication devices, phone lines, system wiring, power supply, and batteries installed with or without panic buttons, motion detectors, door sensors, window sensors, glass-break sensors, key pads, and various notification devices (horns, strobes, etc.);

7.10 Existing systems must be matched in any new additions or new construction. During renovations, the system in the renovated area being replaced must match the system that is currently in operation and must become an integral part thereof. Contract must ensure complete connectivity and integration to each existing system in those instances where an addition or upgrade is warranted.

7.11 The Contractor(s) must designate a project manager as the single point of contact who must be certified to program all alarm systems in use throughout eligible agency facilities.

7.12 The Contractor(s) must possess the ability to provide individual access codes and provide all access codes and access procedures to the eligible agency.

8.0 Closed Circuit Television Systems (CCTV) – Category 3

The CCTV category includes all aspects of CCTV Services, Including but not limited to the following services:

8.1 Consulting

8.2 Inspection as required by the using eligible agency

8.3 Installation of new systems;

8.4 Replacement or upgrade of existing systems;

8.5 Removal of existing systems;

8.6 Integration of various types of systems;

8.7 Provide and install all related equipment and miscellaneous items such as wire, fasteners, hardware, etc. that may be needed to complete the scope of work;

8.8 Provide the option to use CCTV video cards for video surveillance;

8.8.1 Video cards must have the capability to handle from four (4) to twenty-four (24) cameras in the system;

8.8.2 Contractor must offer video cards with various capacity sizes to meet all potential needs;

8.8.3 All cameras used in an installation must be matched to work with the video card selected by the eligible agency.

8.9 Provide the option to utilize Digital Video Recording Equipment (DVR), Network Video Recording Equipment (NVR), and/or Gateway and Hosted Video Equipment;

8.10 Provide the option for eligible agencies to build their own stand-alone computer to run the system, or request that the Contractor build it for them; and

8.11 Offer a wide variety of indoor and outdoor cameras and wireless transmitters to work in conjunction with video cards.

9.0 Agreements

9.1 Contractor(s) shall not require Eligible Agencies to sign any additional or separate agreements subordinate to the resulting contract.

9.2 Contractor(s) shall provide separate quotes within 48 hours of request, unless otherwise agreed upon by the eligible agency, for each new or replacement installation as required by the eligible agency

9.2.1 Quotes should offer price difference for lease vs. purchase options as requested by eligible agency.

9.3 Eligible Agencies may have proprietary equipment. It is Contractor(s) responsibility to work with or notify the eligible agency regarding maintenance and repair of proprietary equipment.

10.0 Background Checks

10.1 Contractors employees assigned to the contract may be required to submit to and pass background checks.

10.1.1 All costs associated with background checks shall be at the contractor's expense.

10.2 It is the Contractor's responsibility to ensure the following;

10.2.1 Contractor(s) may not begin work on the contract until clearance has been issued by the eligible agency; and

10.2.2 Notification and access to eligible agency will be pre-authorized by the eligible agency.

11.0 Public Works Projects

11.1 Any projects that are federally funded may be subject to the requirements of Davis-Bacon Act and/or the Davis-Bacon Wage Decision.

11.1.1 Labor prices for affect projects may be negotiated between the eligible agency and the contractor, provided the contractor provides adequate documentation for any negotiated increase.

11.1.1.1 Documentation shall include payroll records, copies of wage decisions, and/or other information that establishes a clear difference between the

contractor's standard wage and the prevailing Davis-Bacon wage for any affected employee for that project.

11.1.1.2 Under no circumstances will that price be increased by an amount higher than the difference between the normal hourly rate and the hourly rate required by the applicable Davis-Bacon Wage Decision.

11.2 Contractor(s) must include in job quotes the standard business hours and prevailing wage rate for the job location. Quotes should include shift differential, if any, for working nights and weekends.

11.3 Jobsites must be cleaned every day.

11.4 Contractor(s) must complete any punch lists within five days of receipt. Exceptions to this standard may be addressed on an individual project basis.

12.0 Standard of Performance and Acceptance

12.1 The Standard of Performance applies to all product(s) purchased under a resultant contract, including any additional, replacement or substitute product(s), as well as any product(s) which are modified by or with the written approval of the Contractor and after acceptance by the eligible agency.

12.2 The Acceptance Testing period shall be seven (7) calendar days, or any other time period previously agreed upon, beginning with the day after the product is installed and certification is received that the product is ready for Acceptance Testing.

12.3 If the product does not meet the Standard of Performance during the initial period of Acceptance Testing, the eligible agency may, at its discretion, continue Acceptance Testing on a day-to-day basis until the Standard of Performance is met.

12.4 Upon rejection, the contractor will have three (3) days to cure and Standard of Performance issue(s).

12.5 If, after the cure period, the product still has not met the Standard of Performance, the eligible agency may, at its option;

12.5.1 Declare the contractor to be in breach and terminate the order;

12.5.2 Demand a replacement product from the contractor at no additional cost to the eligible agency; or

12.5.3 Continue the cure period for an additional time period agreed upon by the eligible agency and the contractor.

12.6 Contractor(s) shall pay all costs related to the preparation and shipping of returned products;

12.7 No product shall be accepted and no charges shall be paid until the Standard of Performance is met; and

12.8 The Warranty Period will begin upon approval by the eligible agency.

Pricing Document

1.0 Compensation

1.1 COMPENSATION METHOD

Contractor will be compensated based on the final detailed written quote approved by the Customer. Pricing shall not exceed the labor rates indicated on the Pricing Document.

2.0 Pricing

2.1 CONTRACTOR'S BEST PRICING. Supplier warrants that, for the term of the Contract, the prices and discounts set out in Exhibit A_PRICING – Security and Protections Systems - Statewide, including any subsequent agreed amendment to it (the "Contract Pricing"), will be equal to or better than the lowest prices and largest discounts, both separately and in combination, at which Contractor sells equivalent services, items of equipment and materials.

2.1.1 That price-plus-discount equivalence ("Contractor's Best Pricing") is intended to be irrespective of whether or not those other sales have special purchase terms, conditions, rebates or allowances.

2.1.2 If Contractor's Best Pricing for equivalent services, items of equipment and materials is better than the Contract Pricing, then Contractor agrees to adjust the Contract Pricing to match the Contractor's Best Pricing for all sales related to the Contractor made after the date when the Contractor's Best Pricing was first better than the Contract Pricing.

2.1.3 For clarification of intent, that date is intended to be the date when the difference first occurred, which might have been before the difference was first identified. If it was before, then Supplier agrees to charge at less than the Contract Pricing until the extended difference that would have been realized (i.e., if the Contractor's Best Pricing had been applied when it should have been) has been settled.

2.2 PRICING-ALL-INCLUSIVE:

2.2.1 Pricing is all-inclusive, including any ancillary fees and costs required to accomplish the Scope of Work and all aspects of Contractor's offer as accepted by State. Details of service not explicitly stated in the Scope of Work or in Contractor's Offer, but necessarily a part of, are deemed to be understood by Contractor and included herein. All administrative, reporting, or other requirements, all overhead costs and profit and any other costs toward the accomplishment of the requirements in the Contract are included in the pricing provided.

2.3 PRICE INCREASES:

2.3.1 The State may review a fully documented request for a price increase. The requested increase shall be in writing and be based upon a cost increase to the contractor that was clearly unpredictable at the time of the offer and is directly correlated to the price of the product concerned. Contractor must provide conclusive evidence of a need for any price increases such as being substantiated by the Producer Price Index, Consumer Price Index, or similar pricing guide.

(a) Initial Contract prices will be honored for one year after award of Contract.

(b) All written requests for price adjustments made by the contractor shall be initiated thirty (30) days in advance of any desired price increase to allow State sufficient time to make a fair and equitable determination to any such requests. This may be waived upon proper documentation demonstrating the urgency of the request.

(c) All price adjustments will be implemented by a formal contract amendment. State shall determine whether the requested price increase or an alternate option is in the best interest of State.

2.4 PRICE REDUCTIONS:

2.4.1 Price reductions shall be immediately passed along to State and may be submitted in writing to State for consideration at any time during the Contract period. The contractor shall offer State a price reduction on the Contract product(s) concurrent with a published price reduction made to other customers. State at its own discretion may accept a price reduction. The price reduction request shall be in writing and include documentation showing the actual reduction of cost. Sales promotions requests shall include difference in pricing, begin, and end date of promotion along with the products covered.

2.5 ADDITIONAL CHARGES:

2.5.1 Any charges or fees not delineated in the Contract may not be added, billed, or invoiced under the Contract.

2.6 TRAVEL.

2.6.1 Contractor shall get written approval prior to any travel under the Contract in which reimbursement of expenses will be requested. Contractor will be reimbursed for actual expenses incurred in accordance with the current rates specified in State's Travel Policy. Contractor shall itemize all per diem and lodging charges. State Travel Policy, including State rates, may be located at https://gao.az.gov/travel . The Eligible Entity / Customer shall reject any claim for travel reimbursement without prior written approval.

3.0 Funding

No particular funding considerations apart from paragraph 4.4 [*Availability of Funds for the Next State fiscal year*] and 4.5 [*Availability of Funds for the current State fiscal year*] of the Uniform Terms and Conditions have been identified as of the Solicitation date.

4.0 Invoicing

4.1 INVOICES GO TO BUYING ENTITY. Contractor shall submit all billing notices or invoices to the ordering Eligible Entity/Customer (e.g. Eligible Agency or Co-Op Buyer) at the address indicated on the applicable Order document or by utilizing the Buying Entity's purchasing tool/process.

4.2 MINIMUM INVOICE REQUIREMENTS. Every invoice must include the following information:

Item	Required
Bill-to name and address	●
Contractor name and contact information	●
Remit-to address	●
State contract number	●
Order number (typically the State's e-Procurement System PO #)	●
Invoice number and date	●
Date the items shipped or services performed	●
Applicable payment terms	●
Contract line item number	●
Contract line item description	●
Quantity delivered or performed	●
Line item unit of measure	●

Item price	●
Extended pricing	●
Discount off list or catalog	●
Taxes *(as a separate invoice line item)*	●
Trip fee (if applicable)	●
Travel (if applicable)	●
Total invoice amount due	●

4.3 NO INVOICE WITHOUT AUTHORIZATION. Contractor shall not seek payment for any:

1. Materials or Services that have not been authorized on an acknowledged Order;
2. Expediting, overtime, premiums, trip fee, travel, or upcharges absent State's express prior approval; or
3. Materials or Services that are the subject of a Contract Amendment that has not been fully signed.

4.4 PRE-INVOICE REVIEW. Shortly before Contractor is scheduled to submit each invoice, the parties' representatives shall meet informally to review any issues relevant to that upcoming invoice so that the formal invoice process is thereby facilitated and made more efficient.

4.5 SUBMITTING INVOICES. Contractor shall submit an invoice to the ordering Eligible Agency or Co-Op Buyer using the form and/or process provided or required by the ordering Eligible Entity/Customer (Eligible Agency or Co-Op Buyer). Every invoice must be signed by Contractor's authorized representative and accompanied by all supporting information and documentation required by the Contract and applicable laws.

4.6 DEFECTIVE INVOICES. Without prejudice to its other rights under the Contract or further obligation to Contractor, the ordering Eligible Entity/Customer (Eligible Agency or Co-Op Buyer) may, at its discretion, reject any materially defective invoice.

4.6.1 The ordering Authorize Entity/Customer (Eligible Agency or Co-Op Buyer) shall notify Contractor within 5 (five) business days after receipt if it determines an invoice to be materially defective.

4.6.2 Invoices will be deemed automatically rejected upon delivery if they:

(a) are sent to an incorrect address;

(b) do not reference the correct State contract number; or

(c) are payable to any Person other than the Contractor.

4.6.3 The ordering Eligible Entity/Customer (Eligible Agency or Co-Op Buyer) will have no obligation to pay against a defective invoice unless and until Contractor has re-submitted it free of defects.

5.0 Payments

5.1 PAYMENT. The applicable Eligible Agency or Co-Op Buyer shall pay undisputed amounts due to Contractor within the time period specified in Section 4.0 Costs and Payments of the Uniform Terms and Conditions

5.2 JOINT CHECKS OR DIRECT PAY. applicable Eligible Agency or Co-Op Buyer may, but is under no obligation to, pay by joint check or to pay directly to any Subcontractor or other creditor to whom any portion of Contractor's requested payment is owed.

5.3 RECOVERY OF OVER-PAYMENT. If applicable Eligible Agency or Co-Op Buyer determines that an over-payment has been made to Contractor on any prior invoice, it shall inform Contractor of the amount and date of the over-payment and may deduct the over-paid amount from amounts then or thereafter due to Contractor.

5.4 PAYMENTS TO SUBCONTRACTORS. Contractor shall make payment of all undisputed amounts due to Subcontractors within thirty (30) days of receipt of funds from applicable Eligible Agency or Co-Op Buyer applicable to their services.

5.5 PURCHASING CARD. Applicable Eligible Agency or Co-Op Buyer may pay invoices for some or all Orders using a purchasing card. Any and all fees related to payment using a Purchasing Card are the responsibility of Contractor. Unless otherwise stated in the Contract there will be no additional fees or increase in prices associated with this method of payment.

5.6 AUTOMATED CLEARING HOUSE. Applicable Eligible Agency or Co-Op Buyer may pay invoices for some or all Orders through an Automated Clearing House (ACH). In order to receive payments in this manner from Eligible Agencies, Contractor must complete an ACH Vendor Authorization Form (form GAO-618) within 30 (thirty) days after the effective date of the Contract. The form is available online at:

https://gao.az.gov/afis/vendor-information

6.0 Exhibits to the Pricing Document

Excel Pricing Spreadsheet attached as a separate document

End of Section Pricing Document

Special Terms and Conditions

The Special Terms and Conditions modify the Uniform Terms and Conditions and its Appendices. It can modify them by replacing, deleting, appending to, or revising the text of an existing provision or by inserting a new paragraph into an existing article. No other document modifies or adds to the Uniform Terms and Conditions, except as may subsequently be otherwise and expressly agreed and incorporated by Contract Amendment.

1.0 Definition of Terms

As used in the Contract, the terms listed below are defined as follows:

1.1 Acceptance

"Acceptance" means the document headed "Offer and Acceptance Form" bearing the State contract number once Procurement Officer has signed it to signify (1) State's formal acceptance of the Accepted Offer and (2) the formation of the Contract. For clarity of intent, the foregoing is not to be confused with the term "acceptance" used throughout the Contract in the context of delivery, inspection, etc., with respect to Materials or Services.

1.2 Accepted Offer

If State did not request a Revised Offer, then "Accepted Offer" means the Initial Offer.

If State did request a Revised Offer but not a Best and Final Offer, then "Accepted Offer" means the latest Revised Offer.

If State requested a Best and Final Offer, then "Accepted Offer" means the Best and Final Offer.

1.3 Arizona Procurement Code; A.R.S.; A.A.C.

"Arizona Procurement Code, "A.R.S.," and "A.A.C." are each defined in the Instructions to Offerors.

1.4 Arizona TPT

"Arizona TPT" means Arizona Transaction Privilege Tax. For information, refer to the Arizona Department of Revenue (DOR) website at:

https://www.azdor.gov/business/transactionprivilegetax.aspx.

1.5 Attachment

"Attachment" means any item that:

1. the Solicitation required Offeror to submit as part of the relevant Offer (e.g., Initial Offer, Revised Offer, or BAFO);
2. was attached to an Offer when submitted; and
3. was included in the Accepted Offer.

1.6 Pricing Document

"Pricing Document" means Pricing Specifications the Solicitation Documents, provided that, if there is no such Section in the Contract, then "Pricing Document" is to be construed as referring to whatever item in the Contract contains the contracted pricing and payment provisions.

1.7 Contract Amendment

"Contract Amendment" means a document signed by Procurement Officer that has been issued for the purpose of making changes to the Contract after execution.

1.8 Contract Terms and Conditions

"Contract Terms and Conditions" means the Special Terms and Conditions and these Uniform Terms and Conditions taken collectively.

1.9 Contractor

"Contractor" means the Person identified on the Accepted Offer who has entered into the Contract with State.

1.10 Contractor Indemnitor

"Contractor Indemnitor" means Contractor or any of its owners, officers, directors, agents, employees, or Subcontractors.

1.11 Co-Op Buyer

"Co-Op Buyer" means a member of the State Purchasing Cooperative that has entered into a "Cooperative Purchasing Agreement" with the Arizona Department of Administration State Procurement Office under A.R.S. § 41-2632. Unless there is an applicable Cooperative Purchasing Agreement in effect at the time, a State Purchasing Cooperative member cannot be a Co-Op Buyer. For reference, "Co-Op Buyer" is to be construed as encompassing "eligible procurement unit" under A.A.C. R2-7-101(23).

NOTE: Membership in the State Purchasing Cooperative is open to all Arizona political subdivisions, including cities, counties, school districts, and special districts. Membership is also

available to non-profit organizations, other state governments, the federal government and tribal nations. For reference, "non-profit organizations" are defined in A.R.S. § 41-2631(4) as any nonprofit corporation as designated by the IRS under section 501(c)(3) through 501(c)(6) of the tax code.

1.12 Eligible Agency

If the Special Terms and Conditions indicates that the Contract is a "single-agency" contract, then "Eligible Agency" means the particular State of Arizona agency, university, commission, or board identified therein. If the Special Terms and Conditions indicates that the Contract is a "statewide" contract, then "Eligible Agency" means any State of Arizona department, agency, university, commission, or board.

1.13 Indemnified Basic Claims

"Indemnified Basic Claims" means any and all claims, actions, liabilities, damages, losses, or expenses, including court costs, attorneys' fees, and costs of claim processing, investigation and litigation, for bodily injury or personal injury, including death, or loss or damage to any real or tangible or intangible personal property, collectively. See paragraph 6.3.

1.14 Instructions to Offerors

"Instructions to Offerors" is Instructions to Offerors of the Solicitation Documents.

1.15 Order

"Order" means the instrument by which State authorizes Contractor to perform some or all of the Work. Whether the Contract will have one Order or many Orders depends the scope of the Contract and how State will use it. The Special Terms and Conditions provide that information. Any of the following is to be construed as being an "Order":

1. "Release" or "Release Purchase Order" in The State's e-Procurement System;
2. "task order", "service order," or "job order" when a Release Purchase Order for Services has already been committed in The State's e-Procurement System; or
3. "purchase order" for buying by Co-Op Buyers, if co-op buying applies.

1.16 The State's e-Procurement System

"The State's e-Procurement System" means State's official electronic procurement system, established pursuant to A.A.C. R2-7-201 as set forth in the Arizona Department of Administration State Procurement Office policy document *Technical Bulletin No. 020, The State's e-Procurement System – The Official State eProcurement System*.

NOTE (1): Technical Bulletin No. 020 is available online at:

https://spo.az.gov/administration-policy/state-procurement-resource/procurement-regulations

1.17 State

With respect to the Contract generally, "State" means the State of Arizona and its department, agency, university, commission, or board that has executed the Contract. With respect to administration or rights, remedies, obligations and duties under the Contract for a given Order, "State" means each of Eligible Agency or Co-Op Buyer who has issued the Order.

1.18 State Indemnitees

"State Indemnitees" means, collectively, the State of Arizona, its departments, agencies, universities, commissions, and boards and, and their respective officers, agents, and employees.

1.19 Subcontractor

"Subcontractor" has the meaning given in A.R.S. § 41-2503(38), which, for convenience of reference only, is "… a person who contracts to perform work or render service to … [C]ontractor or to another [S]ubcontractor as a part of a contract with a state governmental unit . . ."The Contract is to be construed as "a contract with a state governmental unit" for purposes of the definition. For clarity of intent, a Person carrying out any element of the Work is a Subcontractor from the moment they first carry out that element of the Work regardless of whether or not a Subcontract exists then or subsequently.

1.20 Work

"Work" means the totality of the Materials and the Services and all the acts of administration, creation, production, and performance necessary to fulfill and incidental to fulfilling all of Contractor's obligations and duties under the Contract in conformance with the Contract and applicable laws.

2.0 Contract Interpretation

2.1 Usage

Where the Contract:

1. assigns obligations to Contractor, any reference to "Contractor" is to be construed to be a

reference to "Contractor and all Subcontractors, whether they are first-tier subcontractors, sub-subcontractors, suppliers, sub-suppliers, consultants, or sub-consultants, as well as all of Contractor's and the Subcontractors' respective agents, representatives, and employees" in every instance unless the context plainly requires that it is be a reference only to Contractor as apart from Subcontractors;

2. uses the permissive "may" with respect to a party's actions, determinations, etc., the term is to be interpreted as in A.A.C. R2-7-101(31) [*Definitions*]. For clarity of intent, any right given to State using "State may" or a like construction denotes discretion and freedom to act so far as any regulatory or operative constraints permit in the relevant circumstances, provided that: (a) where written "may, at its discretion," the discretion extends to whatever is most advantageous to State; and (b) where written only as "may," the discretion is constrained by what is fair, reasonable, and as accommodating of the respective best interests of both parties as practicable under the circumstances;
3. uses the imperative "shall" with respect to a party's actions, duties, etc., the term is to be interpreted as in A.A.C. R2-7-101(43) [*Definitions*]. Conversely, the phrase "shall not" is to be interpreted as an imperative prohibition.
4. uses the term "must" with respect to a requirement, criterion, etc., the term is to be interpreted as conveying compulsion or strict necessity, and is to be read as though written "*must, if [the subject] is to be entitled to have [the object] considered or credited as being compliant with, conforming to, or satisfying [the requirement, criterion, constraint, etc.], otherwise, [the object] will be considered or debited as being non-compliant, non-conforming, or unsatisfactory for its Contract-related purposes*" in every instance;
5. uses the term "might" with respect to an event, outcome, action, etc., the term is to be interpreted as conveying contingency or non-discretionary conditionality; and
6. uses the term "will" or the phrases "is to be" or "are to be" with respect to an event, outcome, action, etc., the term or phrase is to be interpreted as conveying such certainty or imperativeness that "shall" is either unnecessary or irrelevant in that instance.

2.2 Contract Order of Precedence

COMPLEMENTARY DOCUMENTS. All of the documents forming the Contract are complementary. If certain work, requirements, obligations, or duties are set out only in one but not in another, Contractor shall carry out the Work as though the relevant work, requirements, obligations, or duties had been fully described in all, consistent with the other documents forming the Contract and as is reasonably inferable from them as being necessary to produce complete results.

CONFLICTS. In case of any inconsistency, conflict, or ambiguity among the documents forming the Contract and their provisions, they are to prevail in the following order, descending from most dominate to most subordinate, provided that, among categories of documents or provisions having the same rank, the document or provision with the latest date prevails. Information being identified in one document but not in another is not to be considered a conflict or inconsistency.

(a) Contract Amendments;
(b) the final Solicitation Documents, in the order:
  (1) Special Terms and Conditions;
  (2) Exhibits to the Special Terms and Conditions;
  (3) Uniform Terms and Conditions;
  (4) Scope of Work;
  (5) Exhibits to the Scope of Work;
  (6) Pricing Document;
  (7) Exhibits to the Pricing Document;
  (8) Specifications; and
  (9) any other documents referenced or included in the Solicitation;
(c) Orders, in reverse chronological order; and
(d) Accepted Offer.

ATTACHMENTS AND EXHIBITS. For clarity of intent, if an item was an Attachment in the Solicitation

Documents or an Offer (either Initial, Revised, Best and Final, or Accepted) and was subsequently made into an Exhibit, or its content was incorporated into one of the other Contract documents, then that Attachment no longer exists contractually as an "Attachment" since it has at that point been made into some other Contract document. In every other case, an Attachment and the Offeror data therein remain part of the Accepted Offer for purposes of precedence and contractual effect.

2.3 Independent Contractor

Contractor is an independent contractor and shall act in an independent capacity in performance under the Contract. Neither party is or is to be construed as being to be the employee or agent of the other party, and no action, inaction, event, or circumstance will be grounds for deeming it to be so.

2.4 Complete Integration

The Contract, including any documents incorporated into the Contract by reference, is intended by the parties as a final and complete expression of their agreement. There are no prior, contemporaneous, or additional agreements, either oral or in writing, pertaining to the Contract.

3.0 Contract Administration and Operation

3.1 Term of Contract

The term of the Contract will commence on the date indicated on the Offer and Acceptance and continue for **twelve (12) months unless cancelled, terminated, or permissibly extended**.

3.2 Contract Extensions

State may at its discretion extend the initial Contract term in increments of one or more months and do so one or more times, provided that, the maximum aggregate term of the Contract including extensions cannot exceed the maximum aggregate term of five (5) years.

3.3 Notices and Correspondence

3.3.1 TO CONTRACTOR. State shall:

(a) address all Contract correspondence other than formal notices to the email address indicated as "Default for Type" for "General Mailing Address" in Contractor's corresponding The State's e-Procurement System Vendor Profile; and

(b) address any required notices to Contractor to the "Contact Name and Title" at the "Mailing Address" indicated on the Accepted Offer, as that address might have been amended during the term of the Contract.

3.3.2 TO STATE. Contractor shall :

(a) address all Contract correspondence other than format notices to the email address indicated in "Contact Instructions" in the State's e-Procurement System Summary for State; and

(b) address any required notices to State to Procurement Officer identified as "Purchaser" in the State's e-Procurement System Summary at the following mailing address:

Arizona Department of Administration
General Services Division
1400 W. Washington Street, Suite B200
Phoenix, AZ 85007

3.3.3 CHANGES. State may change the designated Procurement Officer, update contact information, or change the applicable mailing address by Contract Amendment.

3.4 Signing of Contract Amendments

Contractor's counter-signature – or "approval" in The State's e-Procurement System, in the case of an amendment – is not required to give effect if the Contract Amendment only covers either:

1. extension of the term of the Contract within the maximum aggregate term;
2. revision to Procurement Officer appointment or contact information; or
3. modification of a clerical nature that have no effect on terms, conditions, price, scope, or other material aspect of the Contract.

In every case other than those listed in *(1)*, *(2)*, and *(3)* above, both parties' signature – or "approval" in The State's e-Procurement System, in the case of an Amendment – are required to give it effect.

3.5 Click-Through Terms and Conditions

If either party uses a web based ordering system, an electronic purchase order system, an electronic order acknowledgement, a form of an electronic acceptance, or any software based ordering system with respect to the Contract (each an "Electronic Ordering System"), the parties acknowledge and agree that an Electronic Ordering System is for ease of administration only, and Contractor is hereby given notice that the persons using Electronic Ordering Systems on behalf of State do not have any actual or apparent authority to create legally binding obligations that vary from the terms and conditions of the Contract. Accordingly, where an authorized State user is required to "click through" or otherwise accept or be made subject to any terms and conditions in using an Electronic Ordering Systems, any such terms and conditions are deemed void upon presentation. Additionally, where an authorized State user is required to accept or be made subject to any terms and conditions in accessing or employing any Materials or Services, those terms and conditions will also be void.

3.6 Books and Records

3.6.1 RETAIN RECORDS. By A.R.S. § 41-2548(B), Contractor shall retain and shall contractually require each Subcontractor to retain books and records relating for any cost and pricing data submitted in satisfaction of § 41-2543 for the period specified in the statute.

3.6.2 RIGHT TO AUDIT. The retained books and records are subject to audit by State during that period. By A.R.S. § 41-2548(B), Contractor shall retain and shall contractually require each Subcontractor to retain books and records relating to performance under the Contract for the period specified in the statute and those retained books and records are subject to audit by State during that period.

3.6.3 AUDITING. Contractor or Subcontractor shall either make all such books and records under subparagraphs 3.6.1 and 3.6.2 available to State at all reasonable times or produce the records at a designated State office on State's demand, the choice of which being at State's discretion. For the purpose of this paragraph, "reasonable times" are during normal business hours and in such a manner so as to not unreasonably interfere with normal business activities.

3.7 Contractor Licenses

Contractor shall maintain current all federal, state and local licenses and permits required for the operation of its business in general, for its operations under the Contract, and for the Work itself.

3.8 Inspection and Testing

By A.R.S. § 41-2547, State may at reasonable times inspect the part of Contractor's or Subcontractors' plant or places of business related to performance under the Contract. Accordingly, Contractor agrees to permit (for itself) and ensure (for Subcontractors) access for inspection at any reasonable time to its facilities, processes, and services. State may inspect or test, at its own cost, any finished goods, work-in-progress, components, or unfinished materials that are be supplied under the Contract or that will be incorporated into something to be supplied under the Contract. If the inspection or testing shows non-conformance or defects, then Contractor will owe State reimbursement or payment of all costs it incurred in carrying out or contracting for the inspection and testing, as well as for any re-inspection or re-testing that might be necessary. Neither inspection of facilities nor testing of goods, work, components, or unfinished materials will of itself constitute acceptance by State of those things.

3.9 Ownership of Intellectual Property

3.9.1 RIGHTS IN WORK PRODUCT. All intellectual property originated or prepared by Contractor pursuant to the Contract, including but not limited to, inventions, discoveries, intellectual copyrights, trademarks, trade names, trade secrets, technical communications, records reports, computer programs and other documentation or improvements thereto, including Contractor's administrative communications and records relating to the Contract, are considered work product and Contractor's property, provided that, State has Government Purpose Rights to that work product as and when it was delivered to State.

(a) "Government Purpose Rights" are:

i. the unlimited, perpetual, irrevocable, royalty free, non-exclusive, worldwide right to use, modify, reproduce, release, perform, display, sublicense, disclose and create derivatives from that work product without restriction for any activity in which State is a party;

ii. the right to release or disclose that work product to third parties for any State

government purpose; and

iii. the right to authorize those to whom it rightfully releases or discloses that work product to use, modify, release, create derivative works from the work product for any State government purpose; such recipients being understood to include the federal government, the governments of other states, and various local governments.

(b) "Government Purpose Rights" do not include any right to use, modify, reproduce, perform, release, display, create derivative works from, or disclose that work product for any commercial purpose or to authorize others to do so.

3.9.2 JOINT DEVELOPMENTS. The parties may each use equally any ideas, concepts, know-how, or techniques developed jointly during the course of the Contract, and may do so at their respective discretion, without obligation of notice or accounting to the other party.

3.9.3 PRE-EXISTING MATERIAL. All pre-existing software and other materials developed or otherwise obtained by or for Contractor or its affiliates independently of the Contract or applicable Purchase Orders are not part of the work product to which rights are granted State under subparagraph 3.9.1 above, and will remain the exclusive property of Contractor, provided that:

(a) any derivative works of such pre-existing material or elements thereof that are created pursuant to the Contract are part of that work product;

(b) any elements of derivative work of such pre-existing material that was not created pursuant to the Contract are not part of that work product; and

(c) except as expressly stated otherwise, nothing in the Contract is to be construed to interfere or diminish Contractor's or its affiliates' ownership of such pre-existing materials.

3.9.4 DEVELOPMENTS OUTSIDE OF CONTRACT. Unless expressly stated otherwise in the Contract does not preclude Contractor from developing competing materials outside the Contract, irrespective of any similarity to materials delivered or to be delivered to State hereunder.

3.10 Subcontracts

3.10.1 INITIAL LIST. At the time of Contract execution, Contractor's candidate Subcontractors were identified in Attachment 5 to the Accepted Offer [*Proposed Subcontractors*]. Agreeing to them being included in the Accepted Offer signified Procurement Officer's advance consent for Contractor to enter into a Subcontract with each candidate, which Contractor shall do as promptly as necessary to ensure its ability to carry out the Work in a timely manner.

3.10.2 ADDITIONAL NAMES. Contractor shall not enter into a Subcontract without first obtaining Procurement Officer's written consent with any prospective Subcontractor that (a) was not listed on Attachment 5 at time of Contract execution or (b) is for any Materials or Services categories other than the ones for which they were previously consented. For either case *(a)* or *(b)*, Contractor shall submit a written request sufficiently in advance of the need date for those materials or services so that performance under the Contract is not impaired. Procurement Officer may request any additional information he or she determines is necessary to assess the submittal, and may withhold consent pending it.

3.10.3 FLOW-DOWN. Contractor shall incorporate the provisions, terms, and conditions of the Contract into every Subcontract by inclusion or by reference, as appropriate. When making any post-execution consent requests, Contractor shall include its warrant that it will do the same for the pending Subcontracts covered by the request. Entering into Subcontracts will not relieve Contractor of any of its obligations or duties under the Contract, including, among other things, the duty to supervise and coordinate the work of Subcontractors. Nothing contained in any Subcontract will create or is to be construed as creating any contractual relationship between State and the Subcontractor.

3.11 Offshore Performance of Certain Work Prohibited

Contractor shall only perform those portions of the Services that directly serve State or its clients and involve access to secure or sensitive data or personal client data within the defined territories of the United States. Unless specifically stated otherwise in the Scope of Work, this paragraph

does not apply to indirect or overhead services, redundant back-up services, or services that are incidental to performance under the Contract. This provision applies to work performed by Subcontractors at all tiers.

3.12 Orders

3.12.1 ORDER SUFFICIENCY. The Contract was awarded in accordance with the Arizona Procurement Code; the transactions and procedures required by the code for competitive source selection have been met. An Order issued that cites the correct State contract number will suffice to authorize Contractor to provide the Materials and perform the Services covered by that Order.

3.12.2 ORDER TERMS. All Orders are subject to the Contract Terms and Conditions; an Order cannot modify the Contract Terms and Conditions.

3.12.3 ORDERS ARE OBLIGATORY. Until the expiration or earlier termination of the Contract, State may issue and Contractor shall accept Orders that make proper reference to the Contract and are permissible hereunder, provided that, Contractor is not obliged to accept any Order that is not consistent with the then-current pricing, lead times, specifications, or payment provisions of the Contract. Contractor shall fulfill and complete any Orders that are begun but not yet completed as of expiration or earlier termination of the Contract unless State instructs otherwise at the time.

3.12.4 SPECIAL CASE. In the special case where both the following conditions are true, Procurement Officer's signature on the Acceptance is Contractor's authorization to perform and therefore no Order is required: (a) the Contract is identified as being a "single-agency/single-project" contract and (b) the Contract was created in The State's e-Procurement System as something other than a "Master/ Blanket" type.

3.12.5 NO MINIMUMS OR COMMITMENTS. (a) Contractor shall not impose any minimum dollar amount, item count, services volume, or services duration on Orders; (b) State makes no commitment of any kind concerning the quantity or monetary value of activity actually initiated or completed during the term of the Contract; (c) Contractor shall only deliver or perform as authorized by Orders; and (d) State is not limited as to the number of Orders it may issue for the Contract. For clarity of intent, the foregoing applies equally whether an Eligible Agency issues the Order or, if applicable, a Co-Op Buyer issues it.

3.12.6 NON-CONTRACTED MATERIALS OR SERVICES. Any attempt to knowingly represent for sales, marketing, or related purposes that goods or services not specifically awarded are under a State contract is a violation of the Contract and law.

3.13 Provisions for Statewide Contracts:
- **Co-Op Usage**
- **Eligible Agencies**
- **Quarterly Reporting**

The Contract is a "statewide" contract for multiple purchases, projects, or assignments, and can be purchased against by some or all Eligible Agencies and any Co-Op Buyers that elect to participate. Even if only one Eligible Agency needs or elects to purchase against the Contract, it is to be construed as being a "statewide" contract hereunder.

The Contract is an indefinite delivery, indefinite quantity (ID/IQ) type of contract; it is to be construed as a "delivery order" sub-type of ID/IQ contract to the extent the Work is Materials, and a "task order" sub-type to the extent the Work is Services.

Co-Op Usage

1. Contractor shall verify if an ordering entity is a bona fide Co-Op Buyer before selling Materials to or providing Services for them under the Contract. The current list of Co-Op Buyers is available on the State Procurement Office website:

   https://spo.az.gov/procurement-services/cooperative-procurement/state-purchasing-cooperative

2. Contractor shall sell to Co-Op Buyers at the same price and on the same lead times and other terms and conditions under which it sells to Eligible Agencies, with the sole exception of any legitimately additional costs for extraordinary shipping or delivery requirements if the Co-Op Buyer is having Materials delivered or installed or Services performed at locations not contemplated in the contracted pricing (e.g. delivery to a location outside Arizona).
3. Contractor shall pay State an administrative fee against all Contract sales to Co-Op Buyers, as provided for under A.R.S. § 41-2633. The fee rate is one (1%) percent. Failure to remit the administrative fees is a material breach of contract, and will entitle State to its remedies under Article 8 and its right to terminate for default under Article 9. Method of calculation,

payment procedures, and other details are provided on the State Procurement Office website:

https://spo.az.gov/contractor-resources/statewide-contracts-administrative-fee

4. Contractor shall acknowledge each Order from Co-Op Buyers in conformance with each buyer's instructions given at the time of ordering or in any supplemental participating agreement Contractor might have with them. Orders from Co-Op Buyers create no obligation on State's part, since they are entirely between the Co-Op Buyer and Contractor. That notwithstanding, Contractor's obligation under the Contract is to service Co-Op Buyers commercially as though they were with an Eligible Agency, and Contractor's refusal to do so would be a material breach of the Contract.

Eligible Agencies – Orders

Contractor shall acknowledge each Order from Eligible Agencies within 1 (one) business day after receipt by either:

(a) "Approving" the Order electronically in The State's e-Procurement System, which will indicate Contractor's unqualified acceptance of the Order as-issued; or,

(b) "Rejecting" the Order electronically in The State's e-Procurement System, with a concurrent explanation by email to relevant originator as to the reason for rejecting it. By way of reminder, the only grounds on which Contractor may reject or refuse an Order are those set out in subparagraph 3.14.3 (Orders are Obligatory).

Unless and until Contractor has approved the Order in the State's e-Procurement System, it will have no effect under the Contract and will not oblige either State or Contractor. If the relevant Eligible Agency explicitly instructs at the time that a verbal acceptance is sufficient because of urgency or other unusual circumstances and Contractor duly gives its verbal acceptance, then Contractor will be deemed to have accepted the Order immediately upon commencing performance, provided that, Contractor must follow-up its verbal acceptance by accepting the Purchase Order electronically In The State's e-Procurement System within three (3) business days. Contractor shall thereafter be barred from subsequently rejecting the Order in The State's e-Procurement System and if it does so the rejection will be void.

Quarterly Usage Reports

Contractor shall submit to State a *Quarterly Usage Report* documenting all Contract sales to both Eligible Agencies and Co-Op Buyers, itemized separately. A *Quarterly Usage Report* shall still be submitted, even if there have been no sales to either Eligible Agencies and/or Co-Op Buyers. Contractor shall further itemize divisions, groups or areas within a given Eligible Agency if they place Orders independently of each other. Failure to submit the report is a material breach of contract, and will entitle State to its remedies under Article 8 and its right to terminate for default under Article 9. Contractor shall submit the report using the forms and following the instructions on the State Procurement Office website:

https://spo.az.gov/contractor-resources/statewide-contracts-administrative-fee

3.14 Multiple-Use Provisions

Eligible Agencies may issue Orders for Services in several forms, all of which become final and effective by a "Release Purchase Order" in The State's e-Procurement System. Orders issued by Co-Op Buyers will be in whatever form the Co-Op Buyer normally uses. Regardless of origin, Orders must cite the State contract number to be valid. State may, at its discretion in each instance, determine the scope, schedule, and price for each Order in any of the following ways:

1. By choosing some or all of the Materials or Services items covered by the Contract for which a price is established in the Pricing Document, then preparing an Order using those prices (e.g., filling out an order form), and sending it to Contractor.
2. By instructing Contractor to provide a comprehensive proposal of item quantities, combinations, etc., or services hours, personnel, etc., for a defined scope using those established prices as a basis, then validating and negotiating the proposal with Contractor and issuing an Order if and when reaching agreement.
3. As described in *(2)* above but requesting the proposal from both Contractor and other

vendors who are contracted within the applicable scope categories and locations, either sequentially or concurrently, then selecting the proposal or proposals combination that is most advantageous to State.

4. As described in *(3)* above but introducing ad-hoc commercial competition by making the selection and ordering conditional on obtaining more favorable prices than the contractually-established ones.

When evaluating the proposals under *(3)* and *(4)* above, State may select based on price (for example, a quoted number of hours times the contracted or improved rate plus a fixed amount for incidentals), by experience and qualifications (for example, having an office nearer the required work location), or whatever combination thereof it determines is most appropriate to the work in question.

3.15 Other Contractors

State may undertake with its own forces or award other contracts to the same or other vendors for additional or related work. In such cases, Contractor shall cooperate fully with State's employees and such other vendors and carefully coordinate, fit, connect, accommodate, adjust, or sequence its work to the related work by others. Where the Contract requires handing-off Contractor's work to others, Contractor shall cooperate as State instructs regarding the necessary transfer of its work product, services, or records to State or the other vendors. Contractor shall not commit or permit any act that interferes with the State's or other vendors' performance of their work, provided that, State shall enforce the foregoing section equitably among all its vendors so as not impose an unreasonable burden on any one of them.

3.16 Work on State Premises

3.16.1 COMPLIANCE WITH RULES. Contractor is responsible for ensuring that its personnel comply with State's rules, regulations, policies, documented practices, and documented operating procedures while delivering or installing Materials or performing Services on State's grounds or in its facilities. For clarity of intent, the foregoing means that if Contractor is required to comply with certain security requirements in order to deliver, install, or perform at that particular location, then it shall do so nonetheless and without entitlement to any additional compensation or additional time for performance if those particular requirements are not expressly stated in the Contract. Contractor is reminded that violation of the prohibition under A.R.S. § 13-1502 against possession of weapons on State's property by anyone for whom Contractor is responsible is a material breach of contract and grounds for termination for default.

3.16.2 PROTECTION OF GROUNDS AND FACILITIES. Contractor shall deliver or install the Materials and perform the Services without damaging any State grounds or facilities. Contractor shall repair or replace any damage it does cause promptly and at its own expense, subject to whatever instructions and restrictions State needs to make to prevent inconvenience or disruption of operations. If Contractor fails to make the necessary repairs or replacements and do so in a timely manner, State will be entitled to exercise its remedies under paragraph 8.5 [*Right of Offset*].

4.0 Costs and Payments

4.1 Payments

4.1.1 PAYMENT DEADLINE. State shall make payments in compliance with Arizona Revised Statues Titles 35 and 41. Unless and then only to the extent expressly stated otherwise in the Pricing Document, State shall make payment in full for Materials that have been delivered and accepted and Services that have been performed and accepted within the time specified in A.R.S. § 35-342 after both of the following become true: (a) all of the Materials being invoiced have been delivered or installed (as applicable) and accepted and all of the Services being invoiced have been performed and accepted; and (b) Contractor has provided a complete and accurate invoice in the form and manner called for in the Pricing Document, provided that, State will not make or be liable for any payments to Contractor until Contractor has registered properly in The State's e-Procurement System and provided a current IRS Form W-9 to State unless excused by law from providing one.

4.1.2 PAYMENTS ONLY TO CONTRACTOR. Unless compelled otherwise by operation of law or order of a court of competent jurisdiction, State will only make payment to Contractor under the federal tax identifier indicated on the Accepted Offer.

4.2 Applicable Taxes

4.2.1 CONTRACTOR TO PAY ALL TAXES. State is subject to Arizona TPT. Therefore, Arizona TPT applies to all sales under the Contract and Arizona TPT is Contractor's responsibility (as seller) to remit. Contractor's failure to collect Arizona TPT or any other applicable sales or use taxes from an Eligible Agency or Co-Op Buyer (as buyer) will not relieve Contractor of any obligation to remit sales or use taxes that are due under the Contract or laws. Unless stated otherwise in the Pricing Document, all prices therein include Arizona TPT as well as every other manner of transaction privilege or sales/use tax that is due to a municipality or another state or its political subdivisions. Contractor shall pay all federal, state, and local taxes applicable to its operations and personnel.

4.2.2 TAX INDEMNITY. Contractor shall hold State harmless from any responsibility for taxes or contributions, including any applicable damages and interest, that are due to federal, state, and local authorities with respect to the Work and the Contract, as well any related costs; the foregoing expressly includes Arizona TPT, unemployment compensation insurance, social security, and workers' compensation insurance.

5.0 Contract Changes

5.1 Contract Amendments

The Contract is issued for State under the authority of Procurement Officer. Only a Contract Amendment can modify the Contract, and then only if it does not change the Contract's general scope. Purported changes to the Contract by a person not expressly authorized by Procurement Officer or made unilaterally by Contractor will be void and without effect; Contractor will not be entitled to any claim made under the Contract based on any such purported changes.

5.2 Assignment and Delegation

5.2.1 IN WHOLE. Contractor shall not assign in whole its rights or delegate in whole its duties under the Contract without Procurement Officer's prior written consent, which consent Procurement Officer may withhold at his or her discretion. If Contractor's proposed assignment or delegation stems from a split, sale, acquisition, or other non-merger change in control, then no such consent will be given in any event without the assignee or delegate giving State satisfactory and equivalent evidence or assurance of its financial soundness, competency, capacity, and qualification to perform as that which Contractor possessed when State first awarded it the Contract.

5.2.2 IN PART. Subject to paragraph 3.10 [*Subcontracts*] with respect to subcontracting, Contractor may assign particular rights or delegate particular duties under the Contract, but shall obtain Procurement Officer's written consent before doing so. Procurement Officer shall not unreasonably withhold consent so long as the proposed assignment or delegation does not attempt to modify the Contract in any way or to alter or impair State's rights or remedies under the Contract or laws.

6.0 Risk and Liability

6.1 Risk of Loss

Contractor shall bear all risk of loss to Materials while in pre-production, production, storage, transit, staging, assembly, installation, testing, and commissioning, if and as those duties are within the scope of the Work, until they have been accepted as conforming by State in the particular location and situation specified in the Order, or as specified generally elsewhere in the Contract if the Order does not provide particulars, provided that, risk of loss for nonconforming Materials will remain with Contractor notwithstanding acceptance to the extent the loss stems from the nonconformance.

6.2 Contractor Insurance

Contractor and subcontractors shall procure and maintain until all of their obligations have been discharged, including any warranty periods under this Contract, are satisfied, insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors.

The insurance requirements herein are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract. The State of Arizona in no way warrants that the minimum limits contained herein are sufficient to protect the Contractor from liabilities that might arise out of the performance of the work under this contract by the Contractor, its agents, representatives, employees or subcontractors, and Contractor is free to purchase

additional insurance.

MINIMUM SCOPE AND LIMITS OF INSURANCE: Contractor shall provide coverage with limits of liability not less than those stated below.

1. Commercial General Liability (CGL) – Occurrence Form

Policy shall include bodily injury, property damage personal injury and broad form contractual liability coverage

General Aggregate	$2,000,000
Products – Completed Operations Aggregate	$1,000,000
Personal and Advertising Injury	$1,000,000
Damage to Rented Premises	$ 50,000
Each Occurrence	$1,000,000

a. The policy shall be endorsed, as required by this written agreement, to include the State of Arizona, and its departments, agencies, boards, commissions, universities, officers, officials, agents, and employees as additional insureds with respect to liability arising out of the activities performed by or on behalf of the Contractor.

b. Policy shall contain a waiver of subrogation endorsement, as required by this written agreement, in favor of the State of Arizona, and its departments, agencies, boards, commissions, universities, officers, officials, agents, and employees for losses arising from work performed by or on behalf of the Contractor.

2. Business Automobile Liability

Bodily Injury and Property Damage for any owned, hired, and/or non-owned vehicles used in the performance of this Contract.

Combined Single Limit (CSL)	$1,000,000

a. Policy shall be endorsed, as required by this written agreement, to include the State of Arizona, and its departments, agencies, boards, commissions, universities and its officers, officials, agents, and employees as additional insureds with respect to liability arising out of the activities performed by, or on behalf of, the Contractor, involving automobiles owned, leased, hired and/or non-owned by the Contractor.

b. Policy shall contain a waiver of subrogation endorsement as required by this written agreement in favor of the State of Arizona, and its departments, agencies, boards, commissions, universities, officers, officials, agents, and employees for losses arising from work performed by or on behalf of the Contractor.

3. Worker's Compensation and Employers' Liability

Workers' Compensation……	Statutory
Each Accident	$1,000,000
Disease – Each Employee	$1,000,000
Disease – Policy Limit	$1,000,000

a. Policy shall contain a waiver of subrogation endorsement as required by this written agreement in favor of the State of Arizona, and its departments, agencies, boards, commissions, universities, officers, officials, agents, and employees for losses arising from work performed by or on behalf of the Contractor.

b. This requirement shall not apply to each Contractor or subcontractor that is exempt under A.R.S. 23-901, and when such contractor or subcontractor executes the appropriate waiver form (Sole Proprietor/Independent Contractor).

4. Professional Liability (Errors and Omissions Liability)

Each Claim	$ 2,000,000

Annual Aggregate	$ 2,000,000

a. If SAM coverage is being provided under this policy then Contractor must provide the following statement on their Certificate(s) of Insurance: "Sexual Abuse and Molestation coverage is included" or "Sexual Abuse and Molestation coverage is not excluded." This coverage may be sub-limited to no less than $500,000.

SAM coverage is required only if Contractor's services involve working with, or caring for, children and/or vulnerable adults ("Vulnerable Adults" means physically and developmentally disabled adults or inmates that are in the care, custody, and control of the State of Arizona).

b. In the event that the Professional Liability insurance required by this Contract is written on a claims-made basis, the Contractor warrants that any retroactive date under the Policy shall precede the effective date of this Contract; and, either continuous coverage will be maintained or an extended discovery period will be exercised, for a period of two (2) years beginning at the time work under this Contract is completed.

c. The Policy shall cover professional misconduct or lack of ordinary skill for those positions defined in the Scope of Work of this Contract.

5. Technology Errors & Omissions Insurance – *Required as applicable to the services provided*.

Each Claim	$ 2,000,000
Annual Aggregate	$ 2,000,000

a. Such insurance shall cover any, and all errors, omissions, or negligent acts in the delivery of products, services, and/or licensed progrms under this contract.

b. Coverage shall include copyright infringement, infringement of trade dress, domain name, title or slogan.

c. In the event that the Tech E&O insurance required by this Contract is written on a claims-made basis, Contractor warrants that any retroactive date under the policy shall precede the effective date of this Contract and, either continuous coverage will be maintained or an extended discovery period willb e exercised for a period of two (2) years, beginning at the time work under this Contract is completed.

d. Technology Errors and Omissions insurance coverage shall only be required from each Contractor or subcontractor who is providing one of the following Training Delivery Formats:

1. Computer Based training (CBT) and/or
2. E-Learning (E).

6. Network Security (Cyber) and Privacy Liability – *Required as applicable to the services provided*.

Each Claim	$ 2,000,000
Annual Aggregate	$ 2,000,000

a. Such insurance shall include, but not be limited to, coverage for third party claims and losses with respect to network risks (such as data breaches, unauthorized access or use, ID theft, theft of data) and invasion of privacy regardless of the type of media involved in the loss of private information, crisis management and identity theft response costs. This should also include breach notification costs, credit remediation and credit monitoring, defense and claims expenses, regulatory defense costs plus fines and penalties, cyber extortion, computer program and electronic data restoration expenses coverage (data asset protection), network business interruption, computer fraud coverage, and funds transfer loss.

b. In the event that the Network Security and Privacy Liability insurance required by this Contract is written on a claims-made basis, Contractor warrants that any retroactive date under the policy shall precede the effective date of this Contract and, either continuous coverage will be maintained, or an extended discovery

period will be exercised for a period of two (2) years beginning at the time work under this Contract is completed.

c. The policy shall be endorsed, as required by this written agreement, to include the State of Arizona, and its departments, agencies, boards, commissions, universities, officers, officials, agents, and employees as additional insureds with respect to vicarious liability of the insured arising out of the activities performed by or on behalf of the Contractor.

d. Policy shall contain a waiver of subrogation endorsement, as required by this written agreement, in favor of the State of Arizona, and its department, agencies, boards, commissions, universities, officers, officials, agents, and employees for losses arising from work performed by or on behalf of the Contractor.

e. Network Security (Cyber) and Privacy Liability coverage shall only be required from each Contractor or subcontractor who is providing one of the following Training Delivery Formats:

1. Computer Based training (CBT) and/or
2. E-Learning (E).

ADDITIONAL INSURANCE REQUIREMENTS: The policies shall include, or be endorsed to include, the following provisions:

1. The Contractor's policies, as applicable, shall stipulate that the insurance afforded the Contractor shall be primary and that any insurance carried by the Department, its agents, officials, employees or the State of Arizona shall be excess and not contributory insurance, as provided by A.R.S. § 41-621 E
2. Insurance provided by the Contractor shall not limit the Contractor's liability assumed under the indemnification provisions of this Contract.

NOTICE OF CANCELLATION: Applicable to all insurance policies required within the Insurance Requirements of this Contract, Contractor's insurance shall not be permitted to expire, be suspended, be canceled, or be materially changed for any reason without thirty (30) days prior written notice to the State of Arizona. Within two (2) business days of receipt, Contractor must provide notice to the State of Arizona if they receive notice of a policy that has been or will be suspended, canceled, materially changed for any reason, has expired, or will be expiring. Such notice shall be sent directly to the Department and shall be mailed, emailed, hand delivered or sent by facsimile transmission to State Procurement Office.

ACCEPTABILITY OF INSURERS: Contractor's Insurance shall be placed with companies licensed in the State of Arizona or hold approved non-admitted status on the Arizona Department of Insurance List of Qualified Unauthorized Insurers. Insurers shall have an "A.M. Best" rating of not less than A- VII. The State of Arizona in no way warrants that the above-required minimum insurer rating is sufficient to protect the Contractor from potential insurer insolvency.

VERIFICATION OF COVERAGE: Contractor shall furnish the State of Arizona with certificates of insurance (valid ACORD form or equivalent approved by the State of Arizona) evidencing that Contractor has the insurance as required by this Contract. An authorized representative of the insurer shall sign the certificates.

All such certificates of insurance and policy endorsements must be received by the State before work commences. The State's receipt of any certificates of insurance or policy endorsements that do not comply with this written agreement shall not waive or otherwise affect the requirements of this agreement.

Each insurance policy required by this Contract must be in effect at, or prior to , commencement of work under this Contract. Failure to maintain the insurance policies as required by this Contract, or to provide evidence of renewal, is a material breach of contract.

All such certificates required by this Contract shall be sent directly to the Arizona State Procurement Office. The State of Arizona project/contract number and project description shall be noted on the certificate of insurance. The State of Arizona reserves the right to require complete, certified copies of all insurance policies required by this Contract at any

time.

SUBCONTRACTORS: Contractors' certificate(s) shall include all subcontractors as insured under its policies or Contractor shall be responsible for ensuring and/or verifying that all subcontractors have valid and collectable insurance as evidenced by the certificates of insurance and endorsements for each subcontractor. All coverages for subcontractors shall be subject to the minimum Insurance Requirements identified above. The Department reserves the right to require, at any time throughout the life of this contract, proof from the Contractor that its subcontractors have the required coverage.

APPROVAL and MODIFICATIONS: The Contracting Agency, in consultation with State Risk, reserves the right to review or make modifications to the insurance limits, required coverages, or endorsements throughout the life of this contract, as deemed necessary. Such action will not require a formal Contract amendment but may be made by administrative action.

EXCEPTIONS: In the event the Contractor or sub-contractor(s) is/are a public entity, then the Insurance Requirements shall not apply. Such public entity shall provide a Certificate of self-insurance. If the Contractor or sub-contractor(s) is/are a State of Arizona agency, board, commission, or university, none of the above shall apply.

6.3 Indemnification

To the fullest extent permitted by law, Contractor shall defend, indemnify, and hold harmless the State of Arizona, and its departments, agencies, boards, commissions, universities, officers, officials, agents, and employees (hereinafter referred to as "Indemnitee") from and against any and all claims, actions, liabilities, damages, losses, or expenses (including court costs, attorneys' fees, and costs of claim processing, investigation and litigation) (hereinafter referred to as "Claims") for bodily injury or personal injury (including death), or loss or damage to tangible or intangible property caused, or alleged to be caused, in whole or in part, by the negligent or willful acts or omissions of Contractor or any of its owners, officers, directors, agents, employees or subcontractors. This indemnity includes any claim or amount arising out of, or recovered under, the Workers' Compensation Law or arising out of the failure of such Contractor to conform to any federal, state, or local law, statute, ordinance, rule, regulation, or court decree. It is the specific intention of the parties that the Indemnitee shall, in all instances, except for Claims arising solely from the negligent or willful acts or omissions of the Indemnitee, be indemnified by Contractor from and against any and all claims. It is agreed that Contractor will be responsible for primary loss investigation, defense, and judgement costs where this indemnification is applicable. In consideration of the award of this contract, the Contractor agrees to waive all rights of subrogation against the State of, its officers, officials, agents, and employees for losses arising from the work performed by the Contractor for the State of Arizona. This indemnification will survive the termination of the above listed contract with the Contractor.

This indemnity shall not apply if the Contractor or sub-contractor(s) is/are an agency, board, commission or university of the State of Arizona.

6.4 Patent and Copyright Indemnification

CONTRACTOR/VENDOR (NOT PUBLIC AGENCY). With respect to Materials or Services provided or proposed by a Contractor Indemnitor for performance under the Contract, Contractor shall indemnify, defend and hold harmless State Indemnitees against any third-party claims for liability, costs, and expenses, including, but not limited to reasonable attorneys' fees, for infringement or violation of any patent, trademark, copyright, or trade secret by the Materials and the Services. With respect to the defense and payment of claims under this subparagraph:

1. State shall provide reasonable and timely notification to Contractor of any claim for which Contractor may be liable under this paragraph;
2. Contractor, with reasonable consultation from State, shall have control of the defense of any action on an indemnified claim including all negotiations for its settlement or compromise;
3. State may elect to participate in such action at its own expense; and
4. State may approve or disapprove any settlement or compromise, provided that, (i) State shall not unreasonably withhold or delay such approval or disapproval and (ii) State shall cooperate in the defense and in any related settlement negotiations.

If Contractor is a public agency, this paragraph 6.4 does not apply.

6.5 Force Majeure

6.5.1 DEFINITION. For this paragraph, "force majeure" means an occurrence that is (a) beyond the control of the affected party, (b) occurred without the party's fault or negligence, and (c) something the party was unable to prevent by exercising reasonable diligence. Without limiting the generality of the foregoing, force majeure expressly includes acts of God, acts of the public enemy, war, riots, strikes, mobilization, labor disputes, civil disorders, fire, flood, lockouts, injunctions-intervention-acts, failures or refusals to act by government authorities, and, subject to paragraph 7.66 [*Performance in Public Health Emergency*], declared public health emergencies. Force majeure expressly does not include late delivery caused by congestion at a manufacturer's plant or elsewhere, an oversold condition of the market, late performance by a Subcontractor unless the delay arises out of an occurrence of force majeure, or inability of either Contractor or any Subcontractor to acquire or maintain any required insurance, bonds, licenses, or permits.

6.5.2 RELIEF FROM PERFORMANCE. Except for payment of sums due, the parties are not liable to each other if an occurrence of force majeure prevents its performance under the Contract. If either party is delayed at any time in the progress of their respective performance under the Contract by an occurrence of force majeure, the delayed party shall notify the other no later than the following working day after the occurrence, or as soon as it could reasonably have been expected to recognize that the occurrence had effect in cases where the effects were not readily apparent. In any event, the notice must make specific reference to this paragraph specifying the causes of the delay in the notice and, if the effects of the occurrence are on-going, provide an initial notification and thereafter the delayed party shall provide regular updates until such time as the effects are fully known. To the extent it is able, the delayed party shall cause the delay to cease promptly and notify the other party when it has done so. The parties shall extend the time of completion by Contract Amendment for a period equal to the time that the results or effects of the delay prevented the delayed party from performing.

6.5.3 EXCUSABLE DELAY IS NOT DEFAULT. Failure in performance by either party will not constitute default hereunder or give rise to any claim for damages or loss of anticipated profits if and to the extent that such failure was or is being caused by an occurrence of force majeure.

6.5.4 DEFAULT DIMINISHES RELIEF. Entitlement to relief from the effects of an occurrence of force majeure is diminished to the extent that the delay did or will result from the affected party's default unrelated to the occurrence, in which case and to that extent the other party's normal remedies and the affected party's obligations would apply undiminished.

6.6 Third Party Antitrust Violations

Contractor assigns to State any claim for overcharges resulting from antitrust violations to the extent that those violations concern materials or services supplied by third parties to Contractor toward fulfillment of the Contract.

7.0 Warranties

7.1 Conformity to Requirements

Contractor warrants that, unless expressly provided otherwise elsewhere in the Contract, the Materials and Services will for 1 (one) year after acceptance and in each instance: (1) conform to the requirements of the Contract, which by way of reminder include without limitation all descriptions, specifications, and drawings identified in the Scope of Work and any Contractor affirmations included as part of the Contract; (2) be free from defects of material and workmanship; (3) conform to or perform in a manner consistent with current industry standards; and (4) be fit for the intended purpose or use described in the Contract. Mere delivery or performance does not substitute for express acceptance by State. Where inspection, testing, or other acceptance assessment of Materials or Services cannot be done until after installation, the forgoing warranty will not begin until State's acceptance.

7.2 Contractor Personnel

Contractor warrants that its personnel will perform their duties under the Contract in a professional manner, applying the requisite skills and knowledge, consistent with industry standards, and in accordance with the requirements of the Contract. Contractor further warrants that its key personnel will maintain any certifications relevant to their work, and Contractor shall provide individual evidence of certification to State's authorized representatives upon request.

7.3 Intellectual Property

Contractor warrants that the Materials and Services do not and will not infringe or violate any patent, trademark, copyright, trade secret, or other intellectual property rights or laws, except only to the extent the Specifications do not permit use of any other product and Contractor is not and cannot reasonably be expected to be aware of the infringement or violation.

7.4 Licenses and Permits

Contractor warrants that it will maintain all licenses required under paragraph 3.7 [*Contractor Licenses*] and all required permits valid and in force.

7.5 Operational Continuity

Contractor warrants that it will perform without relief notwithstanding being sold or acquired; no such event will operate to mitigate or alter any of Contractor's duties hereunder absent a consented delegation under paragraph 5.3 [*Assignment and* Delegation] that expressly recognizes the event.

7.6 Performance in Public Health Emergency

Contractor warrants that it will:

1. have in effect promptly after commencement a plan for continuing performance in the event of a declared public health emergency that addresses, at a minimum: (a) identification of response personnel by name; (b) key succession and performance responses in the event of sudden and significant decrease in workforce; and (c) alternative avenues to keep sufficient product on hand or in the supply chain; and
2. provide a copy of its current plan to State within 3 (three) business days after State's written request. If Contractor claims relief under paragraph 6.5 [*Force Majeure*] for an occurrence of force majeure that is a declared public health emergency, then that relief will be conditioned on Contractor having first implemented its plan and exhausted all reasonable opportunity for that plan implementation to overcome the effects of that occurrence, or mitigate those effects to the extent that overcoming entirely is not practicable.

For clarification of intent, being obliged to implement the plan is not of itself an occurrence of force majeure, and Contractor will not be entitled to any additional compensation or extension of time by virtue of having to implement it. Furthermore, failure to have or implement an appropriate plan will be a material breach of contract.

7.7 Lobbying

7.7.1 PROHIBITION.

(a) Contractor warrants that:

i. it will not engage in lobbying activities, as defined in 40 CFR part 34 and A.R.S. § 41-1231, et seq., using monies awarded under the Contract, provided that, the foregoing does not intend to constrain Contractor's use of its own monies or property, including without limitation any net proceeds duly realized under the Contract or any value thereafter derived from those proceeds; and

ii. upon award of the Contract, it will disclose all lobbying activities to State to the extent they are an actual or potential conflict of interest or where such activities could create an appearance of impropriety.

(b) Contractor shall implement and maintain adequate controls to assure compliance with *(a)* above.

(c) Contractor shall obtain an equivalent warranty from all Subcontractors and shall include an equivalent no-lobbying provision in all Subcontracts.

7.7.2 EXCEPTION. This paragraph does not apply to the extent that the Services are defined in the Contract as being lobbying for State's benefit or on State's behalf.

7.8 Survival of Warranties

All representations and warrants made by Contractor under the Contract will survive the expiration or earlier termination of the Contract.

8.0 State's Contractual Remedies

No modifications to uniform terms and conditions section

9.0 Contract Termination

No modifications to uniform terms and conditions section

10.0 Contract Claims

10.1 Claim Resolution

Notwithstanding any law to the contrary, all contract claims or controversies under the Contract are to be resolved according to Arizona Revised Statutes Title 41, Chapter 23, Article 9, and rules adopted thereunder, including judicial review under A.R.S. § 12-1518.

10.2 Mandatory Arbitration

In compliance with A.R.S. § 12-1518, the parties agree to comply in a judicial review proceeding with any applicable, mandatory arbitration requirements.

11.0 General Provisions for Materials

11.1 Applicability

Article 11 applies to the extent the Work is or includes Materials.

11.2 Off-Contract Materials

Contractor shall ensure that the design and/or procedures for the Materials ordering method prevents Orders for off-contract items or excluded items. Notwithstanding that State might have its own internal administrative rules regarding off-contract or excluded item ordering, and endeavors to prevent such orders from occurring, Contractor is responsible for not accepting any such Orders, State may, at its discretion, return any such items under subparagraph 11.17 or cancel any such Order under subparagraph 11.18, n either case being without obligation and at Contractor's expense. As used above, "off-contract item" refers to any product not included in the scope of the Contract and for which no price or compensation has been established contractually, and "excluded item" refers to any product expressly stated in the Contract as being excluded from the Contract.

11.3 Compensation for Late Deliveries

Contractor shall have clear, published policies in place regarding late delivery, order cancelation, discounts, or rebates given to compensate for late deliveries, etc., and make them readily available to those Eligible Agencies, and Co-Op Buyers if applicable, that are likely to need them

11.4 Indicate Shipping Costs on Order

Contractor shall identify and provide the required substantiating documentation for the amount it intends to add for shipping in the Order acknowledgment if shipping is additional to the contracted price or rate for an item; otherwise, Contractor shall indicate that shipping is included in the Order price (in other words, every Order must indicate clearly whether or not shipping is included in the Order price, and if not included, how much is to be added and why that amount is the correct or appropriate one)

11.5 Current Products

Contractor shall keep all products being offered under the Contract: (a) in current and ongoing production; (b) in its advertised product lines; (c) as models or types that are actively functioning in other paying customer environments; and (d) in conformance to the requirements of the Contract

11.6 Maintain Comprehensive Selection

Contractor shall provide at all times the comprehensive selection of products for which a price is established in the Commercial Document for ordering by Eligible Agencies, and Co-Op Buyers if applicable.

11.7 Additional Products

State, at its discretion, may modify the scope of the Contract by Contract Amendment to include additional products or product categories so long as they are within the general scope of the ones originally covered by the Contract. Once the Contract Amendment has been fully executed, Contractor shall then update all applicable catalogs and price lists and make them available to all affected entities at no additional cost. Either party may make the request to add products to the Contract; regardless of who makes the request, the parties shall negotiate in good faith a fair price for any additional products, but State may elect not to add some or all of the products in question if no agreement is reached on pricing in a timely manner. Contractor's request or proposal in response to State's request must include: (a) documentation demonstrating that the additional products meet or exceed the specifications for the original products while remaining in the same product groups as the original ones; and (b) documentation demonstrating that the proposed price for the additional products is both fair and reasonable and at the same level of discount relative to market price as were the original ones. Demonstration of *(b)* typically requires showing how prices at which sales are currently or were last made to a significant number of buyers compare to the prices or discounts (as applicable) being proposed for the additional products

11.8 Discounted

If a product or groups of products covered by the Contract are discontinued by the manufacturer,

Products

Contractor shall notify State within 5 (five) business days after receiving the manufacturer's notification. State, at its discretion, will either allow Contractor to provide substitutes for the discontinued products or delete the products from the scope of the Contract, both of which will be accomplished by Contract Amendment. Contractor shall then update all applicable catalogs and price lists and make them available to all affected entities at no additional cost. The parties shall negotiate in good faith a fair price for any substitute product, but State may elect to delete the products from the scope of the Contract if no agreement is reached on substitute pricing in a timely manner. When notifying State of the discontinuance, Contractor shall provide: (a) manufacturer's announcement or documentation stating that the products have been discontinued, with identification by model/part number; (b) documentation demonstrating that the substitute products meet or exceed the specifications for the discontinued products while remaining in the same product groups as were the discontinued ones; and (c) documentation demonstrating that the proposed price for the substitute products is both fair and reasonable and at the same level of discount relative to market price as were the discontinued ones.

11.9 Forced Substitutes

Forced substitutions will not be permitted; Contractor shall obtain State's prior written consent before making any discretionary substitution for any product covered by the Contract.

11.10 Recalls

In the event of a recall notice, technical service bulletin, or other important notification affecting a product offered under the Contract (collectively, "recalls" hereinafter), Contractor shall send timely notice to State for each applicable Order referencing the affected Order and product. Notwithstanding whatever protection Contractor might have under A.R.S. § 12-684 with respect to a manufacturer, Contractor shall handle recalls entirely and without obligation on State's part, other than to permit removal of installed products, retrieval of stored products, etc., as necessary to implement the recall

11.11 Delivery

11.11.1 PRICING. Unless stated otherwise in the Commercial Document, all Materials prices set forth therein are FCA (seller's dock) Incoterms®2010, with "seller's dock" meaning the last place of manufacturing, assembly, integration, final packing, or warehousing before departure to designated point of delivery to State. For reference, the foregoing is to be construed as equivalent to "F.o.b. Origin, Contractor's Facility" under FAR 52.247-30

11.12 Delivery Time

11.11.2 LIABILITY. Unless stated otherwise in the Commercial Document or an Order, Contractor's liability for all Materials is DDP (State-designated receiving point per Order) Incoterms®2010, but with unloading at destination included. For reference, the foregoing is to be construed as equivalent to "F.o.b. Destination, Within Consignee's Premises" under FAR 52.247-35.

11.13 Delivery Locations

11.11.3 PAYMENT. Unless stated otherwise in the Commercial Document or an Order, State shall reimburse Contractor the costs of the difference between DDP (State-designated receiving point per Order) and FCA (seller's dock) with no mark-up, which Contractor shall itemize and invoice separately

Unless stated otherwise in the Commercial Document generally or in the applicable Order particularly, Contractor shall make delivery within 2 (two) business days after receiving each Order

Contractor shall offer deliveries to every location served under the scope of the Contract, specifically

1. if the Contract is for a single State agency in a single area, then Contractor shall deliver to any agency location in that area;
2. if the Contract is for a single State agency in all its locations, then Contractor shall deliver to any of that agency's location in Arizona;
3. if the Contract is for statewide use but excludes certain areas, then Contractor shall deliver to any Eligible Agency or Co-Op Buyer location that is not in the excluded areas; and
4. if the Contract is for unrestricted statewide use, then:
   i. Contractor shall deliver to any Eligible Agency or Co-Op Buyer anywhere in Arizona;

b) If a prospective Co-Op Buyer outside Arizona wishes to order against the Contract, Contractor agrees to negotiate in good faith any fair and reasonable price or lead time adjustments necessary to serve that location if practicable to do so within the scope of its normal business; and,

c) if the Commercial Document indicates defined delivery areas and prices, those always apply unless the Order expressly states otherwise and Contractor accepts it.

11.14 Conditions at Delivery Location

Contractor shall verify receiving hours and conditions (i.e. height/weight restrictions, access control, etc.) with the relevant purchaser for the receiving site before scheduling or making a delivery. State will neither allow extra charges for wait time, comebacks, or the like nor excuse late delivery if Contractor has failed to make the verification or comply with the applicable conditions. Contractor shall make each delivery to the specific location indicated in the Order, which Contractor acknowledges might be inside an industrial building, institutional building, low-rise office building, or high-rise office building instead of a normal receiving dock. Contractor might be required to make deliveries to locations inside a secured perimeter at certain institutional facilities such as prisons where prior clearances are required for each delivery and driver individually. Contractor shall contact each such facility directly to confirm its most-current security clearance procedures, allowable hours for deliveries, visitor dress code, and other applicable rules. State will neither allow extra charges for wait time, comebacks, or the like nor excuse late delivery if Contractor has failed to make the confirmation or comply with the applicable conditions

11.15 Materials

State has the right to make acceptance of Materials subject to a complete inspection on delivery and installation, if installation is Contractor's responsibility. State may apply as acceptance criteria conformity to the Contract, workmanship and quality, correctness of constituent materials, and any other matter for which the Contract or applicable laws state a requirement, whether stated directly or by reference to another document, standard, reference specification, etc. Contractor shall remove any rejected Materials from the delivery location, or from any immediate environs to which it might have been reasonably necessary to move it, carry it off the delivery premises, and subsequently deliver an equal number or quantity of conforming items. State will not owe Contractor any payment for rejected Materials, and State may, at its discretion, withhold or make partial payment for any rejected Materials that have been returned to Contractor in those instances where State has agreed to permit repair instead of demanding replacement.

11.16 Acceptance

Contractor shall, at no additional cost and without entitlement to extension of any delivery deadline or specified time for performance, remove or exchange and replace any defective or non-conforming delivered or installed Materials

11.17 Correcting Defects

1. Contractor shall be solely responsible for the cost of any associated cutting and patching, temporary protection measures, packing and crating, hoisting and loading, transportation, unpacking, inspection, repacking, reshipping, and reinstallation if installation is within the scope of the Contract.
2. If Contractor fails to do so in a timely manner, State will be entitled to exercise its remedies under paragraph 8.5 [*Right of Offset*] of the Uniform Terms and Conditions.
3. Whether State will permit Contractor to repair in place or demands that Contractor remove and replace is at State's discretion in each instance, provided that, State shall not apply that discretion punitively if repair in place is practicable and doing so would not create safety hazards, put property at risk, unreasonably interfere with operations, create public nuisance, or give rise to any other reasonable concern on State's part.

11.18 Returns

State may, at its discretion, return for full credit and with no restocking charges any delivered Materials unused in the original packaging, including any instruction manuals or other incidental item that accompanied the original shipment, within thirty (30) days after receipt. If State elects to return delivered Materials, then State shall pay all freight, delivery, and transit insurance costs to return the products to the place from which Contractor shipped them, provided that, if State returns delivered Materials because they are defective or non-conforming or for any other reason having to do with Contractor fault or error, then State will not be responsible for paying freight, delivery, or transit insurance costs to return the products and may, at its discretion, either have

Order Cancellations

those billed directly to Contractor or offset them under paragraph 8.5 [*Right of Offset*] of the Uniform Terms and Conditions.

State may cancel Orders within a reasonable period after issuance and at its discretion. The same method as that used for ordering will be used for cancellation. If State cancels an Order, then State shall:

1. pay Contractor for any portion of the Materials and Services from that Order that have been properly delivered or performed as of the cancellation effective date plus one (1) additional business day
2. reimburse Contractor for:
   (a) its actual, documented costs incurred in fulfilling the Order up to the cancellation effective date plus one (1) additional business day;
   (b) the cost of any obligations it incurred in fulfilling the Order up to the cancellation effective date plus one (1) additional business day that demonstrably cannot be canceled, or that have pre-established cancelation penalties specified in the relevant Subcontracts, to the extent the penalties are reasonable and customary for the work in question; and,
3. Contractor shall not charge or be entitled to charge State for any new costs it incurs after receiving the cancellation notice.

By way of reminder, State is not liable for any products that were produced, shipped, or delivered or any services that were performed before Contractor had acknowledged the corresponding Order

Materials as-shipped must comply with applicable safety regulations and standards. Unless expressly stated otherwise in the Scope of Work, State is not responsible for making any Materials safe or compliant following acceptance and is relying exclusively on Contractor to deliver only products that are already safe and compliant

11.19 Product Safety

Contractor shall timely provide State with any "Safety Data Sheets" (SDS) and any other hazard communication documentation required under the US Department of Labor's Occupational Safety and Health Administration (OSHA) "Hazard Communication Standard" (often referred to as the "HazCom 2012 Final Rule") that is reasonably necessary for State to comply with regulations when it or its other contractors install, handle, operate, repair, maintain or remove any Materials. Note that, in the past, those documents might have been referred to as "Material Safety Data Sheets" or "Product Safety Data Sheets", but State (and this Contract) use only the more up-to-date "SDS" reference. Contractor shall ensure that all its relevant personnel understand the nature of and hazards associated with, to the extent it they are Contractor's responsibility under the Contract, the design, shipping, handling, delivery, installation, repair and maintenance of any portion of the Work that is, contains or will become upon use a hazardous material, with "hazardous material" being any material or substance that is: (1) identified now or in the future as being hazardous, toxic or dangerous under applicable laws; or (2) subject to statutory or regulatory requirement governing special handling, disposal or cleanup

11.20 Hazardous Materials

12.0 General Provisions for Services

12.1 Applicability

Article 12 applies to the extent the Work is or includes Services.

12.2 Comprehensive Services Offering

Contractor shall provide the comprehensive range of services for which a price is established in the Pricing Document for ordering by Eligible Agencies, and Co-Op Buyers if co-op buying applies.

12.3 Additional Services

State at its discretion may modify the scope of the Contract by Contract Amendment to include additional services or service categories that are within the general scope of the ones originally covered by the Contract if it determines that doing so is in its best interest. Once the Contract Amendment is fully executed, Contractor shall then update all applicable price lists and make them available to all affected entities at no additional cost. Either party may make the request to add services to the Contract; regardless of who makes the request, the parties shall negotiate in good

faith a fair price for any additional services, but State may elect not to add some or all of the services in question if no agreement is reached on pricing in a timely manner. Contractor's request or proposal in response to State's request must include documentation demonstrating that the proposed price for the additional services is both fair and reasonable and comparable to the original ones.

12.4 Off-Contract Services

Contractor shall ensure that the design and/or procedures for the Services ordering method prevents Orders for off-contract or excluded services. Notwithstanding that State might have its own internal administrative rules regarding off contract or excluded service ordering, and endeavors to prevent such orders from occurring, Contractor is responsible for not accepting any such Orders. State may, at its discretion, cancel any such Order without obligation. As used above, "off-contract service" refers to any service not included in the scope of the Contract and for which no price or compensation has been established contractually, and "excluded service" refers to any service expressly excluded from the scope of the Contract.

12.5 Removal of Personnel

Notwithstanding that Contractor is in every circumstance responsible for hiring, assigning, directing, managing, training, disciplining, and rewarding its personnel, State may at its discretion and without the obligation to demonstrate cause instruct Contractor to remove any of its personnel from State's facilities or from further assignment under the Contract. In such cases, Contractor shall promptly replace them with other personnel having equivalent qualifications, experience, and capabilities.

12.6 Transitions

During commencement, Contractor shall attend transition meetings with any outgoing vendors to coordinate and ease the transition so that the effect on State's operations is kept to a minimum. State may elect to have outgoing vendors complete some or all of their work or orders in progress to ease the transition as is safest and most efficient in each instance, even if that scope is covered under the Contract. Conversely, State anticipates having a continued need for the same materials and services upon expiration or earlier termination of the Contract. Accordingly, Contractor shall work closely with any new (incoming) vendor and State to ensure as smooth and complete a transfer as is practicable. State's representative shall coordinate all transition activities and facilitate joint development of a comprehensive transition plan by both Contractor and the incoming vendor. As with the incoming transition. State may permit Contractor (outgoing) to complete work or orders in progress to ease the transition as is safest and most efficient in each instance.

12.7 Accuracy of Work

Contractor is responsible for the accuracy of the Services, and shall promptly make all necessary revisions or corrections resulting from errors and omissions on its part without additional compensation. Acceptance by State will not relieve Contractor of responsibility for correction of any errors discovered subsequently or necessary clarification of any ambiguities.

12.8 Requirements at Services Location

Contractor personnel shall perform their assigned portions of the Services at the specific location indicated in the Order (if applicable). Contractor acknowledges that the location might be inside an industrial building, institutional building, or one of various office types and classes. Additionally, if performing the Services requires Contractor personnel to work inside a secured perimeter at certain institutional facilities such as prisons where prior clearances are required, Contractor shall contact the facility directly to confirm its most-current security clearance procedures, allowable hours for work, visitor dress code, and other applicable rules. State will neither allow extra charges for wait time, comebacks, or the like nor excuse late performance if Contractor has failed to make the confirmation or comply with the applicable conditions.

12.9 Services Acceptance

State has the right to make acceptance of Services subject to acceptance criteria. State may apply as acceptance criteria conformity to the Contract, accuracy, completeness, or other indicators of quality or other matter for which the Contract or law states a requirement, whether stated directly or by reference to another document, standard, reference specification, etc. State will not owe Contractor any payment for un-accepted Services; and State may, at its discretion, withhold or make partial payment for any rejected Services if Contractor is still in the process of re-performing or otherwise curing the grounds for State's rejection.

12.10 Corrective Action Required

Notwithstanding any other guarantees, general warranties, or particular warranties Contractor has given under the Contract, if Contractor fails to perform any material portion of the Services, including failing to complete any contractual deliverable, or if its performance fails to meet agreed-upon service levels or service standards set out in or referred to in the Contract, then Contractor shall perform a root-cause analysis to identify the source of the failure and use all commercially reasonable efforts to correct the failure and meet the Contract requirements as promptly as is practicable.

1. Contractor shall provide to State a report detailing the identified cause and setting out its detailed corrective action plan promptly after the date the failure occurred (or the date when the failure first became apparent, if it was not apparent immediately after occurrence).
2. State may demand to review and approve Contractor's analysis and plans, and Contractor shall make any corrections State instructs and adopt State's recommendations so far as is commercially practicable, provided that State may insist on any measures it determines within reason to be necessary for safety or protecting property and the environment.
3. Contractor shall take the necessary action to avoid any like failure in the future, if doing so is appropriate and practicable under the circumstances.

13.0 Data and Information Handling

13.1 Applicability

Article 13 applies to the extent the Work includes handling of any (1) State's proprietary and sensitive data or (2) confidential or access-restricted information obtained from State or from others at State's behest.

13.2 Data Protection and Confidentiality of Information

Contractor warrants that it will establish and maintain procedures and controls acceptable to State for ensuring that State's proprietary and sensitive data is protected from unauthorized access and information obtained from State or others in performance of its contractual duties is not mishandled, misused, or inappropriately released or disclosed. For purposes of this paragraph, all data created by Contractor in any way related to the Contract, provided to Contractor by State, or prepared by others for State are proprietary to State, and all information by those same avenues is State's confidential information. To comply with the foregoing warrant:

1. Contractor shall: (a) notify State immediately of any unauthorized access or inappropriate disclosures, whether stemming from an external security breach, internal breach, system failure, or procedural lapse; (b) cooperate with State to identify the source or cause of and respond to each unauthorized access or inappropriate disclosure; and (c) notify State promptly of any security threat that could result in unauthorized access or inappropriate disclosures; and
2. Contractor shall not: (a) release any such data or allow it to be released or divulge any such information to anyone other than its employees or officers as needed for each person's individual performance of his or her duties under the Contract, unless State has agreed otherwise in advance and in writing; or (b) respond to any requests it receives from a third party for such data or information, and instead route all such requests to State's designated representative.

13.3 Personally Identifiable Information.

Without limiting the generality of paragraph 13.2, Contractor warrants that it will protect any personally identifiable information ("PII") belonging to State's employees' or other contractors or members of the general public that it receives from State or otherwise acquires in its performance under the Contract.

For purposes of this paragraph:

1. PII has the meaning given in the [federal] Office of Management and Budget (OMB) *Memorandum M-17-12 Preparing for and Responding to a Breach of Personally Identifiable Information", January 3, 2017*; and
2. "protect" means taking measures to safeguard personally identifiable information and prevent its breach that are functionally equivalent to those called for in that OMB memorandum and elaborated on in the [federal] General Services Administration (GSA) *Directive CIO P* 2180*.1 GSA Rules of Behavior for Handling Personally Identifiable*

Information.

NOTE (1): For convenience of reference only, the OMB memorandum is available at:

https://dpcld.defense.gov/Privacy/Authorities-and-Guidance/

NOTE (2): For convenience of reference only, the GSA directive is available at:

http://www.gsa.gov/portal/directive/d0/content/658222

13.4 Protected Health Information

Contractor warrants that, to the extent performance under the Contract involves individually identifiable health information (referred to hereinafter as protected health information ("PHI") and electronic PHI ("ePHI") as defined in the Privacy Rule referred to below), it:

1. is familiar with and will comply with the applicable aspects of the following collective regulatory requirements regarding patient information privacy protection: (a) the "Privacy Rule" in CFR 45 Part 160 and Part 164 pursuant to the Health Insurance Portability and Accountability Act ("HIPAA") of 1996; (b) Arizona laws, rules, and regulations applicable to PHI/ePHI that are not preempted by CFR 45-160(B) or the Employee Retirement Income Security Act of 1974 ("ERISA") as amended; and (c) State's current and published PHI/ePHI privacy and security policies and procedures;
2. will cooperate with State in the course of performing under the Contract so that both State and Contractor stay in compliance with the requirements in *(1)* above; and
3. will sign any documents that are reasonably necessary to keep both State and Contractor in compliance with the requirements in *(1)* above, in particular "Business Associate Agreements" in accordance with the Privacy Rule.

NOTE: For convenience of reference only, the Privacy Rule is available at:

http://www.hhs.gov/hipaa/for-professionals/privacy/index.html

14.0 Information Technology Work

14.1 Applicability

Article 14 applies to any Invitation for Bids, Request for Proposals, or Request for Quotations for "Information Technology," as defined In A.R.S. § 41-3501(6) 6: " . . . computerized and auxiliary automated information processing, telecommunications and related technology, including hardware, software, vendor support and related services, equipment and projects" if and to the extent that the Work is or includes Information Technology.

14.2 Background Checks

Each of Contractor's personnel who is an applicant for an information technology position must undergo the security clearance and background check procedure, which includes fingerprinting, as required by A.R.S § 41-710. Contractor shall obtain and pay for the security clearance and background check. Contractor personnel who will have administrator privileges on a State network must additionally provide identify and address verification and undergo State-specified training for unescorted access, confidentiality, privacy, and data security.

14.3 Information Access

14.3.1 SYSTEM MEASURES. Contractor shall employ appropriate system management and maintenance, fraud prevention and detection, and encryption application and tools to any systems or networks containing or transmitting State's proprietary data or confidential information.

14.3.2 INDIVIDUAL MEASURES. Contractor personnel shall comply with applicable State policies and procedures regarding data access, privacy, and security, including prohibitions on remote access and obtaining and maintaining access IDs and passwords. Contractor is responsible to State for ensuring that any State access IDs and passwords are used only by the person to whom they were issued. Contractor shall ensure that personnel are only provided the minimum only such level of access necessary to perform his or duties. Contractor shall on request provide a current register of the access IDs and passwords and corresponding access levels currently assigned to its personnel.

14.3.3 ACCESS CONTROL. Contractor is responsible to State for ensuring that hardware, software, data, information, and that has been provided by State or belongs to or is in the

custody of State and is accessed or accessible by Contractor personnel is only used in connection with carrying out the Work, and is never commercially exploited in any manner whatsoever not expressly permitted under the Contract. State may restrict access by Contractor personnel, or instruct Contractor to restrict access their access, if in its determination the requirements of this subparagraph are not being met.

14.4 Pass-Through Indemnity

14.4.1 INDEMNITY FROM THIRD PARTY. For computer hardware or software included in the Work as discrete units that were manufactured or developed solely by a third party, Contractor may satisfy its indemnification obligations under the Contract by, to the extent permissible by law, passing through to State such indemnity as it receives from the third-party source (each a "Pass-Through Indemnity") and cooperating with State in enforcing that indemnity. If the third party fails to honor its Pass-Through Indemnity, or if a Pass-Through Indemnity is insufficient to indemnify State Indemnitees to the extent and degree Contractor is required to do by the Uniform Terms and Conditions, then Contractor shall indemnify, defend and hold harmless State Indemnitees to the extent the Pass-Through Indemnity does not.

14.4.2 NOTIFY OF CLAIMS. State shall notify Contractor promptly of any claim to which a Pass-Through Indemnity might apply. Contractor, with reasonable consultation from State, shall control of the defense of any action on any claim to which a Pass-Through Indemnity applies, including negotiations for settlement or compromise, provided that:

(a) State reserves the right to elect to participate in the action at its own expense;

(b) State reserves the right to approve or reject any settlement or compromise on reasonable grounds and if done so timely; and

(c) State shall in any case cooperate in the defense and any related settlement negotiations.

14.5 Systems and Controls

In consideration for State having agreed to permit Pass-Through Indemnities in lieu of direct indemnity, Contractor agrees to establish and keep in place systems and controls appropriate to ensure that State funds under this Contract are not knowingly used for the acquisition, operation, or maintenance of Materials or Services in violation of intellectual property laws or a third party's intellectual property rights.

14.6 Redress of Infringement.

14.6.1 REPLACE, LICENSE, OR MODIFY. If Contractor becomes aware that any Materials or Services infringe, or are likely to be infringing on, any third party's intellectual property rights, then Contractor shall at its sole cost and expense and in consultation with State either:

(a) replace any infringing items with non-infringing ones;

(b) obtain for State the right to continue using the infringing items; or

(c) modify the infringing item so that they become non-infringing, so long as they continue to function as specified following the modification.

14.6.2 CANCELLATION OPTION. In every case under 14.6.1, if none of those options can reasonably be accomplished, or if the continued use of the infringing items is impracticable, State may cancel the relevant Order or terminate the Contract and Contractor shall take back the infringing items. If State does cancel the Order or terminate the Contract, Contractor shall refund to State:

(a) for any software created for State under the Contract, the amount State paid to Contactor for creating it;

(b) for all other Materials, the net book value of the product provided according to generally accepted accounting principles; and

(c) for Services, the amount paid by State or an amount equal to 12 (twelve) months of charges, whichever is less.

14.6.3. EXCEPTIONS. Contractor will not be liable for any claim of infringement based solely on

any of the following by a State Indemnitee:

(a) modification or use of Materials other than as contemplated by the Contract or expressly authorized or proposed by a Contractor Indemnitor;

(b) operation of Materials with any operating software other than that supplied by Contractor or authorized or proposed by a Contractor Indemnitor; or

(c) combination or use with other products in a manner not contemplated by the Contract or expressly authorized or proposed by a Contractor Indemnitor.

14.7 First Party Liability Limitation

14.7.1 LIMIT. Subject to the provisos that follow below and unless stated otherwise in the Special Terms and Conditions, State's and Contractor's respective first party liability arising from or related to the Contract is limited to the greater of $1,000,000 (one million dollars) or 3 (three) times the purchase price of the specific Materials or Services giving rise to the claim.

14.7.2 PROVISOS. This paragraph 14.7 limits liability for first party direct, indirect, incidental, special, punitive, and consequential damages relating to the Work regardless of the legal theory under which the liability is asserted. This paragraph 14.7 does not limit liability arising from any:

(a) Indemnified Claim against which Contractor has indemnified State Indemnitees under paragraph 6.3;

(b) claim against which Contractor has indemnified State Indemnitees under paragraph 6.4; or

(c) provision of the Contract calling for liquidated damages or specifying amounts or percentages as being at-risk or subject to deduction for performance deficiencies.

14.7.3 PURCHASE PRICE DETERMINATION. If the Contract is for a single-agency and a single Order (or if no Order applies), then "purchase price" in Subparagraph 14.7.1 above means the aggregate Contract price current at the time of Contract expiration or earlier termination, including all Contract Amendments having an effect on the aggregate price through that date. In all other cases, "purchase price" above means the total price of the Order for the specific equipment, software, or services giving rise to the claim, and therefore a separate limit will apply to each Order.

14.7.4 NO EFFECT ON INSURANCE. This paragraph does not modify the required coverage limits, terms, and conditions of, or any insured's ability to claim against, any insurance that Contractor is required by the Contract to provide, and Contractor shall obtain express endorsements that it does not.

14.8 Information Technology Warranty

14.8.1 SPECIFIED DESIGN. Where the Scope of Work for information technology Work provides a detailed design specification or sets out specific performance requirements, Contractor warrants that the Work will provide all functionality material to the intended use stated in the Contract, provided that, the foregoing warranty does not extend to any portions of the Materials that are:

(a) modified or altered by anyone not authorized by Contractor to do so;

(b) maintained in a way inconsistent to any applicable manufacturer recommendations; or

(c) operated in a manner not within its intended use or environment.

14.8.2 COTS SOFTWARE. With respect to Materials provided under the Contract that are commercial-off-the-shelf (COTS) software, Contractor warrants that:

(a) to the extent possible, it will test the software before delivery using commercially available virus detection software conforming to current industry standards;

(b) the COTS software will, to the best of its knowledge, at the time of delivery be free of viruses, backdoors, worms, spyware, malware, and other malicious code that could hamper performance, collect unlawfully any personally identifiable

information, or prevent products from performing as required by the Contract; and

(c) it will provide a new or clean install of any COTS software that State has reason to believes contains harmful code.

14.8.3 PAYMENT HAS NO EFFECT. The warranties in this paragraph are not affected by State's inspection, testing, or payment.

14.9 Specific Remedies

Unless expressly stated otherwise elsewhere in the Contract, State's remedy for breach of warranty under paragraph 14.8 includes, at State's discretion, re-performance, repair, replacement, or refund of any amounts paid by State for the nonconforming Work, plus (in every case) Contractor's payment of State's additional, documented, and reasonable costs to procure materials or services equivalent in function, capability, and performance at that first called for. For clarification of intent, the foregoing obligations are limited by the limitation of liability in paragraph 14.7. If none of the forgoing options can reasonably be effected, or if the use of the materials by State is made impractical by the nonconformance, then State may seek any remedy available to it under law.

14.10 Section 508 Compliance

Unless specifically authorized in the Contract, any electronic or information technology offered to the State of Arizona under this Contract shall comply with A.R.S. § 18-131 and § 18-132 and Section 508 of the Rehabilitation Act of 1973, which requires that employees and members of the public shall have access to and use of information technology that is comparable to the access and use by employees and members of the public who are not individuals with disabilities.

14.11 Cloud Applications

The following are required for Contractor of any "cloud" solution that hosts State data outside of the State's network, or transmits and/or receives State data.

1. Submit a completed Arizona Baseline Infrastructure Security Controls assessment spreadsheet as found at: https://aset.az.gov/resources/policies-standards-and-procedures, and mitigate or install compensating controls for any issues of concern identified by State. Contractor is required to provide any requested documentation supporting the review of the assessment. The assessment shall be re-validated on a minimum annual basis.
2. State reserves the right to conduct Penetration tests or hire a third party to conduct penetration tests of the Contractor's application. Contractor will be alerted in advance and arrangements made for an agreeable time. Contractor shall respond to all serious flaws discovered by providing an acceptable timeframe to resolve the issue and/or implement a compensating control.
3. Contractor must submit copy of system logs from cloud system to State of AZ security team on a regular basis to be added to the State SIEM (Security Information Event Monitor) or IDS (Intrusion Detection System).

Contractor must employ a government-rated cloud compartment to better protect sensitive or regulated State data.

End of Section Special Terms and Conditions

Uniform Terms and Conditions

Version: 9 (7/1/2013)

1.0 Definition of Terms

As used in the Contract, the terms listed below are defined as follows:

1.1	**Attachment**	"Attachment" means any item the solicitation requires the Offeror to submit as part of the Offer.
1.2	**Contract**	"Contract" " means the combination of the Solicitation, including the Uniform and Special Instructions to Offerors, the Uniform and Special Terms and Conditions, and the Specifications and Statement or Scope of Work; the Offer and any Best and Final Offers; and any Solicitation Amendments or Contract Amendments.
1.3	**Contract Amendment**	"Contract Amendment" means a written document signed by the Procurement Officer that is issued for the purpose of making changes in the Contract.
1.4	**Contractor**	"Contractor" means any Person who has a Contract with the State.
1.5	**Days**	"Days" means calendar days unless otherwise specified.
1.6	**Exhibit**	"Exhibit" means any item labeled as an Exhibit in the Solicitation or placed in the Exhibits section of the Solicitation.
1.7	**Gratuity**	"Gratuity" means a payment, loan, subscription, advance, deposit of money, services, or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value is received.
1.8	**Materials**	"Materials" means all property, including equipment, supplies, printing, insurance and leases of property but does not include land, a permanent interest in land or real property or leasing space.
1.9	**Procurement Officer**	"Procurement Officer" means the person, or his or her designee, duly authorized by the State to enter into and administer Contracts and make written determinations with respect to the Contract.
1.10	**Services**	"Services" has the meaning given in A.R.S. § 41-2503(35), which, for convenience of reference only, is "… the furnishing of labor, time, or effort by [the] [C]ontractor or [S}ubcontractor which does not involve the delivery of a specific end product other than required reports and performance [but] does not include employment agreements or collective bargaining agreements." Services includes Building Work and the service aspects of software described in paragraph 1.8.
1.11	**State**	"State" means the State of Arizona and Department or Agency of the State that executes the Contract.
1.12	**State Fiscal Year**	"State Fiscal Year" means the period beginning with July 1 and ending June 30.
1.13	**Subcontract**	"Subcontract" means any Contract, express or implied, between the Contractor and another party or between a subcontractor and another party delegating or assigning, in whole or in part, the making or furnishing of any material or any service required for the performance of the Contract.

2.0 Contract Interpretation

2.1	**Arizona Law**	The Arizona law applies to this Contract including, where applicable, the Uniform Commercial Code as adopted by the State of Arizona and the Arizona Procurement Code, Arizona Revised Statutes (A.R.S.) Title 41, Chapter 23, and its implementing rules, Arizona Administrative Code (A.A.C.) Title 2, Chapter 7.
2.2	**Implied Terms**	Each provision of law and any terms required by law to be in this Contract are a part of this Contract as if fully stated in it.
2.3	**Contract Order of Precedence**	In the event of a conflict in the provisions of the Contract, as accepted by the State and as they may be amended, the following shall prevail in the order set forth below: 2.3.1. Special Terms and Conditions;

2.3.2. Uniform Terms and Conditions;

2.3.3. Statement or Scope of Work;

2.3.4. Specifications;

2.3.5. Attachments;

2.3.6. Exhibits;

2.3.7. Documents referenced or included in the Solicitation.

2.4 Relationship of Parties — The Contractor under this Contract is an independent Contractor. Neither party to this Contract shall be deemed to be the employee or agent of the other party to the Contract.

2.5 Severability — The provisions of this Contract are severable. Any term or condition deemed illegal or invalid shall not affect any other term or condition of the Contract.

2.6 No Parole Evidence — This Contract is intended by the parties as a final and complete expression of their agreement. No course of prior dealings between the parties and no usage of the trade shall supplement or explain any terms used in this document and no other understanding either oral or in writing shall be binding.

2.7 No Waiver — Either party's failure to insist on strict performance of any term or condition of the Contract shall not be deemed a waiver of that term or condition even if the party accepting or acquiescing in the nonconforming performance knows of the nature of the performance and fails to object to it.

3.0 Contract Administration and Operation

3.1 Records — Under A.R.S. § 35-214 and § 35-215, the Contractor shall retain and shall contractually require each subcontractor to retain all data and other "records" relating to the acquisition and performance of the Contract for a period of five years after the completion of the Contract. All records shall be subject to inspection and audit by the State at reasonable times. Upon request, the Contractor shall produce a legible copy of any or all such records.

3.2 Non-Discrimination — The Contractor shall comply with State Executive Order No. 2009-09 and all other applicable Federal and State laws, rules and regulations, including the Americans with Disabilities Act.

3.3 Audit — Pursuant to ARS § 35-214, at any time during the term of this Contract and five (5) years thereafter, the Contractor's or any subcontractor's books and records shall be subject to audit by the State and, where applicable, the Federal Government, to the extent that the books and records relate to the performance of the Contract or Subcontract.

3.4 Facilities Inspection and Materials Testing — The Contractor agrees to permit access to its facilities, subcontractor facilities and the Contractor's processes or services, at reasonable times for inspection of the facilities or materials covered under this Contract. The State shall also have the right to test, at its own cost, the materials to be supplied under this Contract. Neither inspection of the Contractor's facilities nor materials testing shall constitute final acceptance of the materials or services. If the State determines noncompliance of the materials, the Contractor shall be responsible for the payment of all costs incurred by the State for testing and inspection.

3.5 Notices — Notices to the Contractor required by this Contract shall be made by the State to the person indicated on the Offer and Acceptance form submitted by the Contractor unless otherwise stated in the Contract. Notices to the State required by the Contract shall be made by the Contractor to the Solicitation Contact Person indicated on the Solicitation cover sheet, unless otherwise stated in the Contract. An authorized Procurement Officer and an authorized Contractor representative may change their respective person to whom notice shall be given by written notice to the other and an amendment to the Contract shall not be necessary.

3.6 Advertising, Publishing and Promotion of Contract — The Contractor shall not use, advertise or promote information for commercial benefit concerning this Contract without the prior written approval of the Procurement Officer.

3.7 Property of the State — Any materials, including reports, computer programs and other deliverables, created under this Contract are the sole property of the State. The Contractor is not entitled to a patent or copyright on those materials and may not transfer the patent or copyright to anyone else. The Contractor

shall not use or release these materials without the prior written consent of the State.

3.8 Ownership of Intellectual Property

Any and all intellectual property, including but not limited to copyright, invention, trademark, trade name, service mark, and/or trade secrets created or conceived pursuant to or as a result of this contract and any related subcontract ("Intellectual Property"), shall be work made for hire and the State shall be considered the creator of such Intellectual Property. The agency, department, division, board or commission of the State of Arizona requesting the issuance of this contract shall own (for and on behalf of the State) the entire right, title and interest to the Intellectual Property throughout the world. Contractor shall notify the State, within thirty (30) days, of the creation of any Intellectual Property by it or its subcontractor(s). Contractor, on behalf of itself and any subcontractor(s), agrees to execute any and all document(s) necessary to assure ownership of the Intellectual Property vests in the State and shall take no affirmative actions that might have the effect of vesting all or part of the Intellectual Property in any entity other than the State. The Intellectual Property shall not be disclosed by contractor or its subcontractor(s) to any entity not the State without the express written authorization of the agency, department, division, board or commission of the State of Arizona requesting the issuance of this contract.

3.9 Federal Immigration and Nationality Act

The contractor shall comply with all federal, state and local immigration laws and regulations relating to the immigration status of their employees during the term of the contract. Further, the contractor shall flow down this requirement to all subcontractors utilized during the term of the contract. The State shall retain the right to perform random audits of contractor and subcontractor records or to inspect papers of any employee thereof to ensure compliance. Should the State determine that the contractor and/or any subcontractors be found noncompliant, the State may pursue all remedies allowed by law, including, but not limited to; suspension of work, termination of the contract for default and suspension and/or debarment of the contractor.

3.10 E-Verify Requirements

In accordance with A.R.S. § 41-4401, Contractor warrants compliance with all Federal immigration laws and regulations relating to employees and warrants its compliance with Section A.R.S. § 23-214, Subsection A.

3.11 Offshore Performance of Work Prohibited.

Any services that are described in the specifications or scope of work that directly serve the State of Arizona or its clients and involve access to secure or sensitive data or personal client data shall be performed within the defined territories of the United States. Unless specifically stated otherwise in the specifications, this paragraph does not apply to indirect or 'overhead' services, redundant back-up services or services that are incidental to the performance of the contract. This provision applies to work performed by subcontractors at all tiers.

4.0 Costs and Payments

4.1 Payments

Payments shall comply with the requirements of A.R.S. Titles 35 and 41, Net 30 days. Upon receipt and acceptance of goods or services, the Contractor shall submit a complete and accurate invoice for payment from the State within thirty (30) days.

4.2 Delivery

Unless stated otherwise in the Contract, all prices shall be F.O.B. Destination and shall include all freight delivery and unloading at the destination.

4.3 Applicable Taxes

4.3.1. Payment of Taxes. The Contractor shall be responsible for paying all applicable taxes.

4.3.2. State and Local Transaction Privilege Taxes. The State of Arizona is subject to all applicable state and local transaction privilege taxes. Transaction privilege taxes apply to the sale and are the responsibility of the seller to remit. Failure to collect such taxes from the buyer does not relieve the seller from its obligation to remit taxes.

4.3.3. Tax Indemnification. Contractor and all subcontractors shall pay all Federal, state and local taxes applicable to its operation and any persons employed by the Contractor. Contractor shall, and require all subcontractors to hold the State harmless from any responsibility for taxes, damages and interest, if applicable, contributions required under Federal, and/or state and local laws and regulations and any other costs including transaction privilege taxes, unemployment compensation insurance, Social Security and Worker's Compensation.

4.3.4. IRS W9 Form. In order to receive payment the Contractor shall have a current I.R.S. W9 Form on file with the State of Arizona, unless not required by law

4.4 Availability of Funds

Funds may not presently be available for performance under this Contract beyond the current

	for the Next State fiscal year	state fiscal year. No legal liability on the part of the State for any payment may arise under this Contract beyond the current state fiscal year until funds are made available for performance of this Contract.
4.5	**Availability of Funds for the current State fiscal year**	Should the State Legislature enter back into session and reduce the appropriations or for any reason and these goods or services are not funded, the State may take any of the following actions: 4.5.1. Accept a decrease in price offered by the contractor; 4.5.2. Cancel the Contract; or 4.5.3. Cancel the contract and re-solicit the requirements

5.0 Contract Changes

5.1	**Amendments**	This Contract is issued under the authority of the Procurement Officer who signed this Contract. The Contract may be modified only through a Contract Amendment within the scope of the Contract. Changes to the Contract, including the addition of work or materials, the revision of payment terms, or the substitution of work or materials, directed by a person who is not specifically authorized by the procurement officer in writing or made unilaterally by the Contractor are violations of the Contract and of applicable law. Such changes, including unauthorized written Contract Amendments shall be void and without effect, and the Contractor shall not be entitled to any claim under this Contract based on those changes.
5.2	**Subcontracts**	The Contractor shall not enter into any Subcontract under this Contract for the performance of this contract without the advance written approval of the Procurement Officer. The Contractor shall clearly list any proposed subcontractors and the subcontractor's proposed responsibilities. The Subcontract shall incorporate by reference the terms and conditions of this Contract.
5.3	**Assignment and Delegation**	The Contractor shall not assign any right nor delegate any duty under this Contract without the prior written approval of the Procurement Officer. The State shall not unreasonably withhold approval.

6.0 Risk and Liability

6.1	**Risk of Loss**	The Contractor shall bear all loss of conforming material covered under this Contract until received by authorized personnel at the location designated in the purchase order or Contract. Mere receipt does not constitute final acceptance. The risk of loss for nonconforming materials shall remain with the Contractor regardless of receipt.
6.2	**Indemnification**	6.2.1. Contractor/Vendor Indemnification (Not Public Agency) The parties to this contract agree that the State of Arizona, its departments, agencies, boards and commissions shall be indemnified and held harmless by the contractor for the vicarious liability of the State as a result of entering into this contract. However, the parties further agree that the State of Arizona, its departments, agencies, boards and commissions shall be responsible for its own negligence. Each party to this contract is responsible for its own negligence. 6.2.2. Public Agency Language Only Each party (as 'indemnitor') agrees to indemnify, defend, and hold harmless the other party (as 'indemnitee') from and against any and all claims, losses, liability, costs, or expenses (including reasonable attorney's fees) (hereinafter collectively referred to as 'claims') arising out of bodily injury of any person (including death) or property damage but only to the extent that such claims which result in vicarious/derivative liability to the indemnitee, are caused by the act, omission, negligence, misconduct, or other fault of the indemnitor, its officers, officials, agents, employees, or volunteers."
6.3	**Indemnification – Patent and Copyright**	The Contractor shall indemnify and hold harmless the State against any liability, including costs and expenses, for infringement of any patent, trademark or copyright arising out of Contract performance or use by the State of materials furnished or work performed under this Contract. The State shall reasonably notify the Contractor of any claim for which it may be liable under this paragraph. If the contractor is insured pursuant to A.R.S. § 41-621 and § 35-154, this section shall not apply.
6.4	**Force Majeure**	6.4.1 Except for payment of sums due, neither party shall be liable to the other nor deemed in default under this Contract if and to the extent that such party's performance of this

Contract is prevented by reason of force majeure. The term *"force majeure"* means an occurrence that is beyond the control of the party affected and occurs without its fault or negligence. Without limiting the foregoing, force majeure includes acts of God; acts of the public enemy; war; riots; strikes; mobilization; labor disputes; civil disorders; fire; flood; lockouts; injunctions-intervention-acts; or failures or refusals to act by government authority; and other similar occurrences beyond the control of the party declaring force majeure which such party is unable to prevent by exercising reasonable diligence.

6.4.2. Force Majeure shall **not** include the following occurrences:

6.4.2.1. Late delivery of equipment or materials caused by congestion at a manufacturer's plant or elsewhere, or an oversold condition of the market;

6.4.2.2. Late performance by a subcontractor unless the delay arises out of a force majeure occurrence in accordance with this force majeure term and condition; or 6.4.2.3. Inability of either the Contractor or any subcontractor to acquire or maintain any required insurance, bonds, licenses or permits.

6.4.3. If either party is delayed at any time in the progress of the work by force majeure, the delayed party shall notify the other party in writing of such delay, as soon as is practicable and no later than the following working day, of the commencement thereof and shall specify the causes of such delay in such notice. Such notice shall be delivered or mailed certified-return receipt and shall make a specific reference to this article, thereby invoking its provisions. The delayed party shall cause such delay to cease as soon as practicable and shall notify the other party in writing when it has done so. The time of completion shall be extended by Contract Amendment for a period of time equal to the time that results or effects of such delay prevent the delayed party from performing in accordance with this Contract.

6.4.4. Any delay or failure in performance by either party hereto shall not constitute default hereunder or give rise to any claim for damages or loss of anticipated profits if, and to the extent that such delay or failure is caused by force majeure.

6.5 Third Party Antitrust Violations

The Contractor assigns to the State any claim for overcharges resulting from antitrust violations to the extent that those violations concern materials or services supplied by third parties to the Contractor, toward fulfillment of this Contract.

7.0 Warranties

7.1 Liens

The Contractor warrants that the materials supplied under this Contract are free of liens and shall remain free of liens.

7.2 Quality

Unless otherwise modified elsewhere in these terms and conditions, the Contractor warrants that, for one year after acceptance by the State of the materials, they shall be:

7.2.1. Of a quality to pass without objection in the trade under the Contract description;

7.2.2. Fit for the intended purposes for which the materials are used;

7.2.3. Within the variations permitted by the Contract and are of even kind, quantity, and quality within each unit and among all units;

7.2.4. Adequately contained, packaged and marked as the Contract may require; and

7.2.5. Conform to the written promises or affirmations of fact made by the Contractor.

7.3 Fitness

The Contractor warrants that any material supplied to the State shall fully conform to all requirements of the Contract and all representations of the Contractor, and shall be fit for all purposes and uses required by the Contract.

7.4 Inspection/Testing

The warranties set forth in subparagraphs 7.1 through 7.3 of this paragraph are not affected by inspection or testing of or payment for the materials by the State.

7.5 Compliance with Laws

The materials and services supplied under this Contract shall comply with all applicable Federal, state and local laws, and the Contractor shall maintain all applicable license and permit requirements.

7.6 Survival of Rights and Obligations after Contract Expiration or Termination

7.6.1. Contractor's Representations and Warranties. All representations and warranties made by the Contractor under this Contract shall survive the expiration or termination hereof. In addition, the parties hereto acknowledge that pursuant to A.R.S. § 12-510, except as provided in A.R.S. § 12-529, the State is not subject to or barred by any limitations of actions prescribed in A.R.S., Title 12, Chapter 5.

7.6.2. Purchase Orders. The Contractor shall, in accordance with all terms and conditions of the Contract, fully perform and shall be obligated to comply with all purchase orders received by the Contractor prior to the expiration or termination hereof, unless otherwise directed in writing by the Procurement Officer, including, without limitation, all purchase orders received prior to but not fully performed and satisfied at the expiration or termination of this Contract.

8.0 State's Contractual Remedies

8.1 Right to Assurance

If the State in good faith has reason to believe that the Contractor does not intend to, or is unable to perform or continue performing under this Contract, the Procurement Officer may demand in writing that the Contractor give a written assurance of intent to perform. Failure by the Contractor to provide written assurance within the number of Days specified in the demand may, at the State's option, be the basis for terminating the Contract under the Uniform Terms and Conditions or other rights and remedies available by law or provided by the contract.

8.2 Stop Work Order

8.2.1. The State may, at any time, by written order to the Contractor, require the Contractor to stop all or any part, of the work called for by this Contract for period(s) of days indicated by the State after the order is delivered to the Contractor. The order shall be specifically identified as a stop work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage.

8.2.2. If a stop work order issued under this clause is canceled or the period of the order or any extension expires, the Contractor shall resume work. The Procurement Officer shall make an equitable adjustment in the delivery schedule or Contract price, or both, and the Contract shall be amended in writing accordingly.

8.3 Non-exclusive Remedies

The rights and the remedies of the State under this Contract are not exclusive.

8.4 Nonconforming Tender

Materials or services supplied under this Contract shall fully comply with the Contract. The delivery of materials or services or a portion of the materials or services that do not fully comply constitutes a breach of contract. On delivery of nonconforming materials or services, the State may terminate the Contract for default under applicable termination clauses in the Contract, exercise any of its rights and remedies under the Uniform Commercial Code, or pursue any other right or remedy available to it.

8.5 Right of Offset

The State shall be entitled to offset against any sums due the Contractor, any expenses or costs incurred by the State, or damages assessed by the State concerning the Contractor's non-conforming performance or failure to perform the Contract, including expenses, costs and damages described in the Uniform Terms and Conditions.

9.0 Contract Termination

9.1 Cancellation for Conflict of Interests

Pursuant to A.R.S. § 38-511, the State may cancel this Contract within three (3) years after Contract execution without penalty or further obligation if any person significantly involved in initiating, negotiating, securing, drafting or creating the Contract on behalf of the State is or becomes at any time while the Contract or an extension of the Contract is in effect an employee of or a consultant to any other party to this Contract with respect to the subject matter of the Contract. The cancellation shall be effective when the Contractor receives written notice of the cancellation unless the notice specifies a later time. If the Contractor is a political subdivision of the State, it may also cancel this Contract as provided in A.R.S. § 38-511.

9.2 Gratuities

The State may, by written notice, terminate this Contract, in whole or in part, if the State determines that employment or a Gratuity was offered or made by the Contractor or a

representative of the Contractor to any officer or employee of the State for the purpose of influencing the outcome of the procurement or securing the Contract, an amendment to the Contract, or favorable treatment concerning the Contract, including the making of any determination or decision about contract performance. The State, in addition to any other rights or remedies, shall be entitled to recover exemplary damages in the amount of three times the value of the Gratuity offered by the Contractor.

9.3 Suspension or Debarment

The State may, by written notice to the Contractor, immediately terminate this Contract if the State determines that the Contractor has been debarred, suspended or otherwise lawfully prohibited from participating in any public procurement activity, including but not limited to, being disapproved as a subcontractor of any public procurement unit or other governmental body. Submittal of an offer or execution of a contract shall attest that the contractor is not currently suspended or debarred. If the contractor becomes suspended or debarred, the contractor shall immediately notify the State.

9.4 Termination for Convenience

The State reserves the right to terminate the Contract, in whole or in part at any time when in the best interest of the State, without penalty or recourse. Upon receipt of the written notice, the Contractor shall stop all work, as directed in the notice, notify all subcontractors of the effective date of the termination and minimize all further costs to the State. In the event of termination under this paragraph, all documents, data and reports prepared by the Contractor under the Contract shall become the property of and be delivered to the State upon demand. The Contractor shall be entitled to receive just and equitable compensation for work in progress, work completed and materials accepted before the effective date of the termination. The cost principles and procedures provided in A.A.C. R2-7-701 shall apply.

9.5 Termination for Default

9.5.1. In addition to the rights reserved in the contract, the State may terminate the Contract in whole or in part due to the failure of the Contractor to comply with any term or condition of the Contract, to acquire and maintain all required insurance policies, bonds, licenses and permits, or to make satisfactory progress in performing the Contract. The Procurement Officer shall provide written notice of the termination and the reasons for it to the Contractor.

9.5.2. Upon termination under this paragraph, all goods, materials, documents, data and reports prepared by the Contractor under the Contract shall become the property of and be delivered to the State on demand.

9.5.3. The State may, upon termination of this Contract, procure, on terms and in the manner that it deems appropriate, materials or services to replace those under this Contract. The Contractor shall be liable to the State for any excess costs incurred by the State in procuring materials or services in substitution for those due from the Contractor.

9.6 Continuation of Performance Through Termination

The Contractor shall continue to perform, in accordance with the requirements of the Contract, up to the date of termination, as directed in the termination notice.

10.0 Contract Claims

10.1 Contract Claims

All contract claims or controversies under this Contract shall be resolved according to A.R.S. Title 41, Chapter 23, Article 9, and rules adopted thereunder.

11.0 Arbitration

11.1 Arbitration

The parties to this Contract agree to resolve all disputes arising out of or relating to this contract through arbitration, after exhausting applicable administrative review, to the extent required by A.R.S. § 12-1518, except as may be required by other applicable statutes (Title 41).

12.0 Comments Welcome

12.1 Comments Welcome

The State Procurement Office periodically reviews the Uniform Terms and Conditions and welcomes any comments you may have. Please submit your comments to: State Procurement Administrator, State Procurement Office, 100 North 15th Avenue, Suite 201, Phoenix, Arizona, 85007.

End of Section Uniform Terms and Conditions

	Request for Proposal **Solicitation No. BPM003541** **Security and Protection Systems - Statewide**	Arizona Department of Administration General Services Division 1400 W. Washington St., Ste. B200 Phoenix, AZ 85007

Offer and Acceptance Form

SUBMISSION OF OFFER: Undersigned hereby offers and agrees to provide Security and Protection Systems - Statewide in compliance with the Solicitation indicated above and our Offer indicated by the latest dated version below:

Initial Offer:				
	Date	Signature		
Revised Offers:				
	Date	Signature	Date	Signature
	Date	Signature	Date	Signature
Best and Final Offer:				
	Date	Signature		

Offeror company name	Signature of person authorized to sign Offer
Address	Printed name and title
City | State | ZIP	Contact name and title
Federal tax identifier (EIN or SSN)	Contact phone (office) Contact phone (mobile)
Contact Email Address	

CERTIFICATION: By signature in the above, Offeror certifies that it:

1. will not discriminate against any employee or applicant for employment in violation of Federal Executive Order 11246, [Arizona] State Executive Order 2009-9 or A.R.S. § 41−1461 through 1465;
2. has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted offer. Failure to provide a valid signature affirming the stipulations required by this clause will result in rejection of the Offer. Signing the Offer with a false statement will void the Offer, any resulting contract, and may be subject to legal penalties under law;
3. complies with A.R.S. § 41-3532 when offering electronics or information technology products, services, or maintenance; ad
4. is not debarred from, or otherwise prohibited from participating in any contract awarded by federal, state, or local government.

ACCEPTANCE OF OFFER: State hereby accepts the initial Offer, Revised Offer, or Best and Final Offer identified by the latest date and number at the top of this form (the Accepted Offer). Offeror is now bound (as Contractor) to carry out the Work under the attached Contract, of which the Accepted Offer forms a part. Contractor is cautioned not to commence any billable work or to provide any material or perform any service under the Contract until Contractor receives the applicable Order or written notice to proceed from the Procurement Officer.

State's Contract Number is: _____ **Contract Effective Date:** _____

Procurement Officer Signature	Award Date	Procurement Officer Name	Title

Request for Proposal

Solicitation No. BPM003541

Security and Protection Systems - Statewide

Arizona Department of Administration
General Services Division
1400 W. Washington St., Ste., B200
Phoenix, AZ 85007

Organization Profile

Firm Name		Year established	
Principal address (street, city, state)			
Entity type:		Structure:	
Branch or Division:		Parent:	
Years of experience providing goods similar in type and quantity as required by this Solicitation.			
Years of experience performing services similar in size and scope as required by this Solicitation.			
Years the organization has conducted business in Arizona.			

Contract Representatives to Contact

	Name	Title	Telephone Number	E-Mail Address
1.				
2.				
3.				

Licenses/Certifications

	Description	Issuer	Number	Expiration
4.				
5.				
6.				
7.				
8.				

Financial Information (attach financial statements with income/balance sheets as Supplements)

	Rating/Issuer	Score/Rank	Date
9.			
10			

Capacity

	Location	Work Performed	Number Staff	Capacity
11				
12				
13				

	Request for Proposal **Solicitation No. BPM003541** **Security and Protection Systems - Statewide**	Arizona Department of Administration General Services Division 1400 W Washington St., Ste. B200 Phoenix, AZ 85007

References

The State intends to conduct reference checks for accounts referenced provided by Offerors. It may, at its sole discretion contact additional clients not presented as references.

Offerors shall provide at least three (3) client references for assignments that replicate or mirror the requirements of this RFP. Preferred at least one (1) of the projects referenced is Arizona government related. All assignments shall be for assignments received and completed within the last five (5) years.

1 Company Name	Contact Name and Title
Address	Email address and Telephone
Service Begin Date:	Service End Date:
Event Scope and deliverables, include number of resources engaged in project, timeline of project (major milestones)	
List job positions provided and technologies utilized to supplement services.	

2 Company Name	Contact Name and Title
Address	Email address and Telephone
Service Begin Date:	Service End Date:
Event Scope and deliverables, include number of resources engaged in project, timeline of project (major milestones)	
List job positions provided and technologies utilized to supplement services.	

3 Company Name	Contact Name and Title
Address	Email address and Telephone
Service Begin Date:	Service End Date:
Event Scope and deliverables, include number of resources engaged in project, timeline of project (major milestones)	
List job positions provided and technologies utilized to supplement services.	

	Request for Proposal **Solicitation No. BPM003541** **Security and Protection Systems - Statewide**	Arizona Department of Administration General Services Division 1400 W. Washington St., Ste. B200 Phoenix, AZ 85007

Key Personnel Proposal

Answer all questions thoroughly in the spaces provided. **Complete this form in full for each one of the key personnel proposed to be involved in carrying out the Work**. Insert or attach a separate resume if desired, but any attached resumes are supplemental to this form and do not substitute for this form. If there are more than three (3) Key Personnel, please utilize the same form for each additional Personnel.

1	**Name:**	x	How long with company?	x years
	Current position in company:	x	How long in position?	x years
	Position for the Services:	x	How much of time will be dedicated to the Services?	x %
	What primary functions will be assigned?	x		
	Describe person's experience in performing services like those that are to be assigned:	x		
	List person's job-related training and education:	x		
	Resume:	filename		

2 Name:	x	How long with company?	x years
Current position in company:	x	How long in position?	x years
Position for the Services:	x	How much of time will be dedicated to the Services?	x %
What primary functions will be assigned?	x		
Describe person's experience in performing services like those that are to be assigned:	x		
List person's job-related training and education:	x		
Resume:	filename		

3	**Name:**	**x**	How long with company?	x years
	Current position in company:	x	How long in position?	x years
	Position for the Services:	x	How much of time will be dedicated to the Services?	x %
	What primary functions will be assigned?	x		
	Describe person's experience in performing services like those that are to be assigned:	x		
	List person's job-related training and education:	x		
	Resume:	filename		

	Request for Proposal **Solicitation No. BPM003541** **Security and Protection Systems - Statewide**	Arizona Department of Administration General Services Division 1400 W Washington St., Ste. B200 Phoenix, AZ 85007

Proposed Subcontractors

Check "NO" if you WILL NOT subcontract any portion of the Work and will therefore be carrying out all of the Work with your own personnel.

☐	NO, the Offeror will not subcontract any portion of the Work.

If you WILL subcontract any portion of the Work, check "YES" below and list name of persons or companies you propose to use as subcontractors.

1. Fill in the information for every significant subcontractor – indicate the type of work the subcontractor will perform under the Contract, and their approximate percentage of the total Contract work.
2. Provide copies of relevant certifications each one possesses in the Attachment Supplements section.
3. Provide description of quality assurance methods and quality control measures that you will use to ensure that Subcontractor work meets the Contract requirements.
4. State may demand additional information about proposed subcontractors as a precondition of award.

☐	YES, the Offeror will use the Subcontractors listed below:

	Name and contact information	Small Business	Work to be performed	%
1.	Name	select		
1.	Name	select		
2.	Name	select		
3.	Name	select		
4.	Name	select		
5.	Name	select		
6.	Name	select		
7.	Name	select		
8.	Name	select		
9.	Name	select		

	Request for Proposal **Solicitation No. BPM003541** **Security and Protection Systems - Statewide**	Arizona Department of Administration General Services Division 1400 W Washington St, Ste. B200 Phoenix, AZ 85007

Boycott of Israel Disclosure

Please note that if <u>any</u> of the following apply to this Solicitation, Contract, or Contractor, then the Offeror <u>shall</u> select the "Exempt Solicitation, Contract, or Contractor" option below:

- The Solicitation or Contract has an estimated value of less than $100,000;
- Contractor is a sole proprietorship;
- Contractor has fewer than ten (10) employees; OR
- Contractor is a non-profit organization.

Pursuant to A.R.S. §35-393.01, public entities are prohibited from entering into contracts "unless the contract includes a written certification that the company is not currently engaged in, and agrees for the duration of the contract to not engage in, a boycott of goods or services from Israel."

Under A.R.S. §35-393:

1. "Boycott" means engaging in a refusal to deal, terminating business activities or performing other actions that are intended to limit commercial relations with entities doing business in Israel or in territories controlled by Israel, if those actions are taken either:
   (a) Based in part on the fact that the entity does business in Israel or in territories controlled by Israel.
   (b) In a manner that discriminates on the basis of nationality, national origin or religion and that is not based on a valid business reason.
2. "Company" means an organization, association, corporation, partnership, joint venture, limited partnership, limited liability partnership, limited liability company or other entity or business association, including a wholly owned subsidiary, majority-owned subsidiary, parent company or affiliate, that engages in for-profit activity and that has ten or more full-time employees.

   …

5. "Public entity" means this State, a political subdivision of this State or an agency, board, commission or department of this State or a political subdivision of this State.

The certification below does <u>not</u> include boycotts prohibited by 50 United States Code Section 4842 or a regulation issued pursuant to that section. *See* A.R.S. §35-393.03.

In compliance with A.R.S. §§35-393 *et seq*., all offerors must select one of the following:

□ The Company submitting this Offer **<u>does not</u>** participate in, and agrees not to participate in during the term of the contract, a boycott of Israel in accordance with A.R.S. §§35-393 *et seq*. I understand that my entire response will become a public record in accordance with A.A.C. R2-7-C317.

□ The Company submitting this Offer **<u>does</u>** participate in a boycott of Israel as described in A.R.S. §§35-393 *et seq*.

□ **Exempt Solicitation, Contract, or Contractor.**
Indicate which of the following statements applies to this Contract:
- Solicitation or Contract has an estimated value of less than $100,000;
- Contractor is a sole proprietorship;
- Contractor has fewer than ten (10) employees; and/or
- Contractor is a non-profit organization.

Company Name	Signature of Person Authorized to Sign
Address	Printed Name
City State Zip	Title

	Request for Proposal **Solicitation No. BPM003541** **Security and Protection Systems - Statewide**	Arizona Department of Administration **General Services Division** 1400 W Washington St., Ste. B200 Phoenix, AZ 85007

Confidential Information Designation

All materials submitted as part of a response to a solicitation are subject to Arizona public records law and will be disclosed if there is an appropriate public records request at the time of or after the award of the contract. Recognizing there may be materials included in a solicitation response that are proprietary or a trade secret, a process is set out in A.A.C. R2-7-103 (copy attached) that will allow qualifying materials to be designated as confidential and excluded from disclosure. For purposes of this process the definition of "trade secret" will be the same as that set out in A.A.C. R2-7-101(52).

Complete this form and return it with your Offer **along with the appropriate supporting information** to assist the State in making its determination as to whether any of the materials submitted as part of your Offer should be designated confidential because the material is proprietary or a trade secret and therefore not subject to disclosure.

STATE WILL NOT CONSIDER ANY MATERIAL IN YOUR OFFER "CONFIDENTIAL" UNLESS DESIGNATED ON THIS FORM.

Check one of the following – if neither is checked, State will assume that as equivalent to "DOES NOT":

☐	This response DOES NOT contain proprietary or trade secret information. I understand that my entire response will become public record in accordance with A.A.C. R2-7-C317.
☐	This response DOES contain trade secret information because it contains information that: 1. Is a formula, pattern, compilation, program, device, method, technique or process, AND 2. Derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use; AND 3. Is the subject of efforts by myself or my organization that are reasonable under the circumstances to maintain its secrecy.

NOTE: Failure to attach an explanation may result in a determination that the information does not meet the statutory trade secret definition. All information that does not meet the definition of trade secret as defined by A.A.C. R2-7-101(52) will become public in accordance with A.A.C. R2-7-C317. State may make its own determination on materials in accordance with A.A.C. R2-7-103.

If State agrees with Offeror's designation of trade secret or confidentiality and the determination is challenged, the undersigned hereby agrees to cooperate and support the defense of the determination with all interested parties, including legal counsel or other necessary assistance.

By submitting this response, Offeror agrees that the entire Offer, including confidential, trade secret and proprietary information may be shared with an evaluation committee and technical advisors during the evaluation process. Offeror agrees to indemnify and hold State, its agents and employees, harmless from any claims or causes of action relating to State's withholding of information based upon reliance on the above representations, including the payment of all costs and attorney fees incurred by State in defending such an action.

Offeror Company Name	Signature of Authorized Person
Address	Printed Name
City State Zip	Title

Copy of A.A.C. R2-7-103 [Confidential Information] as was current at time of Solicitation issuance

PROVIDED FOR REFERENCE ONLY

A. If a person wants to assert that a person's offer, specification, or protest contains a trade secret or other proprietary information, a person shall include with the submission a statement supporting this assertion. A person shall clearly designate any trade secret and other proprietary information, using the term "confidential". Contract terms and conditions, pricing, and information generally available to the public are not considered confidential information under this Section.

B. Until a final determination is made under subsection (C), an agency chief procurement officer shall not disclose information designated as confidential under subsection (A) except to those individuals deemed by an agency chief procurement officer to have a legitimate state interest.

C. Upon receipt of a submission, an agency chief procurement officer shall make one of the following written determinations:

1. The designated information is confidential and the agency chief procurement officer shall not disclose the information except to those individuals deemed by the agency chief procurement officer to have a legitimate state interest;

2. The designated information is not confidential; or

3. Additional information is required before a final confidentiality determination can be made.

D. If an agency chief procurement officer determines that information submitted is not confidential, a person who made the submission shall be notified in writing. The notice shall include a time period for requesting a review of the determination by the state procurement administrator.

E. An agency chief procurement officer may release information designated as confidential under subsection (A) if:

1. A request for review is not received by the state procurement administrator within the time period specified in the notice; or

2. The state procurement administrator, after review, makes a written determination that the designated information is not confidential.

- - -

	Request for Proposal **Solicitation No. BPM003541** **Security and Protection Systems - Statewide**	Arizona Department of Administration General Services Division 1400 W. Washington St., Ste. B200 Phoenix, AZ 85007

Conformance Statements

If taking exceptions, the Attachment Supplements must be uploaded as a separate word doc. file titled "Attachment Supplement -"

STATE WILL NOT CONSIDER ANY EXCEPTIONS UNLESS DESIGNATED ON THIS FORM.

READ PARAGRAPH 6.8 OF THE INSTRUCTIONS TO OFFERORS BEFORE TAKING ANY EXCEPTIONS – TAKING EXCEPTIONS CAN BE GROUNDS FOR STATE REJECTING OR DOWN-GRADING YOUR OFFER IN EVALUATION.

CONFORMANCE TO THE INSTRUCTIONS TO OFFERORS

Check one of the following – if neither is checked, State will assume that as equivalent to "YES":

☐ YES – Offeror acknowledges that it has read and understands the Special Instructions to Offerors and Uniform Instructions to Offerors of the Solicitation Documents and attests that its Offer complies.

☐ NO – Offeror acknowledges that it has read and understands the Instructions to Offerors in the Solicitation Documents, and attests that its Offer complies with both EXCEPT FOR the exceptions listed in **Attachment Supplement 1**.

CONFORMANCE TO SCOPE OF WORK AND PRICING

Check one of the following – if neither is checked, State will assume that as equivalent to "YES":

☐ YES – Offeror acknowledges that it has read and understands the Scope of Work Document and the Pricing Document of the Solicitation Documents and attests that its Offer complies with both.

☐ NO – Offeror acknowledges that it has read and understands the Scope of Work Document and the Pricing Document of the Solicitation Documents and attests that its Offer complies with both EXCEPT FOR the exceptions listed in **Attachment Supplement 2**.

CONFORMANCE TO THE CONTRACT TERMS AND CONDITIONS

Check one of the following – if neither is checked, State will assume that as equivalent to "YES":

☐ YES – Offeror acknowledges that it has read and understands the Special Terms and Conditions and the Uniform Terms and Conditions, along with their respective Exhibits and Appendices of the Solicitation Documents and attests that its Offer complies with both.

☐ NO – Offeror acknowledges that it has read and understand the Special Terms and Conditions and the Uniform Terms and Conditions, along with their respective Exhibits and Appendices 2 of the Solicitation Documents and attests that its Offer complies with both EXCEPT FOR the exceptions listed in **Attachment Supplement 3**.

Letter of Insurability

The Offeror shall provide a Letter of Insurability from the Insurance Company as a proof that the Offeror currently possesses the required insurance as stated in the Section 6.2 of Special Terms and Conditions or the Offeror is able to obtain the required Minimum Scope and Limits of Insurance should a contract be awarded to them.

The Letter of Insurability (and any additional letters) should be clearly marked as

Attachment - Supplement Insurance

NOTE: If Awarded a Contract, The Offeror shall provide a Certificate of Insurance (e.g. ACORD forms) and associated policy endorsement(s) prior to beginning service(s) under the Contract.

BPM003541 Pricing Document
Security and Protection Systems - Statewide

Offeror:_____

Labor Rates applicable to Installation, Inspection, Replacement, Removal, Maintenance, Repair, and Programming at a minimum
Provide pricing as requested below, additions under Other Miscellaneous allowed

CATEGORY: ACCESS CONTROL SYSTEMS

	LABOR RATES	
	Technician (Hourly)	Programmer/Advanced Technician (Hourly)
Standard Labor Rates All Inclusive (40 Hours or Less per Week)	$	$
Overtime Hours (Over 40 Hours per Week) & Weekend/Holiday Labor Rates	$	$

Please **mark** STATEWIDE or indicate REGION your Company will provide services

_____ **Statewide** _____ Region 1 _____ Region 2 _____ Region 3 _____ Region 4

_____ Region 5 _____ Region 6 _____ Region 7

OTHER MISCELLANEOUS LABOR COSTS	
Description	Rate per Hour
1	$
2	$
3	$

CATEGORY: INTRUSION SYSTEMS

	LABOR RATES	
	Technician (Hourly)	Programmer/Advanced Technician (Hourly)
Standard Labor Rates All Inclusive (40 Hours or Less per Week)	$	$
Overtime Hours (Over 40 Hours per Week) & Weekend/Holiday Labor Rates	$	$

Please **mark** STATEWIDE or indicate REGION your Company will provide services

_____ **Statewide** _____ Region 1 _____ Region 2 _____ Region 3 _____ Region 4

_____ Region 5 _____ Region 6 _____ Region 7

OTHER MISCELLANEOUS LABOR COSTS	
Description	Rate per Hour
1	$
2	$
3	$

Additional Serivces	
	Monthly
Monitoring	$

CATEGORY: CLOSED CIRCUIT TELEVISION SYSTEMS (CCTV)

	LABOR RATES	
	Technician (Hourly)	Programmer/Advanced Technician (Hourly)
Standard Labor Rates All Inclusive (40 Hours or Less per Week)	$	$
Overtime Hours (Over 40 Hours per Week) & Weekend/Holiday Labor Rates	$	$

Please **mark** STATEWIDE or indicate REGION your Company will provide services

_____ **Statewide** _____ Region 1 _____ Region 2 _____ Region 3 _____ Region 4

_____ Region 5 _____ Region 6 _____ Region 7

OTHER MISCELLANEOUS LABOR COSTS	
Description	Rate per Hour
1	$
2	$
3	$

7. B.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Sam Beckett, Public Works Streets Section Director

Co-Submitter: Scott Overton

Date: 08/31/2023

Meeting Date: 09/05/2023

TITLE:

Consideration and Approval of Contract: Cooperative Purchase Contract with Carahsoft Technology Corporation for OpenGov Asset Management/Work Order Software in the amount of $95,188.01.

STAFF RECOMMENDED ACTION:

1. Approve the Cooperative Purchase Contract with Carahsoft Technology Corporation for OpenGov Asset Management/Work Order Software in the amount of $95,188.01; and
2. Authorize the City Manager to execute the necessary documents.

Executive Summary:

The Streets Section has worked with a version of the OpenGov Asset Management/ Work Order software for over 10 years to maintain and track all department asset inventory and as the primary work order management tool. The software management tool from OpenGov is now available from Carahsoft Technology Corporation through the Omnia Partners Cooperative. The Streets Section desires to continue to utilize OpenGov in its path forward with asset management systems, including, to integrate with City GIS to develop reporting dashboards that provide real time work data. The Streets Section is excited to utilize OpenGov as the next evolution of asset managment/work order software.

Financial Impact:

The Streets Section budgeted $250,000 for a full asset management/work order tool in FY2023-24. Through the use of the OpenGov software, Carahsoft Technology Corporation is committed to meet the current demands of the Streets Section. Because the Streets Section has worked with a prior version of the OpenGov software, the costs of onboarding has been reduced. The cost of the OpenGov software is $95,188.01 against the budgeted $250,000 allowing HURF to reduce the financial burden previously expected.

Policy Impact:

The use of a Cooperative Purchase Contract for a newer version of the software that the Streets Section had been using in the past will allow the Streets Section to efficiently and effectively manage all Streets assets, customer request, and work delivery. This directly supports the City's mission to provide the highest service levels possible while reducing financial impacts and duplicated efforts.

Connection to PBB Priorities/Objectives, Carbon Neutrality Plan & Regional Plan:

Priority Based Budget Key Community Priorities and Objectives

High Performing Governance--Enhance community engagement & strengthen relationships between the community & public safety services. Streets believes this Cooperative Purchase Contract with Carahsoft Technology Corporation will support staff in the enhancement work management and citizen reporting moving forward. It will also continue the management of the Streets Road Repair/ Street Safety program which delivers roughly $6,000,000 worth of road repairs each year as part of the 2014 Prop 206 approval.

Has There Been Previous Council Decision on This:

No

Background/History:

The Purchasing Section Staff has reviewed the competitively solicited cooperative purchase options available and confirmed that OMNIA Partners contract number R191902 with Carahsoft Technology Corporation is valid and within the scope of the materials and services requested. Omnia Partners contract number: R191902 initial award ran from May 1, 2020 through April 30, 2023 with the option to renew for two (2) additional one (1) year periods through April 30, 2025. First renewal option has been exercised to extend contract to April 30, 2024.

Attachments: Cooperative Contract

COOPERATIVE PURCHASE CONTRACT
Contract No. 2024-38

This Cooperative Purchase Contract is made and entered into this _____ day of _____, 20_____by and between the City of Flagstaff, Arizona, a political subdivision of the State of Arizona ("City") and Carahsoft Technology Corporation, a Virginia S Corporation ("Contractor").

RECITALS:

A. Contractor is a fully authorized vendor of Asset Management/Work Order Management Software;

B. Omnia Partners National Cooperative conducted a competitive and open procurement process through Request for Proposal Solicitation No. 19-19 that resulted in Contract No. R191902 with Contractor ("Agency Contract"); and

C. The City has authority to enter into a cooperative purchase contract with Contractor utilizing the Agency Contract.

AGREEMENT:

NOW THEREFORE, in consideration for the mutual promises contained herein, the parties agree as follows:

1. Materials and or Services Purchased: Contractor shall provide to the City the materials and or services, as specified in the Scope of Work attached as *Exhibit A*, and in accordance with the Agency Contract. A general description of materials and/or services being purchased is:

Asset Management/Work Order Management Software

2. Specific Requirements of City: Contractor shall comply with all specific purchase and delivery requirements and/or options of City, as specified in the Scope of Work attached as *Exhibit A* and incorporated by reference.

3. Payment: Payment to Contractor for the materials and or services provided for **Ninety-Five Thousand, One Hundred Eighty-Eight Dollars and One Cent ($95,188.01), in addition to other fees and taxes**; made in accordance with the price list and terms set forth in the Agency Contract.

4. Terms and Conditions of Agency Contract Apply: All provisions of the Agency Contract documents attached as *Exhibit B*, including any amendments, are incorporated in and shall apply to this Contract as though fully set forth herein. Contractor is responsible for promptly notifying City in writing of any changes to the Agency Contract, including, specifically changes in price for materials and/or services.

5. Certificates of Insurance: All insurance provisions of the Agency Contract shall apply, including any requirement to name the City as an additional insured. Prior to commencing performance under this Contract, Contractor shall furnish City with a copy of the current Certificate of Insurance required by the Agency Contract.

6. Term: This Cooperative Purchase Contract shall commence upon execution by the Parties and shall continue until expiration or termination of the underlying Agency Contract, unless sooner terminated by City in writing.

7. Renewal: This Cooperative Purchase Contract shall be automatically renewed if the underlying Agency Contract is renewed, for the same renewal period, unless City provides advance written notice to Contractor of its intention to non-renew.

Carahsoft Technology Corporation:

By:_____

Title:_____

CITY OF FLAGSTAFF

By:_____

Title:_____

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney's Office

Last Updated July 20,2023

EXHIBIT A
SCOPE OF WORK
(attached)

1. Quote Number 40626512, dated 25 August 2023.

PRICE QUOTATION

CARAHSOFT TECHNOLOGY CORP

11493 SUNSET HILLS ROAD | SUITE 100 | RESTON, VIRGINIA 20190
PHONE (703) 871-8500 | FAX (703) 871-8505 | TOLL FREE (888) 66CARAH
WWW.CARAHSOFT.COM | SALES@CARAHSOFT.COM

TO: Samuel Beckett
City of Flagstaff, AZ
AZ USA

EMAIL: Samuel.beckett@flagstaffaz.gov

PHONE:

FROM: Heather Castellanos
Carahsoft Technology Corp.
11493 Sunset Hills Road
Suite 100
Reston, Virginia 20190

EMAIL: Heather.Castellanos@carahsoft.com

PHONE: (571) 662-3750 **FAX:**

TERMS: OMNIA EDU contract: R191902
Term: April 30, 2025
FTIN:52-2189693
Shipping Point: FOB Destination
Credit Cards: VISA/MasterCard/AMEX
Remit To: Same as Above
Payment Terms: Net 30 (On Approved Credit)
Sales Tax May Apply

QUOTE NO:	40626512
QUOTE DATE:	08/25/2023
QUOTE EXPIRES:	09/24/2023
RFQ NO:	
SHIPPING:	ESD
TOTAL PRICE:	$87,183.68
	$8,004.33
TOTAL QUOTE:	$95,188.01

LINE NO.	PART NO.	DESCRIPTION	COOP	QUOTE PRICE		QTY	EXTENDED PRICE
1	OG-TWAQ-B300500M-AR-1Y-756	Asset Management - Between $300-500 Million - 1Y OpenGov, Inc. - OG-TWAQ-B300500M-AR-1Y Start Date: 07/31/2023 End Date: 07/30/2024	$48,510.00	$43,987.71	COOP	1	$43,987.71
2	OG-CUSN-22-CG-ALL-756	FMS & OMS: FMS Property Portfolio; FMS Space Management; OMS Plus Edition; OMS Named User Licenses; OMS Facilities Domain; Orange Advantage – Large; OpenGov Professional Services Deployment OpenGov, Inc. - OG-CUSN-22-CG-ALL Start Date: 07/31/2023 End Date: 07/30/2024	$343,000.00	$15,118.53	COOP	1	$15,118.53
3	OG-TWAY-B300500M-AR-1Y-756	Parks & Recreation Domain - Between $300-500 Million - 1Y OpenGov, Inc. - OG-TWAY-B300500M-AR-1Y Start Date: 07/31/2023 End Date: 07/30/2024	$6,452.32	$2,521.05	COOP	1	$2,521.05
4	OG-TWBA-B300500M-AR-1Y-756	Signal Domain - Between $300-500 Million - 1Y OpenGov, Inc. - OG-TWBA-B300500M-AR-1Y Start Date: 07/31/2023 End Date: 07/30/2024	$3,227.14	$3,025.24	COOP	1	$3,025.24
5	OG-TWBC-B300500M-AR-1Y-756	Transportation Domain - Between $300-500 Million - 1Y OpenGov, Inc. - OG-TWBC-B300500M-AR-1Y Start Date: 07/31/2023 End Date: 07/30/2024	$9,678.48	$6,212.40	COOP	1	$6,212.40

PRICE QUOTATION

carahsoft.

CARAHSOFT TECHNOLOGY CORP

11493 SUNSET HILLS ROAD | SUITE 100 | RESTON, VIRGINIA 20190
PHONE (703) 871-8500 | FAX (703) 871-8505 | TOLL FREE (888) 66CARAH
WWW.CARAHSOFT.COM | SALES@CARAHSOFT.COM

LINE NO.	PART NO.	DESCRIPTION	COOP	QUOTE PRICE	QTY	EXTENDED PRICE
6	OG-TWBD-B300500M-AR-1Y-756	Walkability Domain - Between $300-500 Million - 1Y OpenGov, Inc. - OG-TWBD-B300500M-AR-1Y Start Date: 07/31/2023 End Date: 07/30/2024	$4,516.82	$1,512.62 COOP	1	$1,512.62
7	OG-TWAS-B300500M-AR-1Y-756	Asset Builder - Between $300-500 Million - 1Y OpenGov, Inc. - OG-TWAS-B300500M-AR-1Y Start Date: 07/31/2023 End Date: 07/30/2024	$7,276.50	$7,250.00 COOP	1	$7,250.00
8	OG-CUSN-22-CG-ALL-756	FMS & OMS: FMS Property Portfolio; FMS Space Management; OMS Plus Edition; OMS Named User Licenses; OMS Facilities Domain; Orange Advantage – Large; OpenGov Professional Services Deployment OpenGov, Inc. - OG-CUSN-22-CG-ALL Start Date: 07/31/2023 End Date: 07/30/2024	$343,000.00	$7,556.13 COOP	1	$7,556.13
		SUBTOTAL:				$87,183.68

TOTAL PRICE:	**$87,183.68**
	$8,004.33
TOTAL QUOTE:	**$95,188.01**

Opengov Terms of Service

Annual invoices will be delivered by the start of each consecutive annual period. Payment of invoices shall be annually in advance. Customer's use of the OpenGov services is pursuant to the OpenGov End User License Agreement set forth at https://opengov.com/terms-of-service/end-user-license-agreement/

****PLEASE NOTE****
Please be sure to include any applicable contract numbers on your purchase order, as well as, all billing and shipping emails and mailing addresses to ensure your order can be processed in a timely manner.

For orders that may be subject to taxes, please provide the end user's mailing address so the correct tax rate, if any, can be applied.

QUOTE DATE: 08/25/2023
QUOTE NO: 40626512

EXHIBIT B
AGENCY CONTRACT
(attached)

1. Omnia Partners Contract Award Request for Proposal Solicitation No. 19-19 resulting in Contract # R191902
2. Contract Amendment Summary
3. Carahsoft Pricing Summary

Educational Software Solutions and Services
Executive Summary

Lead Agency: Region 4 ESC

Solicitation: 19-19

RFP Issued: October 2, 2019

Pre-Proposal Date: October 15, 2019

Response Due Date: November 19, 2019

Proposals Received: 9

Awarded to: carahsoft

Contract # R191902

The Board of Directors of Region 4 Education Service Center (ESC) issued RFP 19-19 on October 2, 2019, to establish a national cooperative contract for Educational Software Solutions and Services

The solicitation included cooperative purchasing language in Section I. Scope of Work:

NATIONAL CONTRACT

Region 4 ESC, as the Principal Procurement Agency, defined in Appendix D, has partnered with OMNIA Partners to make the resultant contract (also known as the "Master Agreement" in materials distributed by OMNIA Partners) from this solicitation available to other public agencies nationally, including state and local governmental entities, public and private primary, secondary and higher education entities, non-profit entities, and agencies for the public benefit ("Public Agencies"), through OMNIA Partners' cooperative purchasing program. The Region 4 is acting as the contracting agency for any other Public Agency that elects to utilize the resulting Master Agreement. Use of the Master Agreement by any Public Agency is preceded by their registration with OMNIA Partners (a "Participating Public Agency"). Appendix D contains additional information about OMNIA Partners and the cooperative purchasing agreement.

Notice of the solicitation was sent to potential offerors, as well as advertised in the following:

- Region 4 ESC website
- OMNIA Partners, Public Sector website
- USA Today, nationwide
- Arizona Business Gazette, AZ
- San Bernardino Sun, CA
- Honolulu Star-Advertiser, HI
- The Advocate – New Orleans, LA
- New Jersey Herald, NJ
- Times Union, NY
- Daily Journal of Commerce, OR
- The State, SC
- Houston Community Newspapers, Cy Creek Mirror, TX
- Deseret News, UT
- Richmond Times, VA
- Seattle Daily Journal of Commerce, WA
- Helena Independent Record, MT

On November 19, 2019 proposals were received from the following offerors:

- Agile Mind Educational Holding
- Carahsoft Technology Corporation
- Edmentum, Inc.
- Encore Technology Group LLC
- JourneyEd.com, Inc. dba Academic Superstore
- SchoolStatus
- Schoology, Inc.
- Super Duper® Inc. d/b/a/ Super Duper® Publications
- Urban Policy Development, LLC (d/b/a/ "UPD Consulting")

The proposals were evaluated by an evaluation committee. Using the evaluation criteria established in the RFP, the committee determined that Carahsoft Technology Corporation demonstrated the ability to provide the products and services outlined in the solicitation while offering competitive pricing to members.

Region 4 ESC executed agreements with a contract effective date of May 1, 2020.

Contract Highlights:

Carahsoft Technology Corp. is The Trusted Government IT Solutions Provider®, combining technological expertise with a thorough understanding of the government procurement process to help state, and local government agencies select and implement the best solution at the best possible value. As one of the most successful, fastest growing technology solution providers in the nation and the largest government partner and master government aggregator for many of its best-of-breed vendors, managing their public sector reseller networks and driving demand for their offerings.

Contract includes:

Full line of products and services. Some manufactures included (not limited to) are Granicus, FireEye., Veritas, VMWare, Symantec

Term:

Initial three-year agreement from May 1, 2020 through April 30, 2023 with the option to renew for two (2) additional one-year periods through April 30, 2025.

Pricing/Discount:

Discount off manufacture list price for all products and services. Additional discounts can be provided on a deal-by-deal basis.

OMNIA Partners, Public Sector Web Landing Page:

https://www.omniapartners.com/publicsector/contracts/supplier-contracts/carahsoft-technology-corp

DocuSign Envelope ID: E9C92BF9-5B25-4342-AD47-E80F6A983A57

October 25, 2022

Ms. Jennifer Kanach
Proposals Director
Carahsoft Technology Corporation
11493 Sunset Hills Road, Suite 100
Reston, VA 20190
sales@carahsoft.com

Re: Renewal Award of Contract # R191902

Dear Ms. Kanach:

Per official action taken by the Board of Directors of Region 4 Education Service Center on October 25, 2022, Region 4 ESC is pleased to announce that Carahsoft Technology Corporation has been awarded an annual contract renewal for the following, based on the sealed proposal submitted to Region 4 on November 19, 2019, and subsequent performance thereafter:

Contract

Educational Software Solutions and Services

The contract will expire on April 30, 2024, completing the fourth year of a five-year term contract. The contract is available through OMNIA Partners, Public Sector. Your designated OMNIA Partners, Public Sector contact is Deborah Bushnell, at (713) 554-7348 or deborah.bushnell@omniapartners.com

The partnership between Carahsoft Technology Corporation, Region 4 and OMNIA Partners, Public Sector can be of great help to participating agencies. Please provide copies of this letter to your sales representative(s) to assist in their daily course of business.

Sincerely,

DocuSigned by:
Robert Zingelmann
30EE15BFEF1C4C6...

Robert Zingelmann
Chief Financial Officer, Finance and Operations Services

Region 4 Education Service Center (ESC)

Contract # R191902

for

Educational Software Solutions and Services

with

Carahsoft Technologies

Effective: May 1, 2020

The following documents comprise the executed contract between the Region 4 Education Service Center and Carahsoft Technologies effective May 1, 2020:

I. Appendix A; Vendor Contract
II. Offer & Contract Signature Form
III. Supplier's Response to the RFP, incorporated by reference

TAB 1 – DRAFT CONTRACT AND OFFER AND CONTRACT SIGNATURE FORM (APPENDIX A)

Please see the following page for the Offer and contract Signature Form (Appendix A).

APPENDIX A

CONTRACT

This Contract ("Contract") is made as of February 25, 2020 by and between Carahsoft Technologies ("Contractor") and Region 4 Education Service Center ("Region 4 ESC") for the purchase of Educational Software Solutions and Services ("the products and services").

RECITALS

WHEREAS, Region 4 ESC issued Request for Proposals ("RFP") Number 19-19 for Educational Software Solutions and Services, to which Contractor provided a response ("Proposal"); and

WHEREAS, Region 4 ESC selected Contractor's Proposal and wishes to engage Contractor in providing the services/materials described in the RFP and Proposal;

WHEREAS, both parties agree and understand the following pages will constitute the Contract between the Contractor and Region 4 ESC, having its principal place of business at 7145 West Tidwell Road, Houston, TX 77092.

WHEREAS, Contractor included, in writing, any required exceptions or deviations from these terms, conditions, and specifications; and it is further understood that, if agreed to by Region 4 ESC, said exceptions or deviations are incorporated into the Contract.

WHEREAS, this Contract consists of the provisions set forth below, including provisions of all attachments referenced herein. In the event of a conflict between the provisions set forth below and those contained in any attachment, the provisions set forth below shall control.

WHEREAS, the Contract will provide that any state and local governmental entities, public and private primary, secondary and higher education entities, non-profit entities, and agencies for the public benefit ("Public Agencies") may purchase products and services at prices indicated in the Contract upon the Public Agency's registration with OMNIA Partners.

1) Term of agreement. The Contract is for a period of three (3) years. Region 4 ESC shall have the right to renew the Contract for two (2) additional one-year periods or portions thereof. Region 4 ESC shall review the Contract prior to the renewal date and notify the Contractor of Region 4 ESC's intent renew the Contract. Contractor may elect not to renew by providing three hundred sixty-five days' notice to Region 4 ESC.

2) Scope: Contractor shall perform all duties, responsibilities and obligations, set forth in this agreement, and described in the RFP, incorporated herein by reference as though fully set forth herein.

3) Form of Contract. The form of Contract shall be the RFP, the Offeror's proposal and Best and Final Offer(s).

4) Order of Precedence. In the event of a conflict in the provisions of the Contract as accepted by Region 4 ESC, the following order of precedence shall prevail:

    i. This Contract

ii. Offeror's Best and Final Offer
iii. Offeror's proposal
iv. RFP and any addenda

5) Commencement of Work. The Contractor is cautioned not to commence any billable work or provide any material or service under this Contract until Contractor receives a purchase order for such work or is otherwise directed to do so in writing by Region 4 ESC.

6) Entire Agreement (Parol evidence). The Contract, as specified above, represents the final written expression of agreement. All agreements are contained herein and no other agreements or representations that materially alter it are acceptable.

7) Assignment of Contract. No assignment of Contract may be made without the prior written approval of Region 4 ESC. Contractor is required to notify Region 4 ESC when any material change in operations is made (i.e. bankruptcy, change of ownership, merger, etc.).

8) Novation. If Contractor sells or transfers all assets or the entire portion of the assets used to perform this Contract, a successor in interest must guarantee to perform all obligations under this Contract. Region 4 ESC reserves the right to accept or reject any new party. A change of name agreement will not change the contractual obligations of Contractor.

9) Contract Alterations. No alterations to the terms of this Contract shall be valid or binding unless authorized and signed by Region 4 ESC.

10) Adding Authorized Distributors/Dealers. Contractor is prohibited from authorizing additional distributors or dealers, other than those identified at the time of submitting their proposal, to sell under the Contract without notification and prior written approval from Region 4 ESC. Contractor must notify Region 4 ESC each time it wishes to add an authorized distributor or dealer. Purchase orders and payment can only be made to the Contractor unless otherwise approved by Region 4 ESC. Pricing provided to members by added distributors or dealers must also be less than or equal to the Contractor's pricing.

11) TERMINATION OF CONTRACT

a) Cancellation for Non-Performance or Contractor Deficiency. Region 4 ESC may terminate the Contract if purchase volume is determined to be low volume in any 12-month period. Region 4 ESC reserves the right to cancel the whole or any part of this Contract due to failure by Contractor to carry out any obligation, term or condition of the contract. Region 4 ESC may issue a written deficiency notice to Contractor for acting or failing to act in any of the following:

i. Providing material that does not meet the specifications of the Contract;
ii. Providing work or material was not awarded under the Contract;
iii. Failing to adequately perform the services set forth in the scope of work and specifications;
iv. Failing to complete required work or furnish required materials within a reasonable amount of time;
v. Failing to make progress in performance of the Contract or giving Region 4 ESC reason to believe Contractor will not or cannot perform the requirements of the Contract; or
vi. Performing work or providing services under the Contract prior to receiving an authorized purchase order.

Upon receipt of a written deficiency notice, Contractor shall have ten (10) days to provide a satisfactory response to Region 4 ESC. Failure to adequately address all issues of concern may result in Contract cancellation. Upon cancellation under this paragraph, all goods, materials, work, documents, data and reports prepared by Contractor under the Contract shall immediately become the property of Region 4 ESC.

b) Termination for Cause. If, for any reason, Contractor fails to fulfill its obligation in a timely manner, or Contractor violates any of the covenants, agreements, or stipulations of this Contract Region 4 ESC reserves the right to terminate the Contract immediately and pursue all other applicable remedies afforded by law. Such termination shall be effective by delivery of notice, to the Contractor, specifying the effective date of termination. In such event, all documents, data, studies, surveys, drawings, maps, models and reports prepared by Contractor will become the property of the Region 4 ESC. If such event does occur, Contractor will be entitled to receive just and equitable compensation for the satisfactory work completed on such documents.

c) ~~Delivery/Service Failures. Failure to deliver goods or services within the time specified, or within a reasonable time period as interpreted by the purchasing agent or failure to make replacements or corrections of rejected articles/services when so requested shall constitute grounds for the Contract to be terminated. In the event Region 4 ESC must purchase in an open market, Contractor agrees to reimburse Region 4 ESC, within a reasonable time period, for all expenses incurred.~~ ***Refer to Appendix B***

d) Force Majeure. If by reason of Force Majeure, either party hereto shall be rendered unable wholly or in part to carry out its obligations under this Agreement then such party shall give notice and full particulars of Force Majeure in writing to the other party within a reasonable time after occurrence of the event or cause relied upon, and the obligation of the party giving such notice, so far as it is affected by such Force Majeure, shall be suspended during the continuance of the inability then claimed, except as hereinafter provided, but for no longer period, and such party shall endeavor to remove or overcome such inability with all reasonable dispatch.

The term Force Majeure as employed herein, shall mean acts of God, strikes, lockouts, or other industrial disturbances, act of public enemy, orders of any kind of government of the United States or the State of Texas or any civil or military authority; insurrections; riots; epidemics; landslides; lighting; earthquake; fires; hurricanes; storms; floods; washouts; droughts; arrests; restraint of government and people; civil disturbances; explosions, breakage or accidents to machinery, pipelines or canals, or other causes not reasonably within the control of the party claiming such inability. It is understood and agreed that the settlement of strikes and lockouts shall be entirely within the discretion of the party having the difficulty, and that the above requirement that any Force Majeure shall be remedied with all reasonable dispatch shall not require the settlement of strikes and lockouts by acceding to the demands of the opposing party or parties when such settlement is unfavorable in the judgment of the party having the difficulty.

e) Standard Cancellation. Region 4 ESC may cancel this Contract in whole or in part by providing written notice. The cancellation will take effect 30 business days after the other party receives the notice of cancellation. After the 30th business day all work will cease following completion of final purchase order.

12) Licenses. Contractor shall maintain in current status all federal, state and local licenses, bonds and permits required for the operation of the business conducted by Contractor. Contractor shall remain fully informed of and in compliance with all ordinances and regulations pertaining to the lawful provision of services under the Contract. Region 4 ESC reserves the right to stop work and/or cancel the Contract if Contractor's license(s) expire, lapse, are suspended or terminated.

13) Survival Clause. All applicable software license agreements, warranties or service agreements that are entered into between Contractor and Region 4 ESC under the terms and conditions of the Contract shall survive the expiration or termination of the Contract. All Purchase Orders issued and accepted by Contractor shall survive expiration or termination of the Contract.

14) Delivery. Conforming product shall be shipped within 7 days of receipt of Purchase Order. If delivery is not or cannot be made within this time period, the Contractor must receive authorization for the delayed delivery. The order may be canceled if the estimated shipping time is not acceptable. All deliveries shall be freight prepaid, F.O.B. Destination and shall be included in all pricing offered unless otherwise clearly stated in writing.

15) Inspection & Acceptance. If defective or incorrect material is delivered, Region 4 ESC may make the determination to return the material to the Contractor at no cost to Region 4 ESC. The Contractor agrees to pay all shipping costs for the return shipment. Contractor shall be responsible for arranging the return of the defective or incorrect material.

16) Payments. Payment shall be made after satisfactory performance, in accordance with all provisions thereof, and upon receipt of a properly completed invoice.

17) Price Adjustments. Should it become necessary or proper during the term of this Contract to make any change in design or any alterations that will increase price, Region 4 ESC must be notified immediately. Price increases must be approved by Region 4 ESC and no payment for additional materials or services, beyond the amount stipulated in the Contract shall be paid without prior approval. All price increases must be supported by manufacturer documentation, or a formal cost justification letter. Contractor must honor previous prices for thirty (30) days after approval and written notification from Region 4 ESC. It is the Contractor's responsibility to keep all pricing up to date and on file with Region 4 ESC. All price changes must be provided to Region 4 ESC, using the same format as was provided and accepted in the Contractor's proposal. ***Refer to Appendix B***

Price reductions may be offered at any time during Contract. Special, time-limited reductions are permissible under the following conditions: 1) reduction is available to all users equally; 2) reduction is for a specific period, normally not less than thirty (30) days; and 3) original price is not exceeded after the time-limit. Contractor shall offer Region 4 ESC any published price reduction during the Contract term.

18) Audit Rights. Contractor shall, at its sole expense, maintain appropriate due diligence of all purchases made by Region 4 ESC and any entity that utilizes this Contract. Region 4 ESC reserves the right to audit the accounting for a period of three (3) years from the time such purchases are made. This audit right shall survive termination of this Agreement for a period of one (1) year from the effective date of termination. Region 4 ESC shall have the authority to conduct ~~random audits~~ of Contractor's pricing at Region 4 ESC's sole cost and expense. Notwithstanding the foregoing, in the event that Region 4 ESC is made aware of any pricing being offered that is materially inconsistent with the pricing under this agreement, Region 4 ESC shall have the ability to conduct an extensive audit of Contractor's pricing at Contractor's sole cost and expense. Region 4 ESC may conduct the audit internally or may engage a third-party auditing firm. In the event of an audit, the requested materials shall be provided in the format and at the location designated by Region 4 ESC. ***Refer to Appendix B***

18) Discontinued Products. If a product or model is discontinued by the manufacturer, Contractor may substitute a new product or model if the replacement product meets or exceeds the

specifications and performance of the discontinued model and if the discount is the same or greater than the discontinued model. ***Refer to Appendix B***

19) New Products/Services. New products and/or services that meet the scope of work may be added to the Contract. Pricing shall be equivalent to the percentage discount for other products. Contractor may replace or add product lines if the line is replacing or supplementing products, is equal or superior to the original products, is discounted similarly or greater than the original discount, and if the products meet the requirements of the Contract. No products and/or services may be added to avoid competitive procurement requirements. Region 4 ESC may require additions to be submitted with documentation from Members demonstrating an interest in, or a potential requirement for, the new product or service. Region 4 ESC may reject any additions without cause. ***Refer to Appendix B***

20) Options. Optional equipment for products under Contract may be added to the Contract at the time they become available under the following conditions: 1) the option is priced at a discount similar to other options; 2) the option is an enhancement to the unit that improves performance or reliability.

21) Warranty Conditions. All supplies, equipment and services shall include manufacturer's minimum standard warranty and one (1) year labor warranty unless otherwise agreed to in writing. ***Refer to Appendix B***

22) Site Cleanup. Contractor shall clean up and remove all debris and rubbish resulting from their work as required or directed. Upon completion of the work, the premises shall be left in good repair and an orderly, neat, clean, safe and unobstructed condition.

23) Site Preparation. Contractor shall not begin a project for which the site has not been prepared, unless Contractor does the preparation work at no cost, or until Region 4 ESC includes the cost of site preparation in a purchase order. Site preparation includes, but is not limited to: moving furniture, installing wiring for networks or power, and similar pre-installation requirements. ***Refer to Appendix B***

24) Registered Sex Offender Restrictions. For work to be performed at schools, Contractor agrees no employee or employee of a subcontractor who has been adjudicated to be a registered sex offender will perform work at any time when students are or are reasonably expected to be present. Contractor agrees a violation of this condition shall be considered a material breach and may result in the cancellation of the purchase order at Region 4 ESC's discretion. Contractor must identify any additional costs associated with compliance of this term. If no costs are specified, compliance with this term will be provided at no additional charge.

25) Safety measures. Contractor shall take all reasonable precautions for the safety of employees on the worksite and shall erect and properly maintain all necessary safeguards for protection of workers and the public. Contractor shall post warning signs against all hazards created by its operation and work in progress. Proper precautions shall be taken pursuant to state law and standard practices to protect workers, general public and existing structures from injury or damage. ***Refer to Appendix B***

26) Smoking. Persons working under the Contract shall adhere to local smoking policies. Smoking will only be permitted in posted areas or off premises.

Refer to Appendix B

27) Stored materials. Upon prior written agreement between the Contractor and Region 4 ESC, payment may be made for materials not incorporated in the work but delivered and suitably stored at the site or some other location, for installation at a later date. An inventory of the stored materials must be provided to Region 4 ESC prior to payment. Such materials must be stored and protected in a secure location and be insured for their full value by the Contractor against loss and damage. Contractor agrees to provide proof of coverage and additionally insured upon request. Additionally, if stored offsite, the materials must also be clearly identified as property of Region 4 ESC and be separated from other materials. Region 4 ESC must be allowed reasonable opportunity to inspect and take inventory of stored materials, on or offsite, as necessary. Until final acceptance by Region 4 ESC, it shall be the Contractor's responsibility to protect all materials and equipment. Contractor warrants and guarantees that title for all work, materials and equipment shall pass to Region 4 ESC upon final acceptance.

28) Funding Out Clause. A Contract for the acquisition, including lease, of real or personal property is a commitment of Region 4 ESC's current revenue only. Region 4 ESC retains the right to terminate the Contract at the expiration of each budget period during the term of the Contract and is conditioned on a best effort attempt by Region 4 ESC to obtain appropriate funds for payment of the contract.

29) Indemnity. Contractor shall protect, indemnify, and hold harmless both Region 4 ESC and its administrators, employees and agents against all claims, damages, losses and expenses arising out of or resulting from the actions of the Contractor, Contractor employees or subcontractors in the preparation of the solicitation and the later execution of the Contract. Any litigation involving either Region 4 ESC, its administrators and employees and agents will be in Harris County, Texas.

30) Marketing. Contractor agrees to allow Region 4 ESC to use their name and logo within website, marketing materials and advertisement. Any use of Region 4 ESC name and logo or any form of publicity, inclusive of press releases, regarding this Contract by Contractor must have prior approval from Region 4 ESC.

31) Certificates of Insurance. Certificates of insurance shall be delivered to the Region 4 ESC prior to commencement of work. The Contractor shall give Region 4 ESC a minimum of ten (~~10~~) 15 days' notice prior to any modifications or cancellation of policies. The Contractor shall require all subcontractors performing any work to maintain coverage as specified.

32) Legal Obligations. It is Contractor's responsibility to be aware of and comply with all local, state, and federal laws governing the sale of products/services and shall comply with all laws while fulfilling the Contract. Applicable laws and regulation must be followed even if not specifically identified herein.

OFFER AND CONTRACT SIGNATURE FORM

The undersigned hereby offers and, if awarded, agrees to furnish goods and/or services in strict compliance with the terms, specifications and conditions at the prices proposed within response unless noted in writing.

Company Name	Carahsoft Technology Corporation
Address	11493 Sunset Hills Road, Suite 100
City/State/Zip	Reston, VA 20190
Telephone No.	703.871.8500
Email Address	sales@Carahsoft.com
Printed Name	Jennifer Kanach
Title	Proposals Director
Authorized signature	Jennifer Kanach

Accepted by Region 4 ESC:

Contract No. R191902

Initial Contract Term May 1, 2020 to April 30, 2023

Margaret S. Bass — 2/25/2020
Region 4 ESC Authorized Board Member — Date

Margaret S. Bass
Print Name

Carmen T. Moreno — 2/25/2020
Region 4 ESC Authorized Board Member — Date

Carmen T. Moreno
Print Name

a. Terms and Conditions Acceptance Form (Appendix B)

Please find our Appendix B on the following pages. We have also separately included a redlined version of the document at the end of our submission, and as a separate file in our electronic copy.

Appendix B

TERMS & CONDITIONS ACCEPTANCE FORM

Signature on the Offer and Contract Signature form certifies complete acceptance of the terms and conditions in this solicitation and draft Contract except as noted below with proposed substitute language (additional pages may be attached, if necessary). The provisions of the RFP cannot be modified without the express written approval of Region 4 ESC. If a proposal is returned with modifications to the draft Contract provisions that are not expressly approved in writing by Region 4 ESC, the Contract provisions contained in the RFP shall prevail.

Check one of the following responses:

☐ Offeror takes no exceptions to the terms and conditions of the RFP and draft Contract.

(*Note: If none are listed below, it is understood that no exceptions/deviations are taken.)*

☒ Offeror takes the following exceptions to the RFP and draft Contract. All exceptions must be clearly explained, reference the corresponding term to which Offeror is taking exception and clearly state any proposed modified language, proposed additional terms to the RFP and draft Contract must be included:

(*Note: Unacceptable exceptions may remove Offeror's proposal from consideration for award. Region 4 ESC shall be the sole judge on the acceptance of exceptions and modifications and the decision shall be final.*

If an offer is made with modifications to the contract provisions that are not expressly approved in writing, the contract provisions contained in the RFP shall prevail.)

Section/Page	Term, Condition, or Specification	Exception/Proposed Modification	Accepted (For Region 4 ESC's use)
III.22. /pg 11	22. Samples	Remove current language. Contractor's provided Service Level or End User License Agreement for manufacturers will govern the terms of this section	**Accepted**
IV. 2. a. ii./pg 12	2.a.Products/Pricing ii.	Add the two bullets: "Manufacturer part #" and "Offeror's Part # (if different from manufacturer part #)"	**Accepted**
IV.2.a / pg 13	2.a.Products/Pricing: Not to Exceed Pricing	Remove current language and replace with: Best and Final Offer: Region 4 ESC, in its sole discretion, may request Offerors reasonably susceptible for award to submit a Best and Final Offer. Offerors must submit their Best and	**Accepted**
		Final Offers in writing. If an Offeror does not respond to the request for a Best and Final Offer, that Offeror's most recent prior submission will be considered its Best and Final Offer.	
IV.5/pg 14	5. Additional Investigations	Remove entirely	**Accepted**
Appendix A/pg 16	Draft Contract, Recitals, 11. Termination of Contract a. Cancellation for Non Performance or Contractor Deficiency.	Remove item a. Cancellation for Non-Performance or Contractor Deficiency entirely. Contractor's provided Service Level or End User License Agreement for manufacturers will govern the terms of this section.	**Rejected**
Appendix A/pg 17	Draft Contract, Recitals, 11. Termination of Contract c. Delivery/ Service Failure	Remove item c. Delivery/Service Failure entirely. Contractor's provided Service Level or End User License Agreement for manufacturers will govern the terms of this section.	**Accepted**
Appendix A/pg 17	Draft Contract, Recitals, 12. Licenses	Add "(in adherence of section 11a)"	**Accepted**
Appendix A/pg 18	Draft Contract, Recitals, 15. Inspection & Acceptance	Remove entirely. Contractor's provided Service Level or End User License Agreement for manufacturers will govern the terms of this section.	**Rejected**
Appendix A/pg 18	Draft Contract, Recitals, 17. Price Adjustments	Add "when contractor receives notice" to the end of the first sentence. Change "thirty (30)" days to "fifteen (15)" days. Add "Contractor's provided Service Level or End User License Agreement for manufacturers will additionally govern the terms of this section."	**Accepted**
Appendix A/pg 18	Draft Contract, Recitals, 18. Audit Rights	Remove "random" from "random audits," and add "with no less than (1) business days' notice" immediately following. Carahsoft requests a reasonable amount of time to prepare for an audit. Change "Contractor's sole cost and expense to "Region 4 ESC's sole cost and expense". Carahsoft will give you the ability to conduct an extensive audit, but we will not pay for it.	**Accepted**

Appendix B

TERMS & CONDITIONS ACCEPTANCE FORM

Signature on the Offer and Contract Signature form certifies complete acceptance of the terms and conditions in this solicitation and draft Contract except as noted below with proposed substitute language (additional pages may be attached, if necessary). The provisions of the RFP cannot be modified without the express written approval of Region 4 ESC. If a proposal is returned with modifications to the draft Contract provisions that are not expressly approved in writing by Region 4 ESC, the Contract provisions contained in the RFP shall prevail.

Check one of the following responses:

☐ Offeror takes no exceptions to the terms and conditions of the RFP and draft Contract.

(*Note: If none are listed below, it is understood that no exceptions/deviations are taken.)*

☒ Offeror takes the following exceptions to the RFP and draft Contract. All exceptions must be clearly explained, reference the corresponding term to which Offeror is taking exception and clearly state any proposed modified language, proposed additional terms to the RFP and draft Contract must be included:

(*Note: Unacceptable exceptions may remove Offeror's proposal from consideration for award. Region 4 ESC shall be the sole judge on the acceptance of exceptions and modifications and the decision shall be final.*

If an offer is made with modifications to the contract provisions that are not expressly approved in writing, the contract provisions contained in the RFP shall prevail.)

Section/Page	Term, Condition, or Specification	Exception/Proposed Modification	Accepted (For Region 4 ESC's use)
Appendix A/pg 18-19	Draft Contract, Recitals, 18. Discontinued Products	Add "(unless manufacturer justification is provided and approved by Region 4 ESC)".	**Accepted**
Appendix A/pg 19	Draft Contract, Recitals, 19. New Products/Services	Add "(unless manufacturer justification is provided and approved by Region 4 ESC)" after "...the original discount".	**Accepted**
Appendix A/pg 19	Draft Contract, Recitals, 21. Warranty Options	Add "In accordance with Contractor's provided Service Level or End User License Agreement for manufacturers".Manufacturers terms would have greater applicability on a transactional basis	**Accepted**
Appendix A/pg 19	Draft Contract, Recitals, 23. Site Preparation	Add "(unless the exception of preparation is specified by the service level agreement)" after "...the site has not been prepared..."	**Accepted**
Appendix A/pg 19	Draft Contract, Recitals, 25. Safety measures	Add "Contractor's provided Service Level or End User License Agreement for manufacturers will govern the terms of this section.	**Accepted**
Appendix A/pg 20	Draft Contract, Recitals, 27. Stored Materials	Remove entirely and replace with Contractor's provided Service Level or End User License Agreement for manufacturers will govern the terms of this section ." Carahsoft requests these is a transactional applicability	**Accepted**
Appendix A/pg 20	Draft Contract, Recitals, 31. Certificates of Insurance	Change "...minimum of ten (10) days" to "...minimum of fifteen (15) days". Carahsoft requests 5 extra days to consider our insurance brokers turn around time	**Accepted**
Appendix D, Exhibit A/pg 28-38	Exhibit A Response for National Cooperative Contract	We have included a redlined version of all terms with our response, per the Q&A	

TAB 2 – PRODUCTS/PRICING

i. Offerors shall provide pricing based on a discount from a manufacturer's price list or catalog, or fixed price, or a combination of both with indefinite quantities. Prices listed will be used to establish the extent of a manufacturer's product lines, services, warranties, etc. that are available from Offeror and the pricing per item. Multiple percentage discounts are acceptable if, where different percentage discounts apply, they different percentages are specified. Additional pricing and/or discounts may be included. Products and services proposed are to be priced separately with all ineligible items identified. Offerors may elect to limit their proposals to any category or categories.

Carahsoft has read, understands, and will comply with this requirement. Our pricing has been included at the end of our submission, and as a separate file in our electronic copies. Printing all the SKUs was not feasible but are included in the Electronic Copy.

ii. Include an electronic copy of the catalog from which discount, or fixed price, is calculated. Electronic price lists must contain the following: (if applicable)

- *Description*
- *Manufacturers Suggested List Price and Net Price*
- *Net price to Region 4 ESC (including freight)*

Media submitted for price list must include the Offerors' company name, name of the solicitation, and date on a Flash Drive (i.e. Pin or Jump Drives).

Carahsoft has read, understands, and will comply with this requirement. We will be also including the Manufacturer part number and Offeror's part number (if different from Manufacturer part number).

iii. Is pricing available for all products and services?

Yes, pricing is available for all our offerings.

iv. Provide pricing for warranties on all products and services.

All products and services come with an initial warranty included in the price. Additional warranties are available upon request.

v. Describe any additional discounts or rebates available. Additional discounts or rebates may be offered for large quantity orders, single ship to location, growth, annual spend, guaranteed quantity, etc.

Additional discounts can be provided on a deal-by-deal basis.

vi. Describe how customers verify they are receiving Contract pricing.

We have worked to provide the most competitive pricing possible for this contract.

vii. Describe payment methods offered.

Carahsoft will work with Region 4 ESC to find the most efficient method of payment for them.

viii. Propose the frequency of updates to the Offeror's pricing structure. Describe any proposed indices to guide price adjustments. If offering a catalog contract with discounts by category, while changes in individual pricing may change, the category discounts should not change over the term of the Contract.

This information varies by manufacturer.

ix. Describe how future product introductions will be priced and align with Contract pricing proposed.

Carahsoft will add products and services that are in scope of the contract per the terms and conditions and discounts proposed.

x. Provide any additional information relevant to this section.

Carahsoft has no additional relevant information for this section.

TAB 3 – PERFORMANCE CAPABILITY

i. Include a detailed response to APPENDIX D, Exhibit A, OMNIA Partners Response for National Cooperative Contract. Responses should highlight experience, demonstrate a strong national presence, describe how Offeror will educate its national sales force about the Contract, describe how products and services will be distributed nationwide, include a plan for marketing the products and services nationwide, and describe how volume will be tracked and reported to OMNIA Partners.

See our below subheading "a. OMNIA Partners documents."

ii. The successful Offeror will be required to sign APPENDIX D, Exhibit B, OMNIA Partners Administration Agreement prior to Contract award. Offerors should have any reviews required to sign the document prior to submitting a response. Offeror's response should include any proposed exceptions to OMNIA Partners Administration Agreement on Appendix B, Terms and Conditions Acceptance Form.

See our below subheading "a. OMNIA Partners documents."

iii. Include completed APPENDIX D, Exhibits F. Federal Funds Certifications and G. New Jersey Business Compliance.

See our below subheading "a. OMNIA Partners documents."

iv. Describe how Offeror responds to emergency orders.

Once Carahsoft has received an order it places the order with the manufacturer to send to the customer directly. Many of Carahsoft's orders are software, so there is an instant delivery per the agreed upon schedule, which can be escalated in the case of an emergency.

v. What is Offeror's average Fill Rate?

We are able to fill all orders for the solutions provided in this proposal 100% of the time, due to inventory and restocking not being a factory for software and services.

vi. What is Offeror's average on time delivery rate? Describe Offeror's history of meeting the shipping and delivery timelines.

Carahsoft delivers all of its orders on time. Once Carahsoft has received an order it places the order with the manufacturer to send to the customer directly. Many of Carahsoft's orders are software, so there is an instant delivery per the agreed upon schedule.

vii. Describe Offeror's return and restocking policy.

We do not offer a return policy on software and services, and by the nature of software licenses and services there are no restocking concerns.

viii. Describe Offeror's ability to meet service and warranty needs.

All products and services come with an initial warranty included in the price. Additional warranties are available upon request.

ix. Describe Offeror's customer service/problem resolution process. Include hours of operation, number of services, etc.

Carahsoft's hours are from 8:30am - 5:30pm EST, but our vendors offer a variety of customer service hours, often providing avenues for 24/7 care.

x. Describe Offeror's invoicing process. Include payment terms and acceptable methods of payments. Offerors shall describe any associated fees pertaining to credit cards/p-cards.

Carahsoft's preferred payment terms are Net30 and will work with Region 4 ESC to reach an agreement on preferred forms of payment.

xi. Describe Offeror's contract implementation/customer transition plan.

During the first ten days following contract award, the Carahsoft team will conduct additional discovery activities. We have identified the keys to establishing a successful project are open discussion, careful planning and proactive risk identification and mitigation.

The Carahsoft team will immediately work with the Region 4 ESC representatives, our staff and partners in a series of meetings and workshops from the executive level to the staff level to ensure the compliance of product delivery and contract requirements. This process is the first step in the Carahsoft Team's successful contract performance

On Day One of contract award, Carahsoft will launch our Region 4 ESC ten day marketing blitz. We will also begin to convert quotes in our CRM system to Region 4 ESC quotes. This transition will help provide Carahsoft with additional opportunities throughout the United States and will motivate customers to utilize different Region 4 ESC contracts in the process.

xii. *Describe the financial condition of Offeror.*

As a privately owned company, Carahsoft does not publicly release financial information. We are a stable, conservative, and profitable company which has grown, since founding in 2004, from $4M in bookings to more than $5.3B in 2018. The company has received numerous accolades for our business performance from our manufacturing partners and the industry, including annual recognition (detailed further on our website) in the CRN Solution Provider 500 (2006-2018), Washington Technology's Top 100 Government Contractors (2010-2018), and the Washington Business Journal's Largest Government Contractors (2011-2018).

We currently maintain a $25M line of credit available (currently 100% available) with Union Bank.

Should you require our audited financial statements or have further financial inquiries, we would be happy to provide additional information under separate cover to the specific individual that would be reviewing them.

Specific questions may be referred to Craig P. Abod, President of Carahsoft Technology Corp.

xiii. Provide a website link in order to review website ease of use, availability, and capabilities related to ordering, returns and reporting. Describe the website's capabilities and functionality.

Carahsoft will develop and maintain a microsite that will be dedicated to this Contract. This will be a supplement to the Vendor support site and will include materials such as:

- Contract Information
- Contract FAQ Document
- Product Information
- Catalog/ Pricelist Information
- Additional Contractual Information



The following are examples of Dedicated Websites for current Carahsoft contracts:

- Department of Defense ESI BPA Contract # N00104-12-A-ZF31 (http://www.carahsoft.com/buy/esi-bpa-contracts/department-defense-esi-desktop-bpa-contract-n00104-12-zf31)
- Department of the Navy ESI BPA Contract # N00104-09-A-ZF31 (http://www.carahsoft.com/buy/esi-bpa-contracts/don)
- NASA SEWP V Contract # NNG15SC03B/NNG15SC27B (http://www.carahsoft.com/buy/sewp)

xiv. Describe the Offeror's safety record.

Due to there being no inventory to risk employee's safety, Carahsoft has a clean safety record.

xv. Provide any additional information relevant to this section.

Carahsoft does not have anything else we need to provide at this time.

a. OMNIA Partners documents

We have completed all the required OMNIA Partners documents. We have included but not executed Exhibits A – E since they were marked "Example" or "Template". We will execute these documents upon completion of negotiations.

EXHIBIT F

FEDERAL FUNDS CERTIFICATIONS

FEDERAL CERTIFICATIONS

ADDENDUM FOR AGREEMENT FUNDED BY U.S. FEDERAL GRANT

TO WHOM IT MAY CONCERN:

Participating Agencies may elect to use federal funds to purchase under the Master Agreement. This form should be completed and returned.

DEFINITIONS

Contract means a legal instrument by which a non–Federal entity purchases property or services needed to carry out the project or program under a Federal award. The term as used in this part does not include a legal instrument, even if the non–Federal entity considers it a contract, when the substance of the transaction meets the definition of a Federal award or subaward

Contractor means an entity that receives a contract as defined in Contract.

Cooperative agreement means a legal instrument of financial assistance between a Federal awarding agency or pass-through entity and a non–Federal entity that, consistent with 31 U.S.C. 6302–6305:

(a) Is used to enter into a relationship the principal purpose of which is to transfer anything of value from the Federal awarding agency or pass-through entity to the non–Federal entity to carry out a public purpose authorized by a law of the United States (see 31 U.S.C. 6101(3)); and not to acquire property or services for the Federal government or pass-through entity's direct benefit or use;

(b) Is distinguished from a grant in that it provides for substantial involvement between the Federal awarding agency or pass-through entity and the non–Federal entity in carrying out the activity contemplated by the Federal award.

(c) The term does not include:

(1) A cooperative research and development agreement as defined in 15 U.S.C. 3710a; or

(2) An agreement that provides only:

(i) Direct United States Government cash assistance to an individual;

(ii) A subsidy;

(iii) A loan;

(iv) A loan guarantee; or

(v) Insurance.

Federal awarding agency means the Federal agency that provides a Federal award directly to a non–Federal entity

Federal award has the meaning, depending on the context, in either paragraph (a) or (b) of this section:

(a)(1) The Federal financial assistance that a non–Federal entity receives directly from a Federal awarding agency or indirectly from a pass-through entity, as described in § 200.101 Applicability; or

(2) The cost-reimbursement contract under the Federal Acquisition Regulations that a non–Federal entity receives directly from a Federal awarding agency or indirectly from a pass-through entity, as described in § 200.101 Applicability.

(b) The instrument setting forth the terms and conditions. The instrument is the grant agreement, cooperative agreement, other agreement for assistance covered in paragraph (b) of § 200.40 Federal financial assistance, or the cost-reimbursement contract awarded under the Federal Acquisition Regulations.

(c) Federal award does not include other contracts that a Federal agency uses to buy goods or services from a contractor or a contract to operate Federal government owned, contractor operated facilities (GOCOs).

(d) See also definitions of Federal financial assistance, grant agreement, and cooperative agreement.

Non–Federal entity means a state, local government, Indian tribe, institution of higher education (IHE), or nonprofit organization that carries out a Federal award as a recipient or subrecipient.

Nonprofit organization means any corporation, trust, association, cooperative, or other organization, not including IHEs, that:

(a) Is operated primarily for scientific, educational, service, charitable, or similar purposes in the public interest;

(b) Is not organized primarily for profit; and
(c) Uses net proceeds to maintain, improve, or expand the operations of the organization.

Obligations means, when used in connection with a non–Federal entity's utilization of funds under a Federal award, orders placed for property and services, contracts and subawards made, and similar transactions during a given period that require payment by the non–Federal entity during the same or a future period.

Pass-through entity means a non–Federal entity that provides a subaward to a subrecipient to carry out part of a Federal program.

Recipient means a non–Federal entity that receives a Federal award directly from a Federal awarding agency to carry out an activity under a Federal program. The term recipient does not include subrecipients.

Simplified acquisition threshold means the dollar amount below which a non–Federal entity may purchase property or services using small purchase methods. Non–Federal entities adopt small purchase procedures in order to expedite the purchase of items costing less than the simplified acquisition threshold. The simplified acquisition threshold is set by the Federal Acquisition Regulation at 48 CFR Subpart 2.1 (Definitions) and in accordance with 41 U.S.C. 1908. As of the publication of this part, the simplified acquisition threshold is $150,000, but this threshold is periodically adjusted for inflation. (Also see definition of § 200.67 Micro-purchase.)

Subaward means an award provided by a pass-through entity to a subrecipient for the subrecipient to carry out part of a Federal award received by the pass-through entity. It does not include payments to a contractor or payments to an individual that is a beneficiary of a Federal program. A subaward may be provided through any form of legal agreement, including an agreement that the pass-through entity considers a contract.

Subrecipient means a non–Federal entity that receives a subaward from a pass-through entity to carry out part of a Federal program; but does not include an individual that is a beneficiary of such program. A subrecipient may also be a recipient of other Federal awards directly from a Federal awarding agency.

Termination means the ending of a Federal award, in whole or in part at any time prior to the planned end of period of performance.

The following certifications and provisions may be required and apply when Participating Agency expends federal funds for any purchase resulting from this procurement process. Pursuant to 2 C.F.R. § 200.326, all contracts, including small purchases, awarded by the Participating Agency and the Participating Agency's subcontractors shall contain the procurement provisions of Appendix II to Part 200, as applicable.

APPENDIX II TO 2 CFR PART 200

(A) Contracts for more than the simplified acquisition threshold currently set at $150,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

Pursuant to Federal Rule (A) above, when a Participating Agency expends federal funds, the Participating Agency reserves all rights and privileges under the applicable laws and regulations with respect to this procurement in the event of breach of contract by either party.

Does offeror agree? YES JK Initials of Authorized Representative of offeror

(B) Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of $10,000)

Pursuant to Federal Rule (B) above, when a Participating Agency expends federal funds, the Participating Agency reserves the right to immediately terminate any agreement in excess of $10,000 resulting from this procurement process in the event of a breach or default of the agreement by Offeror as detailed in the terms of the contract.

Does offeror agree? YES JK Initials of Authorized Representative of offeror

(**C) Equal Employment Opportunity. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 CFR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order**

11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

Pursuant to Federal Rule (C) above, when a Participating Agency expends federal funds on any federally assisted construction contract, the equal opportunity clause is incorporated by reference herein.

Does offeror agree to abide by the above? YES _____ Initials of Authorized Representative of offeror

(D) Davis-Bacon Act, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of $2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non- Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

Pursuant to Federal Rule (D) above, when a Participating Agency expends federal funds during the term of an award for all contracts and subgrants for construction or repair, offeror will be in compliance with all applicable Davis-Bacon Act provisions.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(E) Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where applicable, all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

Pursuant to Federal Rule (E) above, when a Participating Agency expends federal funds, offeror certifies that offeror will be in compliance with all applicable provisions of the Contract Work Hours and Safety Standards Act during the term of an award for all contracts by Participating Agency resulting from this procurement process.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(F) Rights to Inventions Made Under a Contract or Agreement. If the Federal award meets the definition of "funding agreement" under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

Pursuant to Federal Rule (F) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term of an award for all contracts by Participating Agency resulting from this procurement process, the offeror agrees to comply with all applicable requirements as referenced in Federal Rule (F) above.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(G) Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended—

Contracts and subgrants of amounts in excess of $150,000 must contain a provision that requires the non- Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251- 1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA)

Pursuant to Federal Rule (G) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term of an award for all contracts by Participating Agency member resulting from this procurement process, the offeror agrees to comply with all applicable requirements as referenced in Federal Rule (G) above.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(H) Debarment and Suspension (Executive Orders 12549 and 12689)—A contract award (see 2 CFR 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the Executive Office of the President Office of Management and Budget (OMB) guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

Pursuant to Federal Rule (H) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term of an award for all contracts by Participating Agency resulting from this procurement process, the offeror certifies that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any federal department or agency. If at any time during the term of an award the offeror or its principals becomes debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any federal department or agency, the offeror will notify the Participating Agency.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

(I) Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)—Contractors that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

Pursuant to Federal Rule (I) above, when federal funds are expended by Participating Agency, the offeror certifies that during the term and after the awarded term of an award for all contracts by Participating Agency resulting from this procurement process, the offeror certifies that it is in compliance with all applicable provisions of the Byrd Anti-Lobbying Amendment (31 U.S.C. 1352). The undersigned further certifies that:

(1) No Federal appropriated funds have been paid or will be paid for on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of congress, or an employee of a Member of Congress in connection with the awarding of a Federal contract, the making of a Federal grant, the making of a Federal loan, the entering into a cooperative agreement, and the extension, continuation, renewal, amendment, or modification of a Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of congress, or an employee of a Member of Congress in connection with this Federal grant or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying", in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all covered sub-awards exceeding $100,000 in Federal funds at all appropriate tiers and that all subrecipients shall certify and disclose accordingly.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

RECORD RETENTION REQUIREMENTS FOR CONTRACTS INVOLVING FEDERAL FUNDS

When federal funds are expended by Participating Agency for any contract resulting from this procurement process, offeror certifies that it will comply with the record retention requirements detailed in 2 CFR § 200.333. The offeror further certifies that offeror will retain all records as required by 2 CFR § 200.333 for a period of three years after grantees or subgrantees submit final expenditure reports or quarterly or annual financial reports, as applicable, and all other pending matters are closed.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

CERTIFICATION OF COMPLIANCE WITH THE ENERGY POLICY AND CONSERVATION ACT

When Participating Agency expends federal funds for any contract resulting from this procurement process, offeror certifies that it will comply with the mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6321 et seq.; 49 C.F.R. Part 18).

Does offeror agree? YES JK Initials of Authorized Representative of offeror

CERTIFICATION OF COMPLIANCE WITH BUY AMERICA PROVISIONS

To the extent purchases are made with Federal Highway Administration, Federal Railroad Administration, or Federal Transit Administration funds, offeror certifies that its products comply with all applicable provisions of the Buy America Act and agrees to provide such certification or applicable waiver with respect to specific products to any Participating Agency upon request. Purchases made in accordance with the Buy America Act must still follow the applicable procurement rules calling for free and open competition.

Does offeror agree? YES JK Initials of Authorized Representative of offeror

CERTIFICATION OF ACCESS TO RECORDS – 2 C.F.R. § 200.336

Offeror agrees that the Inspector General of the Agency or any of their duly authorized representatives shall have access to any documents, papers, or other records of offeror that are pertinent to offeror's discharge of its obligations under the Contract for the purpose of making audits, examinations, excerpts, and transcriptions. The right also includes timely and reasonable access to offeror's personnel for the purpose of interview and discussion relating to such documents.

Does offeror agree? YES JK Initials of Authorized Representative of offeror

CERTIFICATION OF APPLICABILITY TO SUBCONTRACTORS

Offeror agrees that all contracts it awards pursuant to the Contract shall be bound by the foregoing terms and conditions.

Does offeror agree? YES JK Initials of Authorized Representative of offeror

Offeror agrees to comply with all federal, state, and local laws, rules, regulations and ordinances, as applicable. It is further acknowledged that offeror certifies compliance with all provisions, laws, acts, regulations, etc. as specifically noted above.

Offeror's Name: Carahsoft Technology Corporation

Address, City, State, and Zip Code: 11493 Sunset Hills Road, Suite 100, Reston, VA 20190

Phone Number: 703.871.8500 Fax Number: 703.871.8505

Printed Name and Title of Authorized Representative: Jennifer Kanach, Proposals Director

Email Address: sales@Carahsoft.com

Signature of Authorized Representative: Jennifer Kanach Date: 11/22/19

NEW JERSEY BUSINESS COMPLIANCE

Suppliers intending to do business in the State of New Jersey must comply with policies and procedures required under New Jersey statues. All offerors submitting proposals must complete the following forms specific to the State of New Jersey. Completed forms should be submitted with the offeror's response to the RFP. Failure to complete the New Jersey packet will impact OMNIA Partners, Public Sector's ability to promote the Master Agreement in the State of New Jersey.

DOC #1 Ownership Disclosure Form

DOC #2 Non-Collusion Affidavit

DOC #3 Affirmative Action Affidavit

DOC #4 Political Contribution Disclosure Form

DOC #5 Stockholder Disclosure Certification

DOC #6 Certification of Non-Involvement in Prohibited Activities in Iran

DOC #7 New Jersey Business Registration Certificate

New Jersey suppliers are required to comply with the following New Jersey statutes when applicable:

- all anti-discrimination laws, including those contained in N.J.S.A. 10:2-1 through N.J.S.A. 10:2-14, N.J.S.A. 10:5-1, and N.J.S.A. 10:5-31 through 10:5-38;
- Prevailing Wage Act, N.J.S.A. 34:11-56.26, for all contracts within the contemplation of the Act;
- Public Works Contractor Registration Act, N.J.S.A. 34:11-56.26; and
- Bid and Performance Security, as required by the applicable municipal or state statutes.

OWNERSHIP DISCLOSURE FORM
(N.J.S. 52:25-24.2)

Pursuant to the requirements of P.L. 1999, Chapter 440 effective April 17, 2000 (Local Public Contracts Law), the offeror shall complete the form attached to these specifications listing the persons owning 10 percent (10%) or more of the firm presenting the proposal.

Company Name: Carahsoft Technology Corporation

Street: 11493 Sunset Hills Road, Suite 100, Reston, VA 20190

City, State, Zip Code: Reston, VA 20190

Complete as appropriate:

I _____, certify that I am the sole owner of _____, that there are no partners and the business is not incorporated, and the provisions of N.J.S. 52:25-24.2 do not apply.

OR:

I _____, a partner in_____, do hereby certify that the following is a list of all individual partners who own a 10% or greater interest therein. I further certify that if one (1) or more of the partners is itself a corporation or partnership, there is also set forth the names and addresses of the stockholders holding 10% or more of that corporation's stock or the individual partners owning 10% or greater interest in that partnership.

OR:

I Jennifer Kanach, *an authorized representative of* Carahsoft Technology Corporation, *a corporation, do hereby certify that the following is a list of the names and addresses of all stockholders in the corporation who own 10% or more of its stock of any class. I further certify that if one (1) or more of such stockholders is itself a corporation or partnership, that there is also set forth the names and addresses of the stockholders holding 10% or more of the corporation's stock or the individual partners owning a 10% or greater interest in that partnership.*

(Note: If there are no partners or stockholders owning 10% or more interest, indicate none.)

Name	Address	Interest
None. Craig P. Abod is the sole owner of Carahsoft Technology Corporation.		

I further certify that the statements and information contained herein, are complete and correct to the best of my knowledge and belief.

11/22/19 — Proposals Director

Date — ***Authorized Signature and Title***

DOC #2

NON-COLLUSION AFFIDAVIT

Company Name: Carahsoft Technology Corporation

Street: 11493 Sunset Hills Road, Suite 100

City, State, Zip Code: Reston, VA 20190

State of VA

County of Fairfax

I, Jennifer Kanach *of the* Reston
Name *City*

in the County of Fairfax, *State of* Virginia
of full age, being duly sworn according to law on my oath depose and say that:

I am the Proposals Director *of the firm of* Carahsoft Technology Corporation.
Title *Company Name*

the Offeror making the Proposal for the goods, services or public work specified under the attached proposal, and that I executed the said proposal with full authority to do so; that said Offeror has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above proposal, and that all statements contained in said proposal and in this affidavit are true and correct, and made with full knowledge that relies upon the truth of the statements contained in said proposal and in the statements contained in this affidavit in awarding the contract for the said goods, services or public work.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by

Carahsoft Technology Corporation
Company Name

Proposals Director
Authorized Signature & Title

Subscribed and sworn before me

this 22 day of November, 20 19

Notary Public of Virginia

My commission expires May 27, 20 23

PARKER J RYBAK
NOTARY PUBLIC
REGISTRATION # 7831646
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
MAY 27, 2023

SEAL

DOC #3

AFFIRMATIVE ACTION AFFIDAVIT
(P.L. 1975, C.127)

Company Name: Carahsoft Technology Corporation

Street: 11493 Sunset Hills Road, Suite 100

City, State, Zip Code: Reston, VA 20190

Proposal Certification:

Indicate below company's compliance with New Jersey Affirmative Action regulations. Company's proposal will be accepted even if company is not in compliance at this time. No contract and/or purchase order may be issued, however, until all Affirmative Action requirements are met.

Required Affirmative Action Evidence:

Procurement, Professional & Service Contracts (Exhibit A)
Vendors must submit with proposal:

1. A photo copy of their Federal Letter of Affirmative Action Plan Approval

   OR

2. A photo copy of their Certificate of Employee Information Report

   OR

3. A complete Affirmative Action Employee Information Report (AA302) _____

Public Work – Over $50,000 Total Project Cost:

A. No approved Federal or New Jersey Affirmative Action Plan. We will complete Report Form AA201-A upon receipt from the

B. Approved Federal or New Jersey Plan – certificate enclosed

I further certify that the statements and information contained herein, are complete and correct to the best of my knowledge and belief.

11/22/19 — Proposals Director

Date — ***Authorized Signature and Title***

State of New Jersey

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DEPARTMENT OF THE TREASURY
DIVISION OF PURCHASE AND PROPERTY
CONTRACT COMPLIANCE & AUDIT UNIT
EEO MONITORING PROGRAM
33 WEST STATE STREET
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Telephone (609)292-5400/Telefax (609)292-5899
CCAU.Mailbox@treas.nj.gov

ELIZABETH MAHER MUOIO
State Treasurer

MAURICE A. GRIFFIN
Acting Director

June 21, 2019

Ms. Kristina Smith, Contracts Manager
Carahsoft Technology Corporation
1860 Michael Faraday Drive Suite 100
Reston, VA 20190

RE: EEO/AA Vendor Evaluation

Dear Ms. Smith,

As you are aware, no public monies shall be paid to any contractor, subcontractor or business firm that has not agreed and guaranteed to afford equal employment opportunity in performance of a contract in accordance with an affirmative action program approved by the State Treasurer. This evaluation is being sent to determine your company's compliance with Equal Employment Opportunity/Affirmative Action ("EEO/AA") statutes and regulations, and if required your corrective action to remedy the deficiencies. Please indicate your current status as it relates to the following requirements of N.J.S.A. 10:5-31 et seq.

1. Does the company's solicitations and advertisements for employment contain the language "We are an Equal Opportunity Employer" which means that all applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation or sex?
   ____Yes ____No
2. Does the company maintain an Employment Applicant Log for new hires demonstrating good faith efforts to hire/employ minorities and women?
   ____Yes ____No
3. Are the anti-discrimination posters that are required by law, posted in conspicuous places easily visible to both applicants and employees?
   ____Yes ____No
4. Has your company been required to submit an Affirmative Action Plan?
   ____Yes ____No
5. Does the company have policies and procedures regarding recruitment, hiring, promotions and terminations?
   ____Yes ____No
6. Does the company utilize employment applications and testing procedures?

____Yes ____No

7. Does your company appoint a Compliance Officer responsible for insuring adherence to the Affirmative Action laws and regulations?
   ____Yes ____No
8. Has the company adopted and posted an EEO policy and disseminated it to its employees through various means (employee handbook, Intranet site, training, etc)?
   ____Yes ____No
9. Has the company made a good faith effort to promote and maintain equal employment opportunities in the workforce?
   ____Yes ____No
10. Do you wish to attend a training session on the requirements of the EEO/AA laws and regulations?
    ____Yes ____No If yes, please provide an email address below.

For any "No" answer in questions one through nine, you must submit, to the undersigned, a corrective action plan. This corrective action must detail how you will correct the deficiency, who will be responsible for making the corrective action and the date the actions will be completed by. An example corrective action plan is attached. The Division will also continue to audit vendors' compliance with the statutes and may levy fines up to $1,000 for each violation for each day during which the violation continues in accordance with N.J.A.C. 17:27-10.6. Therefore, it is imperative that your corrective action plans be completed for all deficiencies. Please sign the certification below and return this completed evaluation, and the corrective action plan, if necessary, within 30 days of the above date.

Your anticipated cooperation in this matter is appreciated. If you have any questions, or wish to discuss this matter further, do not hesitate to contact me at (609) 292-5477 or email me at **bruce.cooke@treas.nj.gov**

Sincerely,

Bruce C. Cooke
Affirmative Action Specialist 2

I certify that the above answers and corrective action plan, if required, are accurate and in compliance with all applicable EEO/AA laws and regulations.

Print Name:_____

Title:_____

Signature:_____

Email:_____

Phone:_____

State of New Jersey

DEPARTMENT OF THE TREASURY
DIVISION OF PURCHASE & PROPERTY
CONTRACT COMPLIANCE AUDIT UNIT
EEO MONITORING PROGRAM
P.O. BOX 206
TRENTON, NJ 08625-0206

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

ELIZABETH MAHER MUOIO
State Treasurer

MAURICE A. GRIFFIN
Acting Director

ISSUANCE CERTIFICATE OF EMPLOYEE INFORMATION REPORT

Enclosed is your Certificate of Employee information Report (hereinafter referred to as the "Certificate" and issued based on the Employee Information Report (AA-302) form completed by a representative of your company or firm. Immediately upon receipt, this certificate should be forwarded to the person in your company or firm responsible for ensuring equal employment opportunity and/or overseeing the company or firm's contracts with public agencies. Typically, this person may be your company or firm's Human Resources Manager, Equal Employment Opportunity Officer or Contract Administrator. If you do not know to whom the certificate should be forward, kindly forward it to the head of your company or firm. Copies of the certificate should also be distributed to all facilities of your company or firm who engage in bidding on public contracts in New Jersey and who use the same federal identification number and company name. The certificate should be retained in your records until the date it expires. This is very important since a request for a duplicate/replacement certificate will result in a $75.00 fee.

On future successful bids on public contracts, your company or firm must present a photocopy of the certificate to the public agency awarding the contract after notification of the award but prior to execution of a goods and services or professional services contract. Failure to present the certificate within the time limits prescribed may result in the awarded contract being rescinded in accordance with N.J.A.C. 17:27-4.3b.

Please be advised that this certificate has been approved only for the time periods stated on the certificate. As early as ninety (90) days prior to its expiration, the Division will forward a renewal notification. Upon the Division's receipt of a properly completed renewal application and $150.00 application fee, it will issue a renewal certificate. In addition, representatives from the Division may conduct periodic visits and/or request additional information to monitor and evaluate the continued equal employment opportunity compliance of your company or firm. Moreover, the Division may provide your company or firm with technical assistance, as required. Please be sure to notify the Division immediately if your company's federal identification number, name or address changes.

If you have any questions, please call (609) 292-5473 and a representative will be available to assist you.

Enclosure(s) (AA-01 Rev. 1/18)

EEO/AA INVESTIGATION
CORRECTIVE ACTION PLAN

NAME OF ORGANIZATION _____

CONTACT PERSON _____ E-MAIL _____

TELEPHONE NUMBER _____

CERTIFICATE NUMBER _____

DEFICIENCY	CORRECTIVE ACTION PROPOSED BY ORGANIZATION	METHOD OF IMPLEMENTATION	PERSON RESPONSIBLE FOR IMPLEMENTATION	PROJECTED DATE OF IMPLEMENTATION

_____ _____ _____

SIGNATURE NAME DATE

Certification 40

CERTIFICATE OF EMPLOYEE INFORMATION REPORT

RENEWAL

This is to certify that the contractor listed below has submitted an Employee Information Report pursuant to N.J.A.C. 17:27-1.1 et. seq. and the State Treasurer has approved said report. This approval will remain in effect for the period of 15-MAY-2019 to 15-MAY-2022

CARAHSOFT TECHNOLOGY CORPORATION
1860 MICHAEL FARADAY DR., STE 100
RESTON VA 20190

ELIZABETH MAHER MUOIO
State Treasurer

P.L. 1995, c. 127 (N.J.A.C. 17:27)
MANDATORY AFFIRMATIVE ACTION LANGUAGE

PROCUREMENT, PROFESSIONAL AND SERVICE CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation. The contractor will take affirmative action to ensure that such applicants are recruited and employed, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this non-discrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisement for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation.

The contractor or subcontractor, where applicable, will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to P.L. 1975, c. 127, as amended and supplemented from time to time and the Americans with Disabilities Act.

The contractor or subcontractor agrees to attempt in good faith to employ minority and female workers trade consistent with the applicable county employment goal prescribed by N.J.A.C. 17:27-5.2 promulgated by the Treasurer pursuant to P.L. 1975, C.127, as amended and supplemented from time to time or in accordance with a binding determination of the applicable county employment goals determined by the Affirmative Action Office pursuant to N.J.A.C. 17:27-5.2 promulgated by the Treasurer pursuant to P.L. 1975, C.127, as amended and supplemented from time to time.

The contractor or subcontractor agrees to inform in writing appropriate recruitment agencies in the area, including employment agencies, placement bureaus, colleges, universities, labor unions, that it does not discriminate on the basis of age, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices.

The contractor or subcontractor agrees to revise any of it testing procedures, if necessary, to assure that all personnel testing conforms with the principles of job-related testing, as established by the statutes and court decisions of the state of New Jersey and as established by applicable Federal law and applicable Federal court decisions.

The contractor or subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and lay-off to ensure that all such actions are taken without regard to age, creed, color, national origin, ancestry, marital status, sex, affectional or sexual orientation, and conform with the applicable employment goals, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions.

The contractor and its subcontractors shall furnish such reports or other documents to the Affirmative Action Office as may be requested by the office from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Affirmative Action Office for conducting a compliance investigation pursuant to Subchapter 10 of the Administrative Code (NJAC 17:27).

_____

Signature of Procurement Agent

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Public Agency Instructions

This page provides guidance to public agencies entering into contracts with business entities that are required to file Political Contribution Disclosure forms with the agency. **It is not intended to be provided to contractors.** What follows are instructions on the use of form local units can provide to contractors that are required to disclose political contributions pursuant to N.J.S.A. 19:44A-20.26 (P.L. 2005, c. 271, s.2). Additional information on the process is available in Local Finance Notice 2006-1 (http://www.nj.gov/dca/divisions/dlgs/resources/lfns_2006.html). Please refer back to these instructions for the appropriate links, as the Local Finance Notices include links that are no longer operational.

1. The disclosure is required for all contracts in excess of $17,500 that are **not awarded** pursuant to a "fair and open" process (N.J.S.A. 19:44A-20.7).

2. Due to the potential length of some contractor submissions, the public agency should consider allowing data to be submitted in electronic form (i.e., spreadsheet, pdf file, etc.). Submissions must be kept with the contract documents or in an appropriate computer file and be available for public access. **The form is worded to accept this alternate submission.** The text should be amended if electronic submission will not be allowed.

3. The submission must be **received from the contractor and** on file at least 10 days prior to award of the contract. Resolutions of award should reflect that the disclosure has been received and is on file.

4. The contractor must disclose contributions made to candidate and party committees covering a wide range of public agencies, including all public agencies that have elected officials in the county of the public agency, state legislative positions, and various state entities. The Division of Local Government Services recommends that contractors be provided a list of the affected agencies. This will assist contractors in determining the campaign and political committees of the officials and candidates affected by the disclosure.

    a. The Division has prepared model disclosure forms for each county. They can be downloaded from the "County PCD Forms" link on the Pay-to-Play web site at http://www.nj.gov/dca/divisions/dlgs/programs/lpcl.html#12. They will be updated from time-to-time as necessary.
    b. A public agency using these forms **should edit them to properly reflect the correct legislative district**(s). As the forms are county-based, **they list all legislative districts** in each county. **Districts that do not represent the public agency should be removed from the lists.**
    c. Some contractors may find it easier to provide a single list that covers all contributions, regardless of the county. These submissions are appropriate and should be accepted.
    d. The form may be used "as-is", subject to edits as described herein.
    e. The "Contractor Instructions" sheet is intended to be provided with the form. It is recommended that the Instructions and the form be printed on the same piece of paper. The form notes that the Instructions are printed on the back of the form; where that is not the case, the text should be edited accordingly.
    f. The form is a Word document and can be edited to meet local needs, and posted for download on web sites, used as an e-mail attachment, or provided as a printed document.

5. It is recommended that the contractor also complete a "Stockholder Disclosure Certification." This will assist the local unit in its obligation to ensure that contractor did not make any prohibited contributions to the committees listed on the Business Entity Disclosure Certification in the 12 months prior to the contract (See Local Finance Notice 2006-7 for additional information on this obligation at http://www.nj.gov/dca/divisions/dlgs/resources/lfns_2006.html). A sample Certification form is part of this package and the instruction to complete it is included in the Contractor Instructions. NOTE: This section is not applicable to Boards of Education.

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Contractor Instructions

Business entities (contractors) receiving contracts from a public agency that are NOT awarded pursuant to a "fair and open" process (defined at N.J.S.A. 19:44A-20.7) are subject to the provisions of P.L. 2005, c. 271, s.2 (N.J.S.A. 19:44A-20.26). This law provides that 10 days prior to the award of such a contract, the contractor shall disclose contributions to:

- any State, county, or municipal committee of a political party
- any legislative leadership committee*
- any continuing political committee (a.k.a., political action committee)
- any candidate committee of a candidate for, or holder of, an elective office:
    - of the public entity awarding the contract
    - of that county in which that public entity is located
    - of another public entity within that county
    - or of a legislative district in which that public entity is located or, when the public entity is a county, of any legislative district which includes all or part of the county

The disclosure must list reportable contributions to any of the committees that exceed $300 per election cycle that were made during the 12 months prior to award of the contract. See N.J.S.A. 19:44A-8 and 19:44A-16 for more details on reportable contributions.

N.J.S.A. 19:44A-20.26 itemizes the parties from whom contributions must be disclosed when a business entity is not a natural person. This includes the following:

- individuals with an "interest" ownership or control of more than 10% of the profits or assets of a business entity or 10% of the stock in the case of a business entity that is a corporation for profit
- all principals, partners, officers, or directors of the business entity or their spouses
- any subsidiaries directly or indirectly controlled by the business entity
- IRS Code Section 527 New Jersey based organizations, directly or indirectly controlled by the business entity and filing as continuing political committees, (PACs).

When the business entity is a natural person, "a contribution by that person's spouse or child, residing therewith, shall be deemed to be a contribution by the business entity." [N.J.S.A. 19:44A-20.26(b)] The contributor must be listed on the disclosure.

Any business entity that fails to comply with the disclosure provisions shall be subject to a fine imposed by ELEC in an amount to be determined by the Commission which may be based upon the amount that the business entity failed to report.

The enclosed list of agencies is provided to assist the contractor in identifying those public agencies whose elected official and/or candidate campaign committees are affected by the disclosure requirement. It is the contractor's responsibility to identify the specific committees to which contributions may have been made and need to be disclosed. The disclosed information may exceed the minimum requirement.

The enclosed form, a content-consistent facsimile, or an electronic data file containing the required details (along with a signed cover sheet) may be used as the contractor's submission and is disclosable to the public under the Open Public Records Act.

The contractor must also complete the attached Stockholder Disclosure Certification. This will assist the agency in meeting its obligations under the law. **NOTE: This section does not apply to Board of Education contracts.**

* N.J.S.A. 19:44A-3(s): "The term "legislative leadership committee" means a committee established, authorized to be established, or designated by the President of the Senate, the Minority Leader of the Senate, the Speaker of the General Assembly or the Minority Leader of the General Assembly pursuant to section 16 of P.L.1993, c.65 (C.19:44A-10.1) for the purpose of receiving contributions and making expenditures."

C. 271 POLITICAL CONTRIBUTION DISCLOSURE FORM

Required Pursuant to N.J.S.A. 19:44A-20.26

This form or its permitted facsimile must be submitted to the local unit no later than 10 days prior to the award of the contract.

Part I – Vendor Information

Vendor Name:	Carahsoft Technology Corporation		
Address:	11493 Sunset Hills Road		
City:	Reston	State: VA	Zip: 20190

The undersigned being authorized to certify, hereby certifies that the submission provided herein represents compliance with the provisions of N.J.S.A. 19:44A-20.26 and as represented by the Instructions accompanying this form.

Signature	Printed Name	Title
Jennifer Kanach	Jennifer Kanach	Proposals Director

Part II – Contribution Disclosure

Disclosure requirement: Pursuant to N.J.S.A. 19:44A-20.26 this disclosure must include all reportable political contributions (more than $300 per election cycle) over the 12 months prior to submission to the committees of the government entities listed on the form provided by the local unit.

☐ Check here if disclosure is provided in electronic form

Contributor Name	Recipient Name	Date	Dollar Amount
Not applicable			$

☐ Check here if the information is continued on subsequent page(s)

List of Agencies with Elected Officials Required for Political Contribution Disclosure
N.J.S.A. 19:44A-20.26

County Name:
State: Governor, and Legislative Leadership Committees
Legislative District #s:
State Senator and two members of the General Assembly per district.

County:

Freeholders	County Clerk	Sheriff
{County Executive}	Surrogate	

Municipalities (Mayor and members of governing body, regardless of title):

USERS SHOULD CREATE THEIR OWN FORM, OR DOWNLOAD FROM THE PAY TO PLAY SECTION OF THE DLGS WEBSITE A COUNTY-BASED, CUSTOMIZABLE FORM.

DOC #5

STOCKHOLDER DISCLOSURE CERTIFICATION

Name of Business:

☒ I certify that the list below contains the names and home addresses of all stockholders holding 10% or more of the issued and outstanding stock of the undersigned.

OR

☐ I certify that no one stockholder owns 10% or more of the issued and outstanding stock of the undersigned.

Check the box that represents the type of business organization:

☐ Partnership ☒ Corporation ☐ Sole Proprietorship

☐ Limited Partnership ☐ Limited Liability Corporation ☐ Limited Liability Partnership

☐ Subchapter S Corporation

Sign and notarize the form below, and, if necessary, complete the stockholder list below.

Stockholders:

Name: Craig P. Abod is the sole owner of Carahsoft Technology Corporation Home Address: 11493 Sunset Hills Road, Suite 100 Reston, VA 20190	Name: Home Address:
Name: Home Address:	Name: Home Address:
Name: Home Address:	Name: Home Address:

Subscribed and sworn before me this 22 day of November, 2019

(Notary Public)

My Commission expires:

PARKER J RYBAK
NOTARY PUBLIC
REGISTRATION # 7831646
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
MAY 27, 2023

(Affiant)

Jennifer Kanach Proposals Director
(Print name & title of affiant)

(Corporate Seal)

PARKER J RYBAK
NOTARY PUBLIC
REGISTRATION # 7831646
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
MAY 27, 2023

Certification of Non-Involvement in Prohibited Activities in Iran

Pursuant to N.J.S.A. 52:32-58, Offerors must certify that neither the Offeror, nor any of its parents, subsidiaries, and/or affiliates (as defined in N.J.S.A. 52:32 – 56(e) (3)), is listed on the Department of the Treasury's List of Persons or Entities Engaging in Prohibited Investment Activities in Iran and that neither is involved in any of the investment activities set forth in N.J.S.A. 52:32 – 56(f).

Offerors wishing to do business in New Jersey through this contract must fill out the Certification of Non-Involvement in Prohibited Activities in Iran here: http://www.state.nj.us/humanservices/dfd/info/standard/fdc/disclosure_investmentact.pdf.

Offerors should submit the above form completed with their proposal.

STATE OF NEW JERSEY -- DIVISION OF PURCHASE AND PROPERTY
DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

Quote Number: 19-19 **Bidder/Offeror:** Carahsoft Technology Corporation

PART 1: CERTIFICATION
BIDDERS MUST COMPLETE PART 1 BY CHECKING EITHER BOX.
FAILURE TO CHECK ONE OF THE BOXES WILL RENDER THE PROPOSAL NON-RESPONSIVE.

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person or entity, nor any of its parents, subsidiaries, or affiliates, is identified on the Department of Treasury's Chapter 25 list as a person or entity engaging in investment activities in Iran. The Chapter 25 list is found on the Division's website at http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf. Bidders **must** review this list prior to completing the below certification. **Failure to complete the certification will render a bidder's proposal non-responsive.** If the Director finds a person or entity to be in violation of law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party

PLEASE CHECK THE APPROPRIATE BOX:

☑ **I certify, pursuant to Public Law 2012, c. 25, that neither the bidder listed above nor any of the bidder's parents, subsidiaries, or affiliates is listed** on the N.J. Department of the Treasury''s list of entities determined to be engaged in prohibited activities in Iran pursuant to P.L. 2012, c. 25 ("Chapter 25 List"). I further certify that I am the person listed above, or I am an officer or representative of the entity listed above and am authorized to make this certification on its behalf. **I will skip Part 2 and sign and complete the Certification below.**

OR

☐ **I am unable to certify as above because the bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the Department's Chapter 25 list. I will provide a detailed, accurate and precise description of the activities in Part 2 below and sign and complete the Certification below.** Failure to provide such will result in the proposal being rendered as non-responsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

PART 2: PLEASE PROVIDE FURTHER INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN
You must provide a detailed, accurate and precise description of the activities of the bidding person/entity, or one of its parents, subsidiaries or affiliates, engaging in the investment activities in Iran outlined above by completing the boxes below.

EACH BOX WILL PROMPT YOU TO PROVIDE INFORMATION RELATIVE TO THE ABOVE QUESTIONS. PLEASE PROVIDE THOROUGH ANSWERS TO EACH QUESTION. IF YOU NEED TO MAKE ADDITIONAL ENTRIES, CLICK THE "ADD AN ADDITIONAL ACTIVITIES ENTRY" BUTTON.

Name _____ Relationship to Bidder/Offeror _____

Description of Activities _____

_____

Duration of Engagement _____ Anticipated Cessation Date _____

Bidder/Offeror Contact Name _____ Contact Phone Number _____

ADD AN ADDITIONAL ACTIVITIES ENTRY

Certification: I, being duly sworn upon my oath, hereby represent and state that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I attest that I am authorized to execute this certification on behalf of the above-referenced person or entity. I acknowledge that the State of New Jersey is relying on the information contained herein and thereby acknowledge that I am under a continuing obligation from the date of this certification through the completion of any contracts with the State to notify the State in writing of any changes to the answers of information contained herein. I acknowledge that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I recognize that I am subject to criminal prosecution under the law and that it will also constitute a material breach of my agreement(s) with the State of New Jersey and that the State at its option may declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print): Jennifer Kanach Signature: Jennifer Kanach

Title: Proposals Director Date: 11/22/19

NEW JERSEY BUSINESS REGISTRATION CERTIFICATE
(N.J.S.A. 52:32-44)

Offerors wishing to do business in New Jersey must submit their State Division of Revenue issued Business Registration Certificate with their proposal here. Failure to do so will disqualify the Offeror from offering products or services in New Jersey through any resulting contract.

http://www.state.nj.us/treasury/revenue/forms/njreg.pdf

STATE OF NEW JERSEY
BUSINESS REGISTRATION CERTIFICATE

Taxpayer Name:	CARAHSOFT TECHNOLOGY CORP
Trade Name:	
Address:	1860 MICHAEL FARADAY DR STE. 100 RESTON, VA 20190
Certificate Number:	1511213
Effective Date:	September 09, 2009
Date of Issuance:	February 04, 2019

For Office Use Only:

20190204164113764

EXHIBIT H

ADVERTISING COMPLIANCE REQUIREMENT

Pursuant to certain state notice provisions, including but not limited to Oregon Revised Statutes Chapter 279A.220, the following public agencies and political subdivisions of the referenced public agencies are eligible to register with OMNIA Partners, Public Sector and access the Master Agreement contract award made pursuant to this solicitation, and are hereby given notice of the foregoing request for proposals for purposes of complying with the procedural requirements of said statutes:

Nationwide:

State of Alabama	State of Hawaii	State of Massachusetts	State of New Mexico	State of South Dakota
State of Alaska	State of Idaho	State of Michigan	State of New York	State of Tennessee
State of Arizona	State of Illinois	State of Minnesota	State of North Carolina	State of Texas
State of Arkansas	State of Indiana	State of Mississippi	State of North Dakota	State of Utah
State of California	State of Iowa	State of Missouri	State of Ohio	State of Vermont
State of Colorado	State of Kansas	State of Montana	State of Oklahoma	State of Virginia
State of Connecticut	State of Kentucky	State of Nebraska	State of Oregon	State of Washington
State of Delaware	State of Louisiana	State of Nevada	State of Pennsylvania	State of West Virginia
State of Florida	State of Maine	State of New Hampshire	State of Rhode Island	State of Wisconsin
State of Georgia	State of Maryland	State of New Jersey	State of South Carolina	State of Wyoming
District of Columbia				

Lists of political subdivisions and local governments in the above referenced states / districts may be found at http://www.usa.gov/Agencies/State_and_Territories.shtml and https://www.usa.gov/local-governments.

Certain Public Agencies and Political Subdivisions:

CITIES, TOWNS, VILLAGES AND BOROUGHS INCLUDING BUT NOT LIMITED TO:

BAKER CITY GOLF COURSE, OR
CITY OF ADAIR VILLAGE, OR
CITY OF ASHLAND, OR
CITY OF AUMSVILLE, OR
CITY OF AURORA, OR
CITY OF BAKER, OR
CITY OF BATON ROUGE, LA
CITY OF BEAVERTON, OR
CITY OF BEND, OR
CITY OF BOARDMAN, OR
CITY OF BONANAZA, OR
CITY OF BOSSIER CITY, LA
CITY OF BROOKINGS, OR
CITY OF BURNS, OR
CITY OF CANBY, OR
CITY OF CANYONVILLE, OR
CITY OF CLATSKANIE, OR
CITY OF COBURG, OR
CITY OF CONDON, OR
CITY OF COQUILLE, OR
CITY OF CORVALLI, OR
CITY OF CORVALLIS PARKS AND RECREATION DEPARTMENT, OR
CITY OF COTTAGE GROVE, OR
CITY OF DONALD, OR
CITY OF EUGENE, OR
CITY OF FOREST GROVE, OR
CITY OF GOLD HILL, OR
CITY OF GRANTS PASS, OR
CITY OF GRESHAM, OR
CITY OF HILLSBORO, OR
CITY OF INDEPENDENCE, OR
CITY AND COUNTY OF HONOLULU, HI
CITY OF KENNER, LA
CITY OF LA GRANDE, OR
CITY OF LAFAYETTE, LA
CITY OF LAKE CHARLES, OR
CITY OF LEBANON, OR
CITY OF MCMINNVILLE, OR
CITY OF MEDFORD, OR
CITY OF METAIRIE, LA
CITY OF MILL CITY, OR
CITY OF MILWAUKIE, OR
CITY OF MONROE, LA
CITY OF MOSIER, OR
CITY OF NEW ORLEANS, LA
CITY OF NORTH PLAINS, OR
CITY OF OREGON CITY, OR
CITY OF PILOT ROCK, OR
CITY OF PORTLAND, OR
CITY OF POWERS, OR
CITY OF PRINEVILLE, OR
CITY OF REDMOND, OR
CITY OF REEDSPORT, OR
CITY OF RIDDLE, OR
CITY OF ROGUE RIVER, OR
CITY OF ROSEBURG, OR
CITY OF SALEM, OR
CITY OF SANDY, OR
CITY OF SCAPPOOSE, OR
CITY OF SHADY COVE, OR
CITY OF SHERWOOD, OR
CITY OF SHREVEPORT, LA
CITY OF SILVERTON, OR
CITY OF SPRINGFIELD, OR
CITY OF ST. HELENS, OR
CITY OF ST. PAUL, OR
CITY OF SULPHUR, LA

CITY OF TIGARD, OR
CITY OF TROUTDALE, OR
CITY OF TUALATIN, OR
CITY OF WALKER, LA
CITY OF WARRENTON, OR
CITY OF WEST LINN, OR
CITY OF WILSONVILLE, OR
CITY OF WINSTON, OR
CITY OF WOODBURN, OR
LEAGUE OF OREGON CITES
THE CITY OF HAPPY VALLEY OREGON
ALPINE, UT
ALTA, UT
ALTAMONT, UT
ALTON, UT
AMALGA, UT
AMERICAN FORK CITY, UT
ANNABELLA, UT
ANTIMONY, UT
APPLE VALLEY, UT
AURORA, UT
BALLARD, UT
BEAR RIVER CITY, UT
BEAVER, UT
BICKNELL, UT
BIG WATER, UT
BLANDING, UT
BLUFFDALE, UT
BOULDER, UT
CITY OF BOUNTIFUL, UT
BRIAN HEAD, UT
BRIGHAM CITY CORPORATION, UT
BRYCE CANYON CITY, UT
CANNONVILLE, UT
CASTLE DALE, UT
CASTLE VALLEY, UT
CITY OF CEDAR CITY, UT
CEDAR FORT, UT
CITY OF CEDAR HILLS, UT
CENTERFIELD, UT
CENTERVILLE CITY CORPORATION, UT
CENTRAL VALLEY, UT
CHARLESTON, UT
CIRCLEVILLE, UT
CLARKSTON, UT
CLAWSON, UT
CLEARFIELD, UT
CLEVELAND, UT
CLINTON CITY CORPORATION, UT
COALVILLE, UT
CORINNE, UT
CORNISH, UT
COTTONWOOD HEIGHTS, UT
DANIEL, UT
DELTA, UT
DEWEYVILLE, UT
DRAPER CITY, UT
DUCHESNE, UT
EAGLE MOUNTAIN, UT
EAST CARBON, UT
ELK RIDGE, UT
ELMO, UT
ELSINORE, UT
ELWOOD, UT
EMERY, UT
ENOCH, UT
ENTERPRISE, UT
EPHRAIM, UT
ESCALANTE, UT
EUREKA, UT
FAIRFIELD, UT
FAIRVIEW, UT
FARMINGTON, UT
FARR WEST, UT
FAYETTE, UT
FERRON, UT
FIELDING, UT
FILLMORE, UT
FOUNTAIN GREEN, UT
FRANCIS, UT
FRUIT HEIGHTS, UT
GARDEN CITY, UT
GARLAND, UT
GENOLA, UT
GLENDALE, UT
GLENWOOD, UT
GOSHEN, UT
GRANTSVILLE, UT
GREEN RIVER, UT
GUNNISON, UT
HANKSVILLE, UT
HARRISVILLE, UT
HATCH, UT
HEBER CITY CORPORATION, UT
HELPER, UT
HENEFER, UT
HENRIEVILLE, UT
HERRIMAN, UT
HIDEOUT, UT
HIGHLAND, UT
HILDALE, UT
HINCKLEY, UT
HOLDEN, UT
HOLLADAY, UT
HONEYVILLE, UT
HOOPER, UT
HOWELL, UT
HUNTINGTON, UT
HUNTSVILLE, UT
CITY OF HURRICANE, UT
HYDE PARK, UT
HYRUM, UT
INDEPENDENCE, UT
IVINS, UT
JOSEPH, UT
JUNCTION, UT
KAMAS, UT
KANAB, UT
KANARRAVILLE, UT
KANOSH, UT
KAYSVILLE, UT
KINGSTON, UT
KOOSHAREM, UT
LAKETOWN, UT
LA VERKIN, UT
LAYTON, UT
LEAMINGTON, UT
LEEDS, UT
LEHI CITY CORPORATION, UT
LEVAN, UT

EXAMPLE

LEWISTON, UT
LINDON, UT
LOA, UT
LOGAN CITY, UT
LYMAN, UT
LYNNDYL, UT
MANILA, UT
MANTI, UT
MANTUA, UT
MAPLETON, UT
MARRIOTT-SLATERVILLE, UT
MARYSVALE, UT
MAYFIELD, UT
MEADOW, UT
MENDON, UT
MIDVALE CITY INC., UT
MIDWAY, UT
MILFORD, UT
MILLVILLE, UT
MINERSVILLE, UT
MOAB, UT
MONA, UT
MONROE, UT
CITY OF MONTICELLO, UT
MORGAN, UT
MORONI, UT
MOUNT PLEASANT, UT
MURRAY CITY CORPORATION, UT
MYTON, UT
NAPLES, UT
NEPHI, UT
NEW HARMONY, UT
NEWTON, UT
NIBLEY, UT
NORTH LOGAN, UT
NORTH OGDEN, UT
NORTH SALT LAKE CITY, UT
OAK CITY, UT
OAKLEY, UT
OGDEN CITY CORPORATION, UT
OPHIR, UT
ORANGEVILLE, UT
ORDERVILLE, UT
OREM, UT
PANGUITCH, UT
PARADISE, UT
PARAGONAH, UT
PARK CITY, UT
PAROWAN, UT
PAYSON, UT
PERRY, UT
PLAIN CITY, UT
PLEASANT GROVE CITY, UT
PLEASANT VIEW, UT
PLYMOUTH, UT
PORTAGE, UT
PRICE, UT
PROVIDENCE, UT
PROVO, UT
RANDOLPH, UT
REDMOND, UT
RICHFIELD, UT
RICHMOND, UT
RIVERDALE, UT
RIVER HEIGHTS, UT
RIVERTON CITY, UT
ROCKVILLE, UT
ROCKY RIDGE, UT
ROOSEVELT CITY CORPORATION, UT
ROY, UT
RUSH VALLEY, UT
CITY OF ST. GEORGE, UT
SALEM, UT
SALINA, UT
SALT LAKE CITY CORPORATION, UT
SANDY, UT
SANTA CLARA, UT
SANTAQUIN, UT
SARATOGA SPRINGS, UT
SCIPIO, UT
SCOFIELD, UT
SIGURD, UT
SMITHFIELD, UT
SNOWVILLE, UT
CITY OF SOUTH JORDAN, UT
SOUTH OGDEN, UT
CITY OF SOUTH SALT LAKE, UT
SOUTH WEBER, UT
SPANISH FORK, UT
SPRING CITY, UT
SPRINGDALE, UT
SPRINGVILLE, UT
STERLING, UT
STOCKTON, UT
SUNNYSIDE, UT
SUNSET CITY CORP, UT
SYRACUSE, UT
TABIONA, UT
CITY OF TAYLORSVILLE, UT
TOOELE CITY CORPORATION, UT
TOQUERVILLE, UT
TORREY, UT
TREMONTON CITY, UT
TRENTON, UT
TROPIC, UT
UINTAH, UT
VERNAL CITY, UT
VERNON, UT
VINEYARD, UT
VIRGIN, UT
WALES, UT
WALLSBURG, UT
WASHINGTON CITY, UT
WASHINGTON TERRACE, UT
WELLINGTON, UT
WELLSVILLE, UT
WENDOVER, UT
WEST BOUNTIFUL, UT
WEST HAVEN, UT
WEST JORDAN, UT
WEST POINT, UT
WEST VALLEY CITY, UT
WILLARD, UT
WOODLAND HILLS, UT
WOODRUFF, UT
WOODS CROSS, UT

COUNTIES AND PARISHES INCLUDING BUT NOT LIMITED TO:
ASCENSION PARISH, LA

EXAMPLE

ASCENSION PARISH, LA, CLEAR OF COURT
CADDO PARISH, LA
CALCASIEU PARISH, LA
CALCASIEU PARISH SHERIFF'S OFFICE, LA
CITY AND COUNTY OF HONOLULU, HI
CLACKAMAS COUNTY, OR
CLACKAMAS COUNTY DEPT OF TRANSPORTATION, OR
CLATSOP COUNTY, OR
COLUMBIA COUNTY, OR
COOS COUNTY, OR
COOS COUNTY HIGHWAY DEPARTMENT, OR
COUNTY OF HAWAII, OR
CROOK COUNTY, OR
CROOK COUNTY ROAD DEPARTMENT, OR
CURRY COUNTY, OR
DESCHUTES COUNTY, OR
DOUGLAS COUNTY, OR
EAST BATON ROUGE PARISH, LA
GILLIAM COUNTY, OR
GRANT COUNTY, OR
HARNEY COUNTY, OR
HARNEY COUNTY SHERIFFS OFFICE, OR
HAWAII COUNTY, HI
HOOD RIVER COUNTY, OR
JACKSON COUNTY, OR
JEFFERSON COUNTY, OR
JEFFERSON PARISH, LA
JOSEPHINE COUNTY GOVERNMENT, OR
LAFAYETTE CONSOLIDATED GOVERNMENT, LA
LAFAYETTE PARISH, LA
LAFAYETTE PARISH CONVENTION & VISITORS COMMISSION
LAFOURCHE PARISH, LA
KAUAI COUNTY, HI
KLAMATH COUNTY, OR
LAKE COUNTY, OR
LANE COUNTY, OR
LINCOLN COUNTY, OR
LINN COUNTY, OR
LIVINGSTON PARISH, LA
MALHEUR COUNTY, OR
MAUI COUNTY, HI
MARION COUNTY, SALEM, OR
MORROW COUNTY, OR
MULTNOMAH COUNTY, OR
MULTNOMAH COUNTY BUSINESS AND COMMUNITY SERVICES, OR
MULTNOMAH COUNTY SHERIFFS OFFICE, OR
MULTNOMAH LAW LIBRARY, OR
ORLEANS PARISH, LA
PLAQUEMINES PARISH, LA
POLK COUNTY, OR
RAPIDES PARISH, LA
SAINT CHARLES PARISH, LA
SAINT CHARLES PARISH PUBLIC SCHOOLS, LA
SAINT LANDRY PARISH, LA
SAINT TAMMANY PARISH, LA
SHERMAN COUNTY, OR
TERREBONNE PARISH, LA
TILLAMOOK COUNTY, OR
TILLAMOOK COUNTY SHERIFF'S OFFICE, OR
TILLAMOOK COUNTY GENERAL HOSPITAL, OR
UMATILLA COUNTY, OR
UNION COUNTY, OR
WALLOWA COUNTY, OR
WASCO COUNTY, OR
WASHINGTON COUNTY, OR
WEST BATON ROUGE PARISH, LA
WHEELER COUNTY, OR
YAMHILL COUNTY, OR
COUNTY OF BOX ELDER, UT
COUNTY OF CACHE, UT
COUNTY OF RICH, UT
COUNTY OF WEBER, UT
COUNTY OF MORGAN, UT
COUNTY OF DAVIS, UT
COUNTY OF SUMMIT, UT
COUNTY OF DAGGETT, UT
COUNTY OF SALT LAKE, UT
COUNTY OF TOOELE, UT
COUNTY OF UTAH, UT
COUNTY OF WASATCH, UT
COUNTY OF DUCHESNE, UT
COUNTY OF UINTAH, UT
COUNTY OF CARBON, UT
COUNTY OF SANPETE, UT
COUNTY OF JUAB, UT
COUNTY OF MILLARD, UT
COUNTY OF SEVIER, UT
COUNTY OF EMERY, UT
COUNTY OF GRAND, UT
COUNTY OF BEVER, UT
COUNTY OF PIUTE, UT
COUNTY OF WAYNE, UT
COUNTY OF SAN JUAN, UT
COUNTY OF GARFIELD, UT
COUNTY OF KANE, UT
COUNTY OF IRON, UT
COUNTY OF WASHINGTON, UT

OTHER AGENCIES INCLUDING ASSOCIATIONS, BOARDS, DISTRICTS, COMMISSIONS, COUNCILS, PUBLIC CORPORATIONS, PUBLIC DEVELOPMENT AUTHORITIES, RESERVATIONS AND UTILITIES INCLUDING BUT NOT LIMITED TO:

ADAIR R.F.P.D., OR
ADEL WATER IMPROVEMENT DISTRICT, OR
ADRIAN R.F.P.D., OR
AGNESS COMMUNITY LIBRARY, OR
AGNESS-ILLAHE R.F.P.D., OR
AGRICULTURE EDUCATION SERVICE EXTENSION DISTRICT, OR
ALDER CREEK-BARLOW WATER DISTRICT NO. 29, OR
ALFALFA FIRE DISTRICT, OR
ALSEA R.F.P.D., OR
ALSEA RIVIERA WATER IMPROVEMENT DISTRICT, OR
AMITY FIRE DISTRICT, OR
ANTELOPE MEADOWS SPECIAL ROAD DISTRICT, OR
APPLE ROGUE DISTRICT IMPROVEMENT COMPANY, OR
APPLEGATE VALLEY R.F.P.D. #9, OR
ARCH CAPE DOMESTIC WATER SUPPLY DISTRICT, OR
ARCH CAPE SANITARY DISTRICT, OR
ARNOLD IRRIGATION DISTRICT, OR
ASH CREEK WATER CONTROL DISTRICT, OR
ATHENA CEMETERY MAINTENANCE DISTRICT, OR

EXAMPLE

AUMSVILLE R.F.P.D., OR
AURORA R.F.P.D., OR
AZALEA R.F.P.D., OR
BADGER IMPROVEMENT DISTRICT, OR
BAILEY-SPENCER R.F.P.D., OR
BAKER COUNTY LIBRARY DISTRICT, OR
BAKER R.F.P.D., OR
BAKER RIVERTON ROAD DISTRICT, OR
BAKER VALLEY IRRIGATION DISTRICT, OR
BAKER VALLEY S.W.C.D., OR
BAKER VALLEY VECTOR CONTROL DISTRICT, OR
BANDON CRANBERRY WATER CONTROL DISTRICT, OR
BANDON R.F.P.D., OR
BANKS FIRE DISTRICT, OR
BANKS FIRE DISTRICT #13, OR
BAR L RANCH ROAD DISTRICT, OR
BARLOW WATER IMPROVEMENT DISTRICT, OR
BASIN AMBULANCE SERVICE DISTRICT, OR
BASIN TRANSIT SERVICE TRANSPORTATION DISTRICT, OR
BATON ROUGE WATER COMPANY
BAY AREA HEALTH DISTRICT, OR
BAYSHORE SPECIAL ROAD DISTRICT, OR
BEAR VALLEY SPECIAL ROAD DISTRICT, OR
BEAVER CREEK WATER CONTROL DISTRICT, OR
BEAVER DRAINAGE IMPROVEMENT COMPANY, INC., OR
BEAVER SLOUGH DRAINAGE DISTRICT, OR
BEAVER SPECIAL ROAD DISTRICT, OR
BEAVER WATER DISTRICT, OR
BELLE MER S.I.G.L. TRACTS SPECIAL ROAD DISTRICT, OR
BEND METRO PARK AND RECREATION DISTRICT
BENTON S.W.C.D., OR
BERNDT SUBDIVISION WATER IMPROVEMENT DISTRICT, OR
BEVERLY BEACH WATER DISTRICT, OR
BIENVILLE PARISH FIRE PROTECTION DISTRICT 6, LA
BIG BEND IRRIGATION DISTRICT, OR
BIGGS SERVICE DISTRICT, OR
BLACK BUTTE RANCH DEPARTMENT OF POLICE SERVICES, OR
BLACK BUTTE RANCH R.F.P.D., OR
BLACK MOUNTAIN WATER DISTRICT, OR
BLODGETT-SUMMIT R.F.P.D., OR
BLUE MOUNTAIN HOSPITAL DISTRICT, OR
BLUE MOUNTAIN TRANSLATOR DISTRICT, OR
BLUE RIVER PARK & RECREATION DISTRICT, OR
BLUE RIVER WATER DISTRICT, OR
BLY R.F.P.D., OR
BLY VECTOR CONTROL DISTRICT, OR
BLY WATER AND SANITARY DISTRICT, OR
BOARDMAN CEMETERY MAINTENANCE DISTRICT, OR
BOARDMAN PARK AND RECREATION DISTRICT
BOARDMAN R.F.P.D., OR
BONANZA BIG SPRINGS PARK & RECREATION DISTRICT, OR
BONANZA MEMORIAL PARK CEMETERY DISTRICT, OR
BONANZA R.F.P.D., OR
BONANZA-LANGELL VALLEY VECTOR CONTROL DISTRICT, OR
BORING WATER DISTRICT #24, OR
BOULDER CREEK RETREAT SPECIAL ROAD DISTRICT, OR
BRIDGE R.F.P.D., OR
BROOKS COMMUNITY SERVICE DISTRICT, OR
BROWNSVILLE R.F.P.D., OR
BUELL-RED PRAIRIE WATER DISTRICT, OR
BUNKER HILL R.F.P.D. #1, OR
BUNKER HILL SANITARY DISTRICT, OR
BURLINGTON WATER DISTRICT, OR
BURNT RIVER IRRIGATION DISTRICT, OR
BURNT RIVER S.W.C.D., OR
CALAPOOIA R.F.P.D., OR
CAMAS VALLEY R.F.P.D., OR
CAMELLIA PARK SANITARY DISTRICT, OR
CAMMANN ROAD DISTRICT, OR
CAMP SHERMAN ROAD DISTRICT, OR
CANBY AREA TRANSIT, OR
CANBY R.F.P.D. #62, OR
CANBY UTILITY BOARD, OR
CANNON BEACH R.F.P.D., OR
CANYONVILLE SOUTH UMPQUA FIRE DISTRICT, OR
CAPE FERRELO R.F.P.D., OR
CAPE FOULWEATHER SANITARY DISTRICT, OR
CARLSON PRIMROSE SPECIAL ROAD DISTRICT, OR
CARMEL BEACH WATER DISTRICT, OR
CASCADE VIEW ESTATES TRACT 2, OR
CEDAR CREST SPECIAL ROAD DISTRICT, OR
CEDAR TRAILS SPECIAL ROAD DISTRICT, OR
CEDAR VALLEY - NORTH BANK R.F.P.D., OR
CENTRAL CASCADES FIRE AND EMS, OR
CENTRAL CITY ECONOMIC OPPORTUNITY CORP, LA
CENTRAL LINCOLN P.U.D., OR
CENTRAL OREGON COAST FIRE & RESCUE DISTRICT, OR
CENTRAL OREGON INTERGOVERNMENTAL COUNCIL
CENTRAL OREGON IRRIGATION DISTRICT, OR
CHAPARRAL WATER CONTROL DISTRICT, OR
CHARLESTON FIRE DISTRICT, OR
CHARLESTON SANITARY DISTRICT, OR
CHARLOTTE ANN WATER DISTRICT, OR
CHEHALEM PARK & RECREATION DISTRICT, OR
CHEHALEM PARK AND RECREATION DISTRICT
CHEMULT R.F.P.D., OR
CHENOWITH WATER P.U.D., OR
CHERRIOTS, OR
CHETCO COMMUNITY PUBLIC LIBRARY DISTRICT, OR
CHILOQUIN VECTOR CONTROL DISTRICT, OR
CHILOQUIN-AGENCY LAKE R.F.P.D., OR
CHINOOK DRIVE SPECIAL ROAD DISTRICT, OR
CHR DISTRICT IMPROVEMENT COMPANY, OR
CHRISTMAS VALLEY DOMESTIC WATER DISTRICT, OR
CHRISTMAS VALLEY PARK & RECREATION DISTRICT, OR
CHRISTMAS VALLEY R.F.P.D., OR
CITY OF BOGALUSA SCHOOL BOARD, LA
CLACKAMAS COUNTY FIRE DISTRICT #1, OR
CLACKAMAS COUNTY SERVICE DISTRICT #1, OR
CLACKAMAS COUNTY VECTOR CONTROL DISTRICT, OR
CLACKAMAS RIVER WATER
CLACKAMAS RIVER WATER, OR

EXAMPLE

CLACKAMAS S.W.C.D., OR
CLATSKANIE DRAINAGE IMPROVEMENT COMPANY, OR
CLATSKANIE LIBRARY DISTRICT, OR
CLATSKANIE P.U.D., OR
CLATSKANIE PARK & RECREATION DISTRICT, OR
CLATSKANIE PEOPLE'S UTILITY DISTRICT
CLATSKANIE R.F.P.D., OR
CLATSOP CARE CENTER HEALTH DISTRICT, OR
CLATSOP COUNTY S.W.C.D., OR
CLATSOP DRAINAGE IMPROVEMENT COMPANY #15, INC., OR
CLEAN WATER SERVICES
CLEAN WATER SERVICES, OR
CLOVERDALE R.F.P.D., OR
CLOVERDALE SANITARY DISTRICT, OR
CLOVERDALE WATER DISTRICT, OR
COALEDO DRAINAGE DISTRICT, OR
COBURG FIRE DISTRICT, OR
COLESTIN RURAL FIRE DISTRICT, OR
COLTON R.F.P.D., OR
COLTON WATER DISTRICT #11, OR
COLUMBIA 911 COMMUNICATIONS DISTRICT, OR
COLUMBIA COUNTY 4-H & EXTENSION SERVICE DISTRICT, OR
COLUMBIA DRAINAGE VECTOR CONTROL, OR
COLUMBIA IMPROVEMENT DISTRICT, OR
COLUMBIA R.F.P.D., OR
COLUMBIA RIVER FIRE & RESCUE, OR
COLUMBIA RIVER PUD, OR
COLUMBIA S.W.C.D., OR
COLUMBIA S.W.C.D., OR
CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION
COOS COUNTY AIRPORT DISTRICT, OR
COOS COUNTY AIRPORT DISTRICT, OR
COOS COUNTY AREA TRANSIT SERVICE DISTRICT, OR
COOS COUNTY AREA TRANSIT SERVICE DISTRICT, OR
COOS FOREST PROTECTIVE ASSOCIATION
COOS S.W.C.D., OR
COQUILLE R.F.P.D., OR
COQUILLE VALLEY HOSPITAL DISTRICT, OR
CORBETT WATER DISTRICT, OR
CORNELIUS R.F.P.D., OR
CORP RANCH ROAD WATER IMPROVEMENT, OR
CORVALLIS R.F.P.D., OR
COUNTRY CLUB ESTATES SPECIAL WATER DISTRICT, OR
COUNTRY CLUB WATER DISTRICT, OR
COUNTRY ESTATES ROAD DISTRICT, OR
COVE CEMETERY MAINTENANCE DISTRICT, OR
COVE ORCHARD SEWER SERVICE DISTRICT, OR
COVE R.F.P.D., OR
CRESCENT R.F.P.D., OR
CRESCENT SANITARY DISTRICT, OR
CRESCENT WATER SUPPLY AND IMPROVEMENT DISTRICT, OR
CROOK COUNTY AGRICULTURE EXTENSION SERVICE DISTRICT, OR
CROOK COUNTY CEMETERY DISTRICT, OR
CROOK COUNTY FIRE AND RESCUE, OR
CROOK COUNTY PARKS & RECREATION DISTRICT, OR
CROOK COUNTY S.W.C.D., OR
CROOK COUNTY VECTOR CONTROL DISTRICT, OR
CROOKED RIVER RANCH R.F.P.D., OR
CROOKED RIVER RANCH SPECIAL ROAD DISTRICT, OR
CRYSTAL SPRINGS WATER DISTRICT, OR
CURRY COUNTY 4-H & EXTENSION SERVICE DISTRICT, OR
CURRY COUNTY PUBLIC TRANSIT SERVICE DISTRICT, OR
CURRY COUNTY S.W.C.D., OR
CURRY HEALTH DISTRICT, OR
CURRY PUBLIC LIBRARY DISTRICT, OR
DALLAS CEMETERY DISTRICT #4, OR
DARLEY DRIVE SPECIAL ROAD DISTRICT, OR
DAVID CROCKETT STEAM FIRE COMPANY #1, LA
DAYS CREEK R.F.P.D., OR
DAYTON FIRE DISTRICT, OR
DEAN MINARD WATER DISTRICT, OR
DEE IRRIGATION DISTRICT, OR
DEER ISLAND DRAINAGE IMPROVEMENT COMPANY, OR
DELL BROGAN CEMETERY MAINTENANCE DISTRICT, OR
DEPOE BAY R.F.P.D., OR
DESCHUTES COUNTY 911 SERVICE DISTRICT, OR
DESCHUTES COUNTY R.F.P.D. #2, OR
DESCHUTES PUBLIC LIBRARY DISTRICT, OR
DESCHUTES S.W.C.D., OR
DESCHUTES VALLEY WATER DISTRICT, OR
DEVILS LAKE WATER IMPROVEMENT DISTRICT, OR
DEXTER R.F.P.D., OR
DEXTER SANITARY DISTRICT, OR
DORA-SITKUM R.F.P.D., OR
DOUGLAS COUNTY FIRE DISTRICT #2, OR
DOUGLAS S.W.C.D., OR
DRAKES CROSSING R.F.P.D., OR
DRRH SPECIAL ROAD DISTRICT #6, OR
DRY GULCH DITCH DISTRICT IMPROVEMENT COMPANY, OR
DUFUR RECREATION DISTRICT, OR
DUMBECK LANE DOMESTIC WATER SUPPLY, OR
DUNDEE R.F.P.D., OR
DURKEE COMMUNITY BUILDING PRESERVATION DISTRICT, OR
EAGLE POINT IRRIGATION DISTRICT, OR
EAGLE VALLEY CEMETERY MAINTENANCE DISTRICT, OR
EAGLE VALLEY R.F.P.D., OR
EAGLE VALLEY S.W.C.D., OR
EAST FORK IRRIGATION DISTRICT, OR
EAST MULTNOMAH S.W.C.D., OR
EAST SALEM SERVICE DISTRICT, OR
EAST UMATILLA CHEMICAL CONTROL DISTRICT, OR
EAST UMATILLA COUNTY AMBULANCE AREA HEALTH DISTRICT, OR
EAST UMATILLA COUNTY R.F.P.D., OR
EAST VALLEY WATER DISTRICT, OR
ELGIN COMMUNITY PARKS & RECREATION DISTRICT, OR
ELGIN HEALTH DISTRICT, OR
ELGIN R.F.P.D., OR
ELKTON ESTATES PHASE II SPECIAL ROAD DISTRICT, OR

EXAMPLE

ELKTON R.F.P.D., OR
EMERALD P.U.D., OR
ENTERPRISE IRRIGATION DISTRICT, OR
ESTACADA CEMETERY MAINTENANCE DISTRICT, OR
ESTACADA R.F.P.D. #69, OR
EUGENE R.F.P.D. # 1, OR
EUGENE WATER AND ELECTRIC BOARD
EVANS VALLEY FIRE DISTRICT #6, OR
FAIR OAKS R.F.P.D., OR
FAIRVIEW R.F.P.D., OR
FAIRVIEW WATER DISTRICT, OR
FALCON HEIGHTS WATER AND SEWER, OR
FALCON-COVE BEACH WATER DISTRICT, OR
FALL RIVER ESTATES SPECIAL ROAD DISTRICT, OR
FARGO INTERCHANGE SERVICE DISTRICT, OR
FARMERS IRRIGATION DISTRICT, OR
FAT ELK DRAINAGE DISTRICT, OR
FERN RIDGE PUBLIC LIBRARY DISTRICT, OR
FERN VALLEY ESTATES IMPROVEMENT DISTRICT, OR
FOR FAR ROAD DISTRICT, OR
FOREST GROVE R.F.P.D., OR
FOREST VIEW SPECIAL ROAD DISTRICT, OR
FORT ROCK-SILVER LAKE S.W.C.D., OR
FOUR RIVERS VECTOR CONTROL DISTRICT, OR
FOX CEMETERY MAINTENANCE DISTRICT, OR
GARDINER R.F.P.D., OR
GARDINER SANITARY DISTRICT, OR
GARIBALDI R.F.P.D., OR
GASTON R.F.P.D., OR
GATES R.F.P.D., OR
GEARHART R.F.P.D., OR
GILLIAM S.W.C.D., OR
GLENDALE AMBULANCE DISTRICT, OR
GLENDALE R.F.P.D., OR
GLENEDEN BEACH SPECIAL ROAD DISTRICT, OR
GLENEDEN SANITARY DISTRICT, OR
GLENWOOD WATER DISTRICT, OR
GLIDE - IDLEYLD SANITARY DISTRICT, OR
GLIDE R.F.P.D., OR
GOLD BEACH - WEDDERBURN R.F.P.D., OR
GOLD HILL IRRIGATION DISTRICT, OR
GOLDFINCH ROAD DISTRICT, OR
GOSHEN R.F.P.D., OR
GOVERNMENT CAMP ROAD DISTRICT, OR
GOVERNMENT CAMP SANITARY DISTRICT, OR
GRAND PRAIRIE WATER CONTROL DISTRICT, OR
GRAND RONDE SANITARY DISTRICT, OR
GRANT COUNTY TRANSPORTATION DISTRICT, OR
GRANT S.W.C.D., OR
GRANTS PASS IRRIGATION DISTRICT, OR
GREATER BOWEN VALLEY R.F.P.D., OR
GREATER ST. HELENS PARK & RECREATION DISTRICT, OR
GREATER TOLEDO POOL RECREATION DISTRICT, OR
GREEN KNOLLS SPECIAL ROAD DISTRICT, OR
GREEN SANITARY DISTRICT, OR
GREENACRES R.F.P.D., OR
GREENBERRY IRRIGATION DISTRICT, OR
GREENSPRINGS RURAL FIRE DISTRICT, OR
HAHLEN ROAD SPECIAL DISTRICT, OR
HAINES CEMETERY MAINTENANCE DISTRICT, OR
HAINES FIRE PROTECTION DISTRICT, OR
HALSEY-SHEDD R.F.P.D., OR
HAMLET R.F.P.D., OR
HARBOR R.F.P.D., OR
HARBOR SANITARY DISTRICT, OR
HARBOR WATER P.U.D., OR
HARNEY COUNTY HEALTH DISTRICT, OR
HARNEY S.W.C.D., OR
HARPER SOUTH SIDE IRRIGATION DISTRICT, OR
HARRISBURG FIRE AND RESCUE, OR
HAUSER R.F.P.D., OR
HAZELDELL RURAL FIRE DISTRICT, OR
HEBO JOINT WATER-SANITARY AUTHORITY, OR
HECETA WATER P.U.D., OR
HELIX CEMETERY MAINTENANCE DISTRICT #4, OR
HELIX PARK & RECREATION DISTRICT, OR
HELIX R.F.P.D. #7-411, OR
HEPPNER CEMETERY MAINTENANCE DISTRICT, OR
HEPPNER R.F.P.D., OR
HEPPNER WATER CONTROL DISTRICT, OR
HEREFORD COMMUNITY HALL RECREATION DISTRICT, OR
HERMISTON CEMETERY DISTRICT, OR
HERMISTON IRRIGATION DISTRICT, OR
HIDDEN VALLEY MOBILE ESTATES IMPROVEMENT DISTRICT, OR
HIGH DESERT PARK & RECREATION DISTRICT, OR
HIGHLAND SUBDIVISION WATER DISTRICT, OR
HONOLULU INTERNATIONAL AIRPORT
HOOD RIVER COUNTY LIBRARY DISTRICT, OR
HOOD RIVER COUNTY TRANSPORTATION DISTRICT, OR
HOOD RIVER S.W.C.D., OR
HOOD RIVER VALLEY PARKS & RECREATION DISTRICT, OR
HOODLAND FIRE DISTRICT #74
HOODLAND FIRE DISTRICT #74, OR
HORSEFLY IRRIGATION DISTRICT, OR
HOSKINS-KINGS VALLEY R.F.P.D., OR
HOUSING AUTHORITY OF PORTLAND
HUBBARD R.F.P.D., OR
HUDSON BAY DISTRICT IMPROVEMENT COMPANY, OR
I N (KAY) YOUNG DITCH DISTRICT IMPROVEMENT COMPANY, OR
ICE FOUNTAIN WATER DISTRICT, OR
IDAHO POINT SPECIAL ROAD DISTRICT, OR
IDANHA-DETROIT RURAL FIRE PROTECTION DISTRICT, OR
ILLINOIS VALLEY FIRE DISTRICT
ILLINOIS VALLEY R.F.P.D., OR
ILLINOIS VALLEY S.W.C.D., OR
IMBLER R.F.P.D., OR
INTERLACHEN WATER P.U.D., OR
IONE LIBRARY DISTRICT, OR
IONE R.F.P.D. #6-604, OR
IRONSIDE CEMETERY MAINTENANCE DISTRICT, OR
IRONSIDE RURAL ROAD DISTRICT #5, OR
IRRIGON PARK & RECREATION DISTRICT, OR
IRRIGON R.F.P.D., OR
ISLAND CITY AREA SANITATION DISTRICT, OR
ISLAND CITY CEMETERY MAINTENANCE DISTRICT, OR
JACK PINE VILLAGE SPECIAL ROAD DISTRICT, OR
JACKSON COUNTY FIRE DISTRICT #3, OR
JACKSON COUNTY FIRE DISTRICT #4, OR

EXAMPLE

JACKSON COUNTY FIRE DISTRICT #5, OR
JACKSON COUNTY LIBRARY DISTRICT, OR
JACKSON COUNTY VECTOR CONTROL DISTRICT, OR
JACKSON S.W.C.D., OR
JASPER KNOLLS WATER DISTRICT, OR
JEFFERSON COUNTY EMERGENCY MEDICAL SERVICE DISTRICT, OR
JEFFERSON COUNTY FIRE DISTRICT #1, OR
JEFFERSON COUNTY LIBRARY DISTRICT, OR
JEFFERSON COUNTY S.W.C.D., OR
JEFFERSON PARK & RECREATION DISTRICT, OR
JEFFERSON R.F.P.D., OR
JOB'S DRAINAGE DISTRICT, OR
JOHN DAY WATER DISTRICT, OR
JOHN DAY-CANYON CITY PARKS & RECREATION DISTRICT, OR
JOHN DAY-FERNHILL R.F.P.D. #5-108, OR
JORDAN VALLEY CEMETERY DISTRICT, OR
JORDAN VALLEY IRRIGATION DISTRICT, OR
JOSEPHINE COMMUNITY LIBRARY DISTRICT, OR
JOSEPHINE COUNTY 4-H & EXTENSION SERVICE DISTRICT, OR
JOSEPHINE COUNTY 911 AGENCY, OR
JUNCTION CITY R.F.P.D., OR
JUNCTION CITY WATER CONTROL DISTRICT, OR
JUNIPER BUTTE ROAD DISTRICT, OR
JUNIPER CANYON WATER CONTROL DISTRICT, OR
JUNIPER FLAT DISTRICT IMPROVEMENT COMPANY, OR
JUNIPER FLAT R.F.P.D., OR
JUNO NONPROFIT WATER IMPROVEMENT DISTRICT, OR
KEATING R.F.P.D., OR
KEATING S.W.C.D., OR
KEIZER R.F.P.D., OR
KELLOGG RURAL FIRE DISTRICT, OR
KENO IRRIGATION DISTRICT, OR
KENO PINES ROAD DISTRICT, OR
KENO R.F.P.D., OR
KENT WATER DISTRICT, OR
KERBY WATER DISTRICT, OR
K-GB-LB WATER DISTRICT, OR
KILCHIS WATER DISTRICT, OR
KLAMATH 9-1-1 COMMUNICATIONS DISTRICT, OR
KLAMATH BASIN IMPROVEMENT DISTRICT, OR
KLAMATH COUNTY DRAINAGE SERVICE DISTRICT, OR
KLAMATH COUNTY EXTENSION SERVICE DISTRICT, OR
KLAMATH COUNTY FIRE DISTRICT #1, OR
KLAMATH COUNTY FIRE DISTRICT #3, OR
KLAMATH COUNTY FIRE DISTRICT #4, OR
KLAMATH COUNTY FIRE DISTRICT #5, OR
KLAMATH COUNTY LIBRARY SERVICE DISTRICT, OR
KLAMATH COUNTY PREDATORY ANIMAL CONTROL DISTRICT, OR
KLAMATH DRAINAGE DISTRICT, OR
KLAMATH FALLS FOREST ESTATES SPECIAL ROAD DISTRICT UNIT #2, OR
KLAMATH INTEROPERABILITY RADIO GROUP, OR
KLAMATH IRRIGATION DISTRICT, OR
KLAMATH RIVER ACRES SPECIAL ROAD DISTRICT, OR
KLAMATH S.W.C.D., OR
KLAMATH VECTOR CONTROL DISTRICT, OR
KNAPPA-SVENSEN-BURNSIDE R.F.P.D., OR
LA GRANDE CEMETERY MAINTENANCE DISTRICT, OR
LA GRANDE R.F.P.D., OR
LA PINE PARK & RECREATION DISTRICT, OR
LA PINE R.F.P.D., OR
LABISH VILLAGE SEWAGE & DRAINAGE, OR
LACOMB IRRIGATION DISTRICT, OR
LAFAYETTE AIRPORT COMMISSION, LA
LAFOURCHE PARISH HEALTH UNIT – DHH-OPH REGION 3
LAIDLAW WATER DISTRICT, OR
LAKE CHINOOK FIRE & RESCUE, OR
LAKE COUNTY 4-H & EXTENSION SERVICE DISTRICT, OR
LAKE COUNTY LIBRARY DISTRICT, OR
LAKE CREEK R.F.P.D. - JACKSON, OR
LAKE CREEK R.F.P.D. - LANE COUNTY, OR
LAKE DISTRICT HOSPITAL, OR
LAKE GROVE R.F.P.D. NO. 57, OR
LAKE GROVE WATER DISTRICT, OR
LAKE LABISH WATER CONTROL DISTRICT, OR
LAKE POINT SPECIAL ROAD DISTRICT, OR
LAKESIDE R.F.P.D. #4, OR
LAKESIDE WATER DISTRICT, OR
LAKEVIEW R.F.P.D., OR
LAKEVIEW S.W.C.D., OR
LAMONTAI IMPROVEMENT DISTRICT, OR
LANE FIRE AUTHORITY, OR
LANE LIBRARY DISTRICT, OR
LANE TRANSIT DISTRICT, OR
LANGELL VALLEY IRRIGATION DISTRICT, OR
LANGLOIS PUBLIC LIBRARY, OR
LANGLOIS R.F.P.D., OR
LANGLOIS WATER DISTRICT, OR
LAZY RIVER SPECIAL ROAD DISTRICT, OR
LEBANON AQUATIC DISTRICT, OR
LEBANON R.F.P.D., OR
LEWIS & CLARK R.F.P.D., OR
LINCOLN COUNTY LIBRARY DISTRICT, OR
LINCOLN S.W.C.D., OR
LINN COUNTY EMERGENCY TELEPHONE AGENCY, OR
LINN S.W.C.D., OR
LITTLE MUDDY CREEK WATER CONTROL, OR
LITTLE NESTUCCA DRAINAGE DISTRICT, OR
LITTLE SWITZERLAND SPECIAL ROAD DISTRICT, OR
LONE PINE IRRIGATION DISTRICT, OR
LONG PRAIRIE WATER DISTRICT, OR
LOOKINGGLASS OLALLA WATER CONTROL DISTRICT, OR
LOOKINGGLASS RURAL FIRE DISTRICT, OR
LORANE R.F.P.D., OR
LOST & BOULDER DITCH IMPROVEMENT DISTRICT, OR
LOST CREEK PARK SPECIAL ROAD DISTRICT, OR
LOUISIANA PUBLIC SERVICE COMMISSION, LA
LOUISIANA WATER WORKS
LOWELL R.F.P.D., OR
LOWER MCKAY CREEK R.F.P.D., OR
LOWER MCKAY CREEK WATER CONTROL DISTRICT, OR
LOWER POWDER RIVER IRRIGATION DISTRICT, OR
LOWER SILETZ WATER DISTRICT, OR

EXAMPLE

LOWER UMPQUA HOSPITAL DISTRICT, OR
LOWER UMPQUA PARK & RECREATION DISTRICT, OR
LOWER VALLEY WATER IMPROVEMENT DISTRICT, OR
LUCE LONG DITCH DISTRICT IMPROVEMENT CO., OR
LUSTED WATER DISTRICT, OR
LYONS R.F.P.D., OR
LYONS-MEHAMA WATER DISTRICT, OR
MADRAS AQUATIC CENTER DISTRICT, OR
MAKAI SPECIAL ROAD DISTRICT, OR
MALHEUR COUNTY S.W.C.D., OR
MALHEUR COUNTY VECTOR CONTROL DISTRICT, OR
MALHEUR DISTRICT IMPROVEMENT COMPANY, OR
MALHEUR DRAINAGE DISTRICT, OR
MALHEUR MEMORIAL HEALTH DISTRICT, OR
MALIN COMMUNITY CEMETERY MAINTENANCE DISTRICT, OR
MALIN COMMUNITY PARK & RECREATION DISTRICT, OR
MALIN IRRIGATION DISTRICT, OR
MALIN R.F.P.D., OR
MAPLETON FIRE DEPARTMENT, OR
MAPLETON WATER DISTRICT, OR
MARCOLA WATER DISTRICT, OR
MARION COUNTY EXTENSION & 4H SERVICE DISTRICT, OR
MARION COUNTY FIRE DISTRICT #1, OR
MARION JACK IMPROVEMENT DISTRICT, OR
MARION S.W.C.D., OR
MARY'S RIVER ESTATES ROAD DISTRICT, OR
MCDONALD FOREST ESTATES SPECIAL ROAD DISTRICT, OR
MCKAY ACRES IMPROVEMENT DISTRICT, OR
MCKAY DAM R.F.P.D. # 7-410, OR
MCKENZIE FIRE & RESCUE, OR
MCKENZIE PALISADES WATER SUPPLY CORPORATION, OR
MCMINNVILLE R.F.P.D., OR
MCNULTY WATER P.U.D., OR
MEADOWS DRAINAGE DISTRICT, OR
MEDFORD IRRIGATION DISTRICT, OR
MEDFORD R.F.P.D. #2, OR
MEDFORD WATER COMMISSION
MEDICAL SPRINGS R.F.P.D., OR
MELHEUR COUNTY JAIL, OR
MERLIN COMMUNITY PARK DISTRICT, OR
MERRILL CEMETERY MAINTENANCE DISTRICT, OR
MERRILL PARK DISTRICT, OR
MERRILL R.F.P.D., OR
METRO REGIONAL GOVERNMENT
METRO REGIONAL PARKS
METROPOLITAN EXPOSITION RECREATION COMMISSION
METROPOLITAN SERVICE DISTRICT (METRO)
MID COUNTY CEMETERY MAINTENANCE DISTRICT, OR
MID-COLUMBIA FIRE AND RESCUE, OR
MIDDLE FORK IRRIGATION DISTRICT, OR
MIDLAND COMMUNITY PARK, OR
MIDLAND DRAINAGE IMPROVEMENT DISTRICT, OR
MILES CROSSING SANITARY SEWER DISTRICT, OR
MILL CITY R.F.P.D. #2-303, OR
MILL FOUR DRAINAGE DISTRICT, OR
MILLICOMA RIVER PARK & RECREATION DISTRICT, OR
MILLINGTON R.F.P.D. #5, OR
MILO VOLUNTEER FIRE DEPARTMENT, OR
MILTON-FREEWATER AMBULANCE SERVICE AREA HEALTH DISTRICT, OR
MILTON-FREEWATER WATER CONTROL DISTRICT, OR
MIROCO SPECIAL ROAD DISTRICT, OR
MIST-BIRKENFELD R.F.P.D., OR
MODOC POINT IRRIGATION DISTRICT, OR
MODOC POINT SANITARY DISTRICT, OR
MOHAWK VALLEY R.F.P.D., OR
MOLALLA AQUATIC DISTRICT, OR
MOLALLA R.F.P.D. #73, OR
MONITOR R.F.P.D., OR
MONROE R.F.P.D., OR
MONUMENT CEMETERY MAINTENANCE DISTRICT, OR
MONUMENT S.W.C.D., OR
MOOREA DRIVE SPECIAL ROAD DISTRICT, OR
MORO R.F.P.D., OR
MORROW COUNTY HEALTH DISTRICT, OR
MORROW COUNTY UNIFIED RECREATION DISTRICT, OR
MORROW S.W.C.D., OR
MOSIER FIRE DISTRICT, OR
MOUNTAIN DRIVE SPECIAL ROAD DISTRICT, OR
MT. ANGEL R.F.P.D., OR
MT. HOOD IRRIGATION DISTRICT, OR
MT. LAKI CEMETERY DISTRICT, OR
MT. VERNON R.F.P.D., OR
MULINO WATER DISTRICT #1, OR
MULTNOMAH COUNTY DRAINAGE DISTRICT #1, OR
MULTNOMAH COUNTY R.F.P.D. #10, OR
MULTNOMAH COUNTY R.F.P.D. #14, OR
MULTNOMAH EDUCATION SERVICE DISTRICT
MYRTLE CREEK R.F.P.D., OR
NEAH-KAH-NIE WATER DISTRICT, OR
NEDONNA R.F.P.D., OR
NEHALEM BAY FIRE AND RESCUE, OR
NEHALEM BAY HEALTH DISTRICT, OR
NEHALEM BAY WASTEWATER AGENCY, OR
NESIKA BEACH-OPHIR WATER DISTRICT, OR
NESKOWIN REGIONAL SANITARY AUTHORITY, OR
NESKOWIN REGIONAL WATER DISTRICT, OR
NESTUCCA R.F.P.D., OR
NETARTS WATER DISTRICT, OR
NETARTS-OCEANSIDE R.F.P.D., OR
NETARTS-OCEANSIDE SANITARY DISTRICT, OR
NEW BRIDGE WATER SUPPLY DISTRICT, OR
NEW CARLTON FIRE DISTRICT, OR
NEW ORLEANS REDEVELOPMENT AUTHORITY, LA
NEW PINE CREEK R.F.P.D., OR
NEWBERG R.F.P.D., OR
NEWBERRY ESTATES SPECIAL ROAD DISTRICT, OR
NEWPORT R.F.P.D., OR
NEWT YOUNG DITCH DISTRICT IMPROVEMENT COMPANY, OR
NORTH ALBANY R.F.P.D., OR
NORTH BAY R.F.P.D. #9, OR
NORTH CLACKAMAS PARKS & RECREATION DISTRICT, OR
NORTH COUNTY RECREATION DISTRICT, OR

EXAMPLE

NORTH DOUGLAS COUNTY FIRE & EMS, OR
NORTH DOUGLAS PARK & RECREATION DISTRICT, OR
NORTH GILLIAM COUNTY HEALTH DISTRICT, OR
NORTH GILLIAM COUNTY R.F.P.D., OR
NORTH LAKE HEALTH DISTRICT, OR
NORTH LEBANON WATER CONTROL DISTRICT, OR
NORTH LINCOLN FIRE & RESCUE DISTRICT #1, OR
NORTH LINCOLN HEALTH DISTRICT, OR
NORTH MORROW VECTOR CONTROL DISTRICT, OR
NORTH SHERMAN COUNTY R.F.P.D, OR
NORTH UNIT IRRIGATION DISTRICT, OR
NORTHEAST OREGON HOUSING AUTHORITY, OR
NORTHEAST WHEELER COUNTY HEALTH DISTRICT, OR
NORTHERN WASCO COUNTY P.U.D., OR
NORTHERN WASCO COUNTY PARK & RECREATION DISTRICT, OR
NYE DITCH USERS DISTRICT IMPROVEMENT, OR
NYSSA ROAD ASSESSMENT DISTRICT #2, OR
NYSSA RURAL FIRE DISTRICT, OR
NYSSA-ARCADIA DRAINAGE DISTRICT, OR
OAK LODGE WATER SERVICES, OR
OAKLAND R.F.P.D., OR
OAKVILLE COMMUNITY CENTER, OR
OCEANSIDE WATER DISTRICT, OR
OCHOCO IRRIGATION DISTRICT, OR
OCHOCO WEST WATER AND SANITARY AUTHORITY, OR
ODELL SANITARY DISTRICT, OR
OLD OWYHEE DITCH IMPROVEMENT DISTRICT, OR
OLNEY-WALLUSKI FIRE & RESCUE DISTRICT, OR
ONTARIO LIBRARY DISTRICT, OR
ONTARIO R.F.P.D., OR
OPHIR R.F.P.D., OR
OREGON COAST COMMUNITY ACTION
OREGON HOUSING AND COMMUNITY SERVICES
OREGON INTERNATIONAL PORT OF COOS BAY, OR
OREGON LEGISLATIVE ADMINISTRATION
OREGON OUTBACK R.F.P.D., OR
OREGON POINT, OR
OREGON TRAIL LIBRARY DISTRICT, OR
OTTER ROCK WATER DISTRICT, OR
OWW UNIT #2 SANITARY DISTRICT, OR
OWYHEE CEMETERY MAINTENANCE DISTRICT, OR
OWYHEE IRRIGATION DISTRICT, OR
PACIFIC CITY JOINT WATER-SANITARY AUTHORITY, OR
PACIFIC COMMUNITIES HEALTH DISTRICT, OR
PACIFIC RIVIERA #3 SPECIAL ROAD DISTRICT, OR
PALATINE HILL WATER DISTRICT, OR
PALMER CREEK WATER DISTRICT IMPROVEMENT COMPANY, OR
PANORAMIC ACCESS SPECIAL ROAD DISTRICT, OR
PANTHER CREEK ROAD DISTRICT, OR
PANTHER CREEK WATER DISTRICT, OR
PARKDALE R.F.P.D., OR
PARKDALE SANITARY DISTRICT, OR
PENINSULA DRAINAGE DISTRICT #1, OR
PENINSULA DRAINAGE DISTRICT #2, OR
PHILOMATH FIRE AND RESCUE, OR
PILOT ROCK CEMETERY MAINTENANCE DISTRICT #5, OR
PILOT ROCK PARK & RECREATION DISTRICT, OR
PILOT ROCK R.F.P.D., OR
PINE EAGLE HEALTH DISTRICT, OR
PINE FLAT DISTRICT IMPROVEMENT COMPANY, OR
PINE GROVE IRRIGATION DISTRICT, OR
PINE GROVE WATER DISTRICT-KLAMATH FALLS, OR
PINE GROVE WATER DISTRICT-MAUPIN, OR
PINE VALLEY CEMETERY DISTRICT, OR
PINE VALLEY R.F.P.D., OR
PINEWOOD COUNTRY ESTATES SPECIAL ROAD DISTRICT, OR
PIONEER DISTRICT IMPROVEMENT COMPANY, OR
PISTOL RIVER CEMETERY MAINTENANCE DISTRICT, OR
PISTOL RIVER FIRE DISTRICT, OR
PLEASANT HILL R.F.P.D., OR
PLEASANT HOME WATER DISTRICT, OR
POCAHONTAS MINING AND IRRIGATION DISTRICT, OR
POE VALLEY IMPROVEMENT DISTRICT, OR
POE VALLEY PARK & RECREATION DISTRICT, OR
POE VALLEY VECTOR CONTROL DISTRICT, OR
POLK COUNTY FIRE DISTRICT #1, OR
POLK S.W.C.D., OR
POMPADOUR WATER IMPROVEMENT DISTRICT, OR
PONDEROSA PINES EAST SPECIAL ROAD DISTRICT, OR
PORT OF ALSEA, OR
PORT OF ARLINGTON, OR
PORT OF ASTORIA, OR
PORT OF BANDON, OR
PORT OF BRANDON, OR
PORT OF BROOKINGS HARBOR, OR
PORT OF CASCADE LOCKS, OR
PORT OF COQUILLE RIVER, OR
PORT OF GARIBALDI, OR
PORT OF GOLD BEACH, OR
PORT OF HOOD RIVER, OR
PORT OF MORGAN CITY, LA
PORT OF MORROW, OR
PORT OF NEHALEM, OR
PORT OF NEWPORT, OR
PORT OF PORT ORFORD, OR
PORT OF PORTLAND, OR
PORT OF SIUSLAW, OR
PORT OF ST. HELENS, OR
PORT OF THE DALLES, OR
PORT OF TILLAMOOK BAY, OR
PORT OF TOLEDO, OR
PORT OF UMATILLA, OR
PORT OF UMPQUA, OR
PORT ORFORD CEMETERY MAINTENANCE DISTRICT, OR
PORT ORFORD PUBLIC LIBRARY DISTRICT, OR
PORT ORFORD R.F.P.D., OR
PORTLAND DEVELOPMENT COMMISSION, OR
PORTLAND FIRE AND RESCUE
PORTLAND HOUSING CENTER, OR
POWDER R.F.P.D., OR
POWDER RIVER R.F.P.D., OR
POWDER VALLEY WATER CONTROL DISTRICT, OR
POWERS HEALTH DISTRICT, OR
PRAIRIE CEMETERY MAINTENANCE DISTRICT, OR
PRINEVILLE LAKE ACRES SPECIAL ROAD DISTRICT #1, OR
PROSPECT R.F.P.D., OR

EXAMPLE

QUAIL VALLEY PARK IMPROVEMENT DISTRICT, OR
QUEENER IRRIGATION IMPROVEMENT DISTRICT, OR
RAINBOW WATER DISTRICT, OR
RAINIER CEMETERY DISTRICT, OR
RAINIER DRAINAGE IMPROVEMENT COMPANY, OR
RALEIGH WATER DISTRICT, OR
REDMOND AREA PARK & RECREATION DISTRICT, OR
REDMOND FIRE AND RESCUE, OR
RIDDLE FIRE PROTECTION DISTRICT, OR
RIDGEWOOD DISTRICT IMPROVEMENT COMPANY, OR
RIDGEWOOD ROAD DISTRICT, OR
RIETH SANITARY DISTRICT, OR
RIETH WATER DISTRICT, OR
RIMROCK WEST IMPROVEMENT DISTRICT, OR
RINK CREEK WATER DISTRICT, OR
RIVER BEND ESTATES SPECIAL ROAD DISTRICT, OR
RIVER FOREST ACRES SPECIAL ROAD DISTRICT, OR
RIVER MEADOWS IMPROVEMENT DISTRICT, OR
RIVER PINES ESTATES SPECIAL ROAD DISTRICT, OR
RIVER ROAD PARK & RECREATION DISTRICT, OR
RIVER ROAD WATER DISTRICT, OR
RIVERBEND RIVERBANK WATER IMPROVEMENT DISTRICT, OR
RIVERDALE R.F.P.D. 11-JT, OR
RIVERGROVE WATER DISTRICT, OR
RIVERSIDE MISSION WATER CONTROL DISTRICT, OR
RIVERSIDE R.F.P.D. #7-406, OR
RIVERSIDE WATER DISTRICT, OR
ROBERTS CREEK WATER DISTRICT, OR
ROCK CREEK DISTRICT IMPROVEMENT, OR
ROCK CREEK WATER DISTRICT, OR
ROCKWOOD WATER P.U.D., OR
ROCKY POINT FIRE & EMS, OR
ROGUE RIVER R.F.P.D., OR
ROGUE RIVER VALLEY IRRIGATION DISTRICT, OR
ROGUE VALLEY SEWER SERVICES, OR
ROGUE VALLEY SEWER, OR
ROGUE VALLEY TRANSPORTATION DISTRICT, OR
ROSEBURG URBAN SANITARY AUTHORITY, OR
ROSEWOOD ESTATES ROAD DISTRICT, OR
ROW RIVER VALLEY WATER DISTRICT, OR
RURAL ROAD ASSESSMENT DISTRICT #3, OR
RURAL ROAD ASSESSMENT DISTRICT #4, OR
SAINT LANDRY PARISH TOURIST COMMISSION
SAINT MARY PARISH REC DISTRICT 2
SAINT MARY PARISH REC DISTRICT 3
SAINT TAMMANY FIRE DISTRICT 4, LA
SALEM AREA MASS TRANSIT DISTRICT, OR
SALEM MASS TRANSIT DISTRICT
SALEM SUBURBAN R.F.P.D., OR
SALISHAN SANITARY DISTRICT, OR
SALMON RIVER PARK SPECIAL ROAD DISTRICT, OR
SALMON RIVER PARK WATER IMPROVEMENT DISTRICT, OR
SALMONBERRY TRAIL INTERGOVERNMENTAL AGENCY, OR
SANDPIPER VILLAGE SPECIAL ROAD DISTRICT, OR
SANDY DRAINAGE IMPROVEMENT COMPANY, OR
SANDY R.F.P.D. #72, OR
SANTA CLARA R.F.P.D., OR
SANTA CLARA WATER DISTRICT, OR
SANTIAM WATER CONTROL DISTRICT, OR
SAUVIE ISLAND DRAINAGE IMPROVEMENT COMPANY, OR
SAUVIE ISLAND VOLUNTEER FIRE DISTRICT #30J, OR
SCAPPOOSE DRAINAGE IMPROVEMENT COMPANY, OR
SCAPPOOSE PUBLIC LIBRARY DISTRICT, OR
SCAPPOOSE R.F.P.D., OR
SCIO R.F.P.D., OR
SCOTTSBURG R.F.P.D., OR
SEAL ROCK R.F.P.D., OR
SEAL ROCK WATER DISTRICT, OR
SEWERAGE AND WATER BOARD OF NEW ORLEANS, LA
SHANGRI-LA WATER DISTRICT, OR
SHASTA VIEW IRRIGATION DISTRICT, OR
SHELLEY ROAD CREST ACRES WATER DISTRICT, OR
SHERIDAN FIRE DISTRICT, OR
SHERMAN COUNTY HEALTH DISTRICT, OR
SHERMAN COUNTY S.W.C.D., OR
SHORELINE SANITARY DISTRICT, OR
SILETZ KEYS SANITARY DISTRICT, OR
SILETZ R.F.P.D., OR
SILVER FALLS LIBRARY DISTRICT, OR
SILVER LAKE IRRIGATION DISTRICT, OR
SILVER LAKE R.F.P.D., OR
SILVER SANDS SPECIAL ROAD DISTRICT, OR
SILVERTON R.F.P.D. NO. 2, OR
SISTERS PARKS & RECREATION DISTRICT, OR
SISTERS-CAMP SHERMAN R.F.P.D., OR
SIUSLAW PUBLIC LIBRARY DISTRICT, OR
SIUSLAW S.W.C.D., OR
SIUSLAW VALLEY FIRE AND RESCUE, OR
SIXES R.F.P.D., OR
SKIPANON WATER CONTROL DISTRICT, OR
SKYLINE VIEW DISTRICT IMPROVEMENT COMPANY, OR
SLEEPY HOLLOW WATER DISTRICT, OR
SMITH DITCH DISTRICT IMPROVEMENT COMPANY, OR
SOUTH CLACKAMAS TRANSPORTATION DISTRICT, OR
SOUTH COUNTY HEALTH DISTRICT, OR
SOUTH FORK WATER BOARD, OR
SOUTH GILLIAM COUNTY CEMETERY DISTRICT, OR
SOUTH GILLIAM COUNTY HEALTH DISTRICT, OR
SOUTH GILLIAM COUNTY R.F.P.D. VI-301, OR
SOUTH LAFOURCHE LEVEE DISTRICT, LA
SOUTH LANE COUNTY FIRE & RESCUE, OR
SOUTH SANTIAM RIVER WATER CONTROL DISTRICT, OR
SOUTH SHERMAN FIRE DISTRICT, OR
SOUTH SUBURBAN SANITARY DISTRICT, OR
SOUTH WASCO PARK & RECREATION DISTRICT, OR
SOUTHERN COOS HEALTH DISTRICT, OR
SOUTHERN CURRY CEMETERY MAINTENANCE DISTRICT, OR
SOUTHVIEW IMPROVEMENT DISTRICT, OR
SOUTHWEST LINCOLN COUNTY WATER DISTRICT, OR
SOUTHWESTERN POLK COUNTY R.F.P.D., OR
SOUTHWOOD PARK WATER DISTRICT, OR
SPECIAL ROAD DISTRICT #1, OR

SAMPLE

SPECIAL ROAD DISTRICT #8, OR
SPRING RIVER SPECIAL ROAD DISTRICT, OR
SPRINGFIELD UTILITY BOARD, OR
ST. PAUL R.F.P.D., OR
STANFIELD CEMETERY DISTRICT #6, OR
STANFIELD IRRIGATION DISTRICT, OR
STARR CREEK ROAD DISTRICT, OR
STARWOOD SANITARY DISTRICT, OR
STAYTON FIRE DISTRICT, OR
SUBLIMITY FIRE DISTRICT, OR
SUBURBAN EAST SALEM WATER DISTRICT, OR
SUBURBAN LIGHTING DISTRICT, OR
SUCCOR CREEK DISTRICT IMPROVEMENT COMPANY, OR
SUMMER LAKE IRRIGATION DISTRICT, OR
SUMMERVILLE CEMETERY MAINTENANCE DISTRICT, OR
SUMNER R.F.P.D., OR
SUN MOUNTAIN SPECIAL ROAD DISTRICT, OR
SUNDOWN SANITATION DISTRICT, OR
SUNFOREST ESTATES SPECIAL ROAD DISTRICT, OR
SUNNYSIDE IRRIGATION DISTRICT, OR
SUNRISE WATER AUTHORITY, OR
SUNRIVER SERVICE DISTRICT, OR
SUNSET EMPIRE PARK & RECREATION DISTRICT, OR
SUNSET EMPIRE TRANSPORTATION DISTRICT, OR
SURFLAND ROAD DISTRICT, OR
SUTHERLIN VALLEY RECREATION DISTRICT, OR
SUTHERLIN WATER CONTROL DISTRICT, OR
SWALLEY IRRIGATION DISTRICT, OR
SWEET HOME CEMETERY MAINTENANCE DISTRICT, OR
SWEET HOME FIRE & AMBULANCE DISTRICT, OR
SWISSHOME-DEADWOOD R.F.P.D., OR
TABLE ROCK DISTRICT IMPROVEMENT COMPANY, OR
TALENT IRRIGATION DISTRICT, OR
TANGENT R.F.P.D., OR
TENMILE R.F.P.D., OR
TERREBONNE DOMESTIC WATER DISTRICT, OR
THE DALLES IRRIGATION DISTRICT, OR
THOMAS CREEK-WESTSIDE R.F.P.D., OR
THREE RIVERS RANCH ROAD DISTRICT, OR
THREE SISTERS IRRIGATION DISTRICT, OR
TIGARD TUALATIN AQUATIC DISTRICT, OR
TIGARD WATER DISTRICT, OR
TILLAMOOK BAY FLOOD IMPROVEMENT DISTRICT, OR
TILLAMOOK COUNTY EMERGENCY COMMUNICATIONS DISTRICT, OR
TILLAMOOK COUNTY S.W.C.D., OR
TILLAMOOK COUNTY TRANSPORTATION DISTRICT, OR
TILLAMOOK FIRE DISTRICT, OR
TILLAMOOK P.U.D., OR
TILLER R.F.P.D., OR
TOBIN DITCH DISTRICT IMPROVEMENT COMPANY, OR
TOLEDO R.F.P.D., OR
TONE WATER DISTRICT, OR
TOOLEY WATER DISTRICT, OR
TRASK DRAINAGE DISTRICT, OR
TRI CITY R.F.P.D. #4, OR
TRI-CITY WATER & SANITARY AUTHORITY, OR
TRI-COUNTY METROPOLITAN TRANSPORTATION DISTRICT OF OREGON
TRIMET, OR
TUALATIN HILLS PARK & RECREATION DISTRICT
TUALATIN HILLS PARK & RECREATION DISTRICT, OR
TUALATIN S.W.C.D., OR
TUALATIN VALLEY FIRE & RESCUE
TUALATIN VALLEY FIRE & RESCUE, OR
TUALATIN VALLEY IRRIGATION DISTRICT, OR
TUALATIN VALLEY WATER DISTRICT
TUALATIN VALLEY WATER DISTRICT, OR
TUMALO IRRIGATION DISTRICT, OR
TURNER FIRE DISTRICT, OR
TWIN ROCKS SANITARY DISTRICT, OR
TWO RIVERS NORTH SPECIAL ROAD DISTRICT, OR
TWO RIVERS S.W.C.D., OR
TWO RIVERS SPECIAL ROAD DISTRICT, OR
TYGH VALLEY R.F.P.D., OR
TYGH VALLEY WATER DISTRICT, OR
UMATILLA COUNTY FIRE DISTRICT #1, OR
UMATILLA COUNTY S.W.C.D., OR
UMATILLA COUNTY SPECIAL LIBRARY DISTRICT, OR
UMATILLA HOSPITAL DISTRICT, OR
UMATILLA R.F.P.D. #7-405, OR
UMATILLA-MORROW RADIO AND DATA DISTRICT, OR
UMPQUA S.W.C.D., OR
UNION CEMETERY MAINTENANCE DISTRICT, OR
UNION COUNTY SOLID WASTE DISPOSAL DISTRICT, OR
UNION COUNTY VECTOR CONTROL DISTRICT, OR
UNION GAP SANITARY DISTRICT, OR
UNION GAP WATER DISTRICT, OR
UNION HEALTH DISTRICT, OR
UNION R.F.P.D., OR
UNION S.W.C.D., OR
UNITY COMMUNITY PARK & RECREATION DISTRICT, OR
UPPER CLEVELAND RAPIDS ROAD DISTRICT, OR
UPPER MCKENZIE R.F.P.D., OR
UPPER WILLAMETTE S.W.C.D., OR
VALE OREGON IRRIGATION DISTRICT, OR
VALE RURAL FIRE PROTECTION DISTRICT, OR
VALLEY ACRES SPECIAL ROAD DISTRICT, OR
VALLEY VIEW CEMETERY MAINTENANCE DISTRICT, OR
VALLEY VIEW WATER DISTRICT, OR
VANDEVERT ACRES SPECIAL ROAD DISTRICT, OR
VERNONIA R.F.P.D., OR
VINEYARD MOUNTAIN PARK & RECREATION DISTRICT, OR
VINEYARD MOUNTAIN SPECIAL ROAD DISTRICT, OR
WALLA WALLA RIVER IRRIGATION DISTRICT, OR
WALLOWA COUNTY HEALTH CARE DISTRICT, OR
WALLOWA LAKE COUNTY SERVICE DISTRICT, OR
WALLOWA LAKE IRRIGATION DISTRICT, OR
WALLOWA LAKE R.F.P.D., OR
WALLOWA S.W.C.D., OR
WALLOWA VALLEY IMPROVEMENT DISTRICT #1, OR
WAMIC R.F.P.D., OR
WAMIC WATER & SANITARY AUTHORITY, OR

EXAMPLE

WARMSPRINGS IRRIGATION DISTRICT, OR
WASCO COUNTY S.W.C.D., OR
WATER ENVIRONMENT SERVICES, OR
WATER WONDERLAND IMPROVEMENT DISTRICT, OR
WATERBURY & ALLEN DITCH IMPROVEMENT DISTRICT, OR
WATSECO-BARVIEW WATER DISTRICT, OR
WAUNA WATER DISTRICT, OR
WEDDERBURN SANITARY DISTRICT, OR
WEST EAGLE VALLEY WATER CONTROL DISTRICT, OR
WEST EXTENSION IRRIGATION DISTRICT, OR
WEST LABISH DRAINAGE & WATER CONTROL IMPROVEMENT DISTRICT, OR
WEST MULTNOMAH S.W.C.D., OR
WEST SIDE R.F.P.D., OR
WEST SLOPE WATER DISTRICT, OR
WEST UMATILLA MOSQUITO CONTROL DISTRICT, OR
WEST VALLEY FIRE DISTRICT, OR
WESTERN HEIGHTS SPECIAL ROAD DISTRICT, OR
WESTERN LANE AMBULANCE DISTRICT, OR
WESTLAND IRRIGATION DISTRICT, OR
WESTON ATHENA MEMORIAL HALL PARK & RECREATION DISTRICT, OR
WESTON CEMETERY DISTRICT #2, OR
WESTPORT FIRE AND RESCUE, OR
WESTRIDGE WATER SUPPLY CORPORATION, OR
WESTWOOD HILLS ROAD DISTRICT, OR
WESTWOOD VILLAGE ROAD DISTRICT, OR
WHEELER S.W.C.D., OR
WHITE RIVER HEALTH DISTRICT, OR
WIARD MEMORIAL PARK DISTRICT, OR
WICKIUP WATER DISTRICT, OR
WILLAKENZIE R.F.P.D., OR
WILLAMALANE PARK & RECREATION DISTRICT, OR
WILLAMALANE PARK AND RECREATION DISTRICT
WILLAMETTE HUMANE SOCIETY
WILLAMETTE RIVER WATER COALITION, OR
WILLIAMS R.F.P.D., OR
WILLOW CREEK PARK DISTRICT, OR
WILLOW DALE WATER DISTRICT, OR
WILSON RIVER WATER DISTRICT, OR
WINCHESTER BAY R.F.P.D., OR
WINCHESTER BAY SANITARY DISTRICT, OR
WINCHUCK R.F.P.D., OR
WINSTON-DILLARD R.F.P.D., OR
WINSTON-DILLARD WATER DISTRICT, OR
WOLF CREEK R.F.P.D., OR
WOOD RIVER DISTRICT IMPROVEMENT COMPANY, OR
WOODBURN R.F.P.D. NO. 6, OR
WOODLAND PARK SPECIAL ROAD DISTRICT, OR
WOODS ROAD DISTRICT, OR
WRIGHT CREEK ROAD WATER IMPROVEMENT DISTRICT, OR
WY'EAST FIRE DISTRICT, OR
YACHATS R.F.P.D., OR
YAMHILL COUNTY TRANSIT AREA, OR
YAMHILL FIRE PROTECTION DISTRICT, OR
YAMHILL SWCD, OR
YONCALLA PARK & RECREATION DISTRICT, OR
YOUNGS RIVER-LEWIS & CLARK WATER DISTRICT, OR
ZUMWALT R.F.P.D., OR

K-12 INCLUDING BUT NOT LIMITED TO:

ACADIA PARISH SCHOOL BOARD
BEAVERTON SCHOOL DISTRICT
BEND-LA PINE SCHOOL DISTRICT
BOGALUSA HIGH SCHOOL, LA
BOSSIER PARISH SCHOOL BOARD
BROOKING HARBOR SCHOOL DISTRICT
CADDO PARISH SCHOOL DISTRICT
CALCASIEU PARISH SCHOOL DISTRICT
CANBY SCHOOL DISTRICT
CANYONVILLE CHRISTIAN ACADEMY
CASCADE SCHOOL DISTRICT
CASCADES ACADEMY OF CENTRAL OREGON
CENTENNIAL SCHOOL DISTRICT
CENTRAL CATHOLIC HIGH SCHOOL
CENTRAL POINT SCHOOL DISTRICT NO.6
CENTRAL SCHOOL DISTRICT 13J
COOS BAY SCHOOL DISTRICT NO.9
CORVALLIS SCHOOL DISTRICT 509J
COUNTY OF YAMHILL SCHOOL DISTRICT 29
CULVER SCHOOL DISTRICT
DALLAS SCHOOL DISTRICT NO.2
DAVID DOUGLAS SCHOOL DISTRICT
DAYTON SCHOOL DISTRICT NO.8
DE LA SALLE N CATHOLIC HS
DESCHUTES COUNTY SCHOOL DISTRICT NO.6
DOUGLAS EDUCATIONAL DISTRICT SERVICE
DUFUR SCHOOL DISTRICT NO.29
EAST BATON ROUGE PARISH SCHOOL DISTRICT
ESTACADA SCHOOL DISTRICT NO.10B
FOREST GROVE SCHOOL DISTRICT
GEORGE MIDDLE SCHOOL
GLADSTONE SCHOOL DISTRICT
GRANTS PASS SCHOOL DISTRICT 7
GREATER ALBANY PUBLIC SCHOOL DISTRICT
GRESHAM BARLOW JOINT SCHOOL DISTRICT
HEAD START OF LANE COUNTY
HIGH DESERT EDUCATION SERVICE DISTRICT
HILLSBORO SCHOOL DISTRICT
HOOD RIVER COUNTY SCHOOL DISTRICT
JACKSON CO SCHOOL DIST NO.9
JEFFERSON COUNTY SCHOOL DISTRICT 509-J
JEFFERSON PARISH SCHOOL DISTRICT
JEFFERSON SCHOOL DISTRICT
JUNCTION CITY SCHOOLS, OR
KLAMATH COUNTY SCHOOL DISTRICT
KLAMATH FALLS CITY SCHOOLS
LAFAYETTE PARISH SCHOOL DISTRICT
LAKE OSWEGO SCHOOL DISTRICT 7J
LANE COUNTY SCHOOL DISTRICT 4J
LINCOLN COUNTY SCHOOL DISTRICT
LINN CO. SCHOOL DIST. 95C
LIVINGSTON PARISH SCHOOL DISTRICT
LOST RIVER JR/SR HIGH SCHOOL
LOWELL SCHOOL DISTRICT NO.71
MARION COUNTY SCHOOL DISTRICT
MARION COUNTY SCHOOL DISTRICT 103
MARIST HIGH SCHOOL, OR
MCMINNVILLE SCHOOL DISTRICT NOAO
MEDFORD SCHOOL DISTRICT 549C
MITCH CHARTER SCHOOL
MONROE SCHOOL DISTRICT NO.1J

EXAMPLE

MORROW COUNTY SCHOOL DIST, OR
MULTNOMAH EDUCATION SERVICE DISTRICT
MULTISENSORY LEARNING ACADEMY
MYRTLE PINT SCHOOL DISTRICT 41
NEAH-KAH-NIE DISTRICT NO.56
NEWBERG PUBLIC SCHOOLS
NESTUCCA VALLEY SCHOOL DISTRICT NO.101
NOBEL LEARNING COMMUNITIES
NORTH BEND SCHOOL DISTRICT 13
NORTH CLACKAMAS SCHOOL DISTRICT
NORTH DOUGLAS SCHOOL DISTRICT
NORTH WASCO CITY SCHOOL DISTRICT 21
NORTHWEST REGIONAL EDUCATION SERVICE DISTRICT
ONTARIO MIDDLE SCHOOL
OREGON TRAIL SCHOOL DISTRICT NOA6
ORLEANS PARISH SCHOOL DISTRICT
PHOENIX-TALENT SCHOOL DISTRICT NOA
PLEASANT HILL SCHOOL DISTRICT
PORTLAND JEWISH ACADEMY
PORTLAND PUBLIC SCHOOLS
RAPIDES PARISH SCHOOL DISTRICT
REDMOND SCHOOL DISTRICT
REYNOLDS SCHOOL DISTRICT
ROGUE RIVER SCHOOL DISTRICT
ROSEBURG PUBLIC SCHOOLS
SCAPPOOSE SCHOOL DISTRICT 1J
SAINT TAMMANY PARISH SCHOOL BOARD, LA
SEASIDE SCHOOL DISTRICT 10
SHERWOOD SCHOOL DISTRICT 88J
SILVER FALLS SCHOOL DISTRICT 4J
SOUTH LANE SCHOOL DISTRICT 45J3
SOUTHERN OREGON EDUCATION SERVICE DISTRICT
SPRINGFIELD PUBLIC SCHOOLS
SUTHERLIN SCHOOL DISTRICT
SWEET HOME SCHOOL DISTRICT NO.55
TERREBONNE PARISH SCHOOL DISTRICT
THE CATLIN GABEL SCHOOL
TIGARD-TUALATIN SCHOOL DISTRICT
UMATILLA MORROW ESD
WEST LINN WILSONVILLE SCHOOL DISTRICT
WILLAMETTE EDUCATION SERVICE DISTRICT
WOODBURN SCHOOL DISTRICT
YONCALLA SCHOOL DISTRICT
ACADEMY FOR MATH ENGINEERING & SCIENCE (AMES), UT
ALIANZA ACADEMY, UT
ALPINE DISTRICT, UT
AMERICAN LEADERSHIP ACADEMY, UT
AMERICAN PREPARATORY ACADEMY, UT
BAER CANYON HIGH SCHOOL FOR SPORTS & MEDICAL SCIENCES, UT
BEAR RIVER CHARTER SCHOOL, UT
BEAVER SCHOOL DISTRICT, UT
BEEHIVE SCIENCE & TECHNOLOGY ACADEMY (BSTA) , UT
BOX ELDER SCHOOL DISTRICT, UT
CBA CENTER, UT
CACHE SCHOOL DISTRICT, UT
CANYON RIM ACADEMY, UT
CANYONS DISTRICT, UT
CARBON SCHOOL DISTRICT, UT
CHANNING HALL, UT
CHARTER SCHOOL LEWIS ACADEMY, UT
CITY ACADEMY, UT
DAGGETT SCHOOL DISTRICT, UT
DAVINCI ACADEMY, UT
DAVIS DISTRICT, UT
DUAL IMMERSION ACADEMY, UT
DUCHESNE SCHOOL DISTRICT, UT
EARLY LIGHT ACADEMY AT DAYBREAK, UT
EAST HOLLYWOOD HIGH, UT
EDITH BOWEN LABORATORY SCHOOL, UT
EMERSON ALCOTT ACADEMY, UT
EMERY SCHOOL DISTRICT, UT
ENTHEOS ACADEMY, UT
EXCELSIOR ACADEMY, UT
FAST FORWARD HIGH, UT
FREEDOM ACADEMY, UT
GARFIELD SCHOOL DISTRICT, UT
GATEWAY PREPARATORY ACADEMY, UT
GEORGE WASHINGTON ACADEMY, UT
GOOD FOUNDATION ACADEMY, UT
GRAND SCHOOL DISTRICT, UT
GRANITE DISTRICT, UT
GUADALUPE SCHOOL, UT
HAWTHORN ACADEMY, UT
INTECH COLLEGIATE HIGH SCHOOL, UT
IRON SCHOOL DISTRICT, UT
ITINERIS EARLY COLLEGE HIGH, UT
JOHN HANCOCK CHARTER SCHOOL, UT
JORDAN DISTRICT, UT
JUAB SCHOOL DISTRICT, UT
KANE SCHOOL DISTRICT, UT
KARL G MAESER PREPARATORY ACADEMY, UT
LAKEVIEW ACADEMY, UT
LEGACY PREPARATORY ACADEMY, UT
LIBERTY ACADEMY, UT
LINCOLN ACADEMY, UT
LOGAN SCHOOL DISTRICT, UT
MARIA MONTESSORI ACADEMY, UT
MERIT COLLEGE PREPARATORY ACADEMY, UT
MILLARD SCHOOL DISTRICT, UT
MOAB CHARTER SCHOOL, UT
MONTICELLO ACADEMY, UT
MORGAN SCHOOL DISTRICT, UT
MOUNTAINVILLE ACADEMY, UT
MURRAY SCHOOL DISTRICT, UT
NAVIGATOR POINTE ACADEMY, UT
NEBO SCHOOL DISTRICT, UT
NO UT ACAD FOR MATH ENGINEERING & SCIENCE (NUAMES), UT
NOAH WEBSTER ACADEMY, UT
NORTH DAVIS PREPARATORY ACADEMY, UT
NORTH SANPETE SCHOOL DISTRICT, UT
NORTH STAR ACADEMY, UT
NORTH SUMMIT SCHOOL DISTRICT, UT
ODYSSEY CHARTER SCHOOL, UT
OGDEN PREPARATORY ACADEMY, UT
OGDEN SCHOOL DISTRICT, UT
OPEN CLASSROOM, UT
OPEN HIGH SCHOOL OF UTAH, UT
OQUIRRH MOUNTAIN CHARTER SCHOOL, UT
PARADIGM HIGH SCHOOL, UT
PARK CITY SCHOOL DISTRICT, UT
PINNACLE CANYON ACADEMY, UT
PIUTE SCHOOL DISTRICT, UT
PROVIDENCE HALL, UT
PROVO SCHOOL DISTRICT, UT

EXAMPLE

QUAIL RUN PRIMARY SCHOOL, UT
QUEST ACADEMY, UT
RANCHES ACADEMY, UT
REAGAN ACADEMY, UT
RENAISSANCE ACADEMY, UT
RICH SCHOOL DISTRICT, UT
ROCKWELL CHARTER HIGH SCHOOL, UT
SALT LAKE ARTS ACADEMY, UT
SALT LAKE CENTER FOR SCIENCE EDUCATION, UT
SALT LAKE SCHOOL DISTRICT, UT
SALT LAKE SCHOOL FOR THE PERFORMING ARTS, UT
SAN JUAN SCHOOL DISTRICT, UT
SEVIER SCHOOL DISTRICT, UT
SOLDIER HOLLOW CHARTER SCHOOL, UT
SOUTH SANPETE SCHOOL DISTRICT, UT
SOUTH SUMMIT SCHOOL DISTRICT, UT
SPECTRUM ACADEMY, UT
SUCCESS ACADEMY, UT
SUCCESS SCHOOL, UT
SUMMIT ACADEMY, UT
SUMMIT ACADEMY HIGH SCHOOL, UT
SYRACUSE ARTS ACADEMY, UT
THOMAS EDISON - NORTH, UT
TIMPANOGOS ACADEMY, UT
TINTIC SCHOOL DISTRICT, UT
TOOELE SCHOOL DISTRICT, UT
TUACAHN HIGH SCHOOL FOR THE PERFORMING ARTS, UT
UINTAH RIVER HIGH, UT
UINTAH SCHOOL DISTRICT, UT
UTAH CONNECTIONS ACADEMY, UT
UTAH COUNTY ACADEMY OF SCIENCE, UT
UTAH ELECTRONIC HIGH SCHOOL, UT
UTAH SCHOOLS FOR DEAF & BLIND, UT
UTAH STATE OFFICE OF EDUCATION, UT
UTAH VIRTUAL ACADEMY, UT
VENTURE ACADEMY, UT
VISTA AT ENTRADA SCHOOL OF PERFORMING ARTS AND TECHNOLOGY, UT
WALDEN SCHOOL OF LIBERAL ARTS, UT
WASATCH PEAK ACADEMY, UT
WASATCH SCHOOL DISTRICT, UT
WASHINGTON SCHOOL DISTRICT, UT
WAYNE SCHOOL DISTRICT, UT
WEBER SCHOOL DISTRICT, UT
WEILENMANN SCHOOL OF DISCOVERY, UT

HIGHER EDUCATION

ARGOSY UNIVERSITY
BATON ROUGE COMMUNITY COLLEGE, LA
BIRTHINGWAY COLLEGE OF MIDWIFERY
BLUE MOUNTAIN COMMUNITY COLLEGE
BRIGHAM YOUNG UNIVERSITY - HAWAII
CENTRAL OREGON COMMUNITY COLLEGE
CENTENARY COLLEGE OF LOUISIANA
CHEMEKETA COMMUNITY COLLEGE
CLACKAMAS COMMUNITY COLLEGE
COLLEGE OF THE MARSHALL ISLANDS
COLUMBIA GORGE COMMUNITY COLLEGE
CONCORDIA UNIVERSITY
GEORGE FOX UNIVERSITY
KLAMATH COMMUNITY COLLEGE DISTRICT
LANE COMMUNITY COLLEGE
LEWIS AND CLARK COLLEGE
LINFIELD COLLEGE
LINN-BENTON COMMUNITY COLLEGE
LOUISIANA COLLEGE, LA
LOUISIANA STATE UNIVERSITY
LOUISIANA STATE UNIVERSITY HEALTH SERVICES
MARYLHURST UNIVERSITY
MT. HOOD COMMUNITY COLLEGE
MULTNOMAH BIBLE COLLEGE
NATIONAL COLLEGE OF NATURAL MEDICINE
NORTHWEST CHRISTIAN COLLEGE
OREGON HEALTH AND SCIENCE UNIVERSITY
OREGON INSTITUTE OF TECHNOLOGY
OREGON STATE UNIVERSITY
OREGON UNIVERSITY SYSTEM
PACIFIC UNIVERSITY
PIONEER PACIFIC COLLEGE
PORTLAND COMMUNITY COLLEGE
PORTLAND STATE UNIVERSITY
REED COLLEGE
RESEARCH CORPORATION OF THE UNIVERSITY OF HAWAII
ROGUE COMMUNITY COLLEGE
SOUTHEASTERN LOUISIANA UNIVERSITY
SOUTHERN OREGON UNIVERSITY (OREGON UNIVERSITY SYSTEM)
SOUTHWESTERN OREGON COMMUNITY COLLEGE
TULANE UNIVERSITY
TILLAMOOK BAY COMMUNITY COLLEGE
UMPQUA COMMUNITY COLLEGE
UNIVERSITY OF HAWAII BOARD OF REGENTS
UNIVERSITY OF HAWAII-HONOLULU COMMUNITY COLLEGE
UNIVERSITY OF OREGON-GRADUATE SCHOOL
UNIVERSITY OF PORTLAND
UNIVERSITY OF NEW ORLEANS
WESTERN OREGON UNIVERSITY
WESTERN STATES CHIROPRACTIC COLLEGE
WILLAMETTE UNIVERSITY
XAVIER UNIVERSITY
UTAH SYSTEM OF HIGHER EDUCATION, UT
UNIVERSITY OF UTAH, UT
UTAH STATE UNIVERSITY, UT
WEBER STATE UNIVERSITY, UT
SOUTHERN UTAH UNIVERSITY, UT
SNOW COLLEGE, UT
DIXIE STATE COLLEGE, UT
COLLEGE OF EASTERN UTAH, UT
UTAH VALLEY UNIVERSITY, UT
SALT LAKE COMMUNITY COLLEGE, UT
UTAH COLLEGE OF APPLIED TECHNOLOGY, UT

STATE AGENCIES

ADMIN. SERVICES OFFICE
BOARD OF MEDICAL EXAMINERS
HAWAII CHILD SUPPORT ENFORCEMENT AGENCY
HAWAII DEPARTMENT OF TRANSPORTATION
HAWAII HEALTH SYSTEMS CORPORATION
OFFICE OF MEDICAL ASSISTANCE PROGRAMS
OFFICE OF THE STATE TREASURER
OREGON BOARD OF ARCHITECTS
OREGON CHILD DEVELOPMENT COALITION
OREGON DEPARTMENT OF EDUCATION
OREGON DEPARTMENT OF FORESTRY
OREGON DEPT OF TRANSPORTATION
OREGON DEPT. OF EDUCATION

EXAMPLE

OREGON LOTTERY
OREGON OFFICE OF ENERGY
OREGON STATE BOARD OF NURSING
OREGON STATE DEPT OF CORRECTIONS
OREGON STATE POLICE
OREGON TOURISM COMMISSION
OREGON TRAVEL INFORMATION COUNCIL
SANTIAM CANYON COMMUNICATION CENTER
SEIU LOCAL 503, OPEU
SOH- JUDICIARY CONTRACTS AND PURCH
STATE DEPARTMENT OF DEFENSE, STATE OF HAWAII
STATE OF HAWAII
STATE OF HAWAII, DEPT. OF EDUCATION
STATE OF LOUISIANA
STATE OF LOUISIANA DEPT. OF EDUCATION
STATE OF LOUISIANA, 26TH JUDICIAL DISTRICT ATTORNEY
STATE OF UTAH

EXAMPLE

TAB 4 – QUALIFICATION AND EXPERIENCE

i. Provide a brief history of the Offeror, including year it was established and corporate office location.

Carahsoft Technology Corp. is an IT solutions provider delivering best-of-breed hardware, software, and support solutions to federal, state and local government agencies. Formed by a group of seasoned professionals with decades of experience in sales, marketing and contract program management, Carahsoft has built our reputation as a customer-centric organization.

The Carahsoft team has a proven history of helping agencies find the best possible technology solution at the best possible value. Each customer works directly with a dedicated account representative to determine a solution tailored specifically to meet his or her needs. We combine our extensive knowledge of the technologies we provide, with a thorough understanding of the government procurement process, to analyze needs, provide configuration support, simplify the ordering process, and offer special government pricing.

Carahsoft will leverage its experience with state and federal procurement agencies to streamline the ordering process for the State of Texas. Carahsoft maintains state-wide contracts in Texas, Ohio, Pennsylvania, California, Florida, Illinois, Maryland, New York State, North Carolina, and Virginia. Additionally, Carahsoft Technology Corp. currently holds many of the proposed products on our GSA Schedule contract (GS-35F-0119Y).

ii. Describe Offeror's reputation in the marketplace.

Carahsoft has a unique business model focusing on providing superior sales and marketing execution, a track record of success, high integrity, and a focus on strategic vendor relationships. Carahsoft offers a vast portfolio and provides many value adds that other large reseller companies cannot attain. However, As an IT reseller and distributor, Carahsoft works together with a number of other companies and strives to maintain positive relationships in the IT industry because the IT business requires cooperation on all levels. We are a stable, conservative, and profitable company and have received numerous accolades, as detailed below and further on our awards page: http://www.carahsoft.com/awards

- Top Ranked GSA Schedule 70 Contract holder for software
- #30 on Washington Business Journal's Largest Government Contractors List for 2016
- #40 on Washington Technology's Top 100 Government Contractors List for 2017
- Fed 100 Winner and Ernst & Young Entrepreneur of the Year, Craig P. Abod, President and CEO; Fed 100 Winner, John Lee, Vice President of Cloud Services

iii. Describe Offeror's reputation of products and services in the marketplace.

In addition to our awards above, Carahsoft maintains one of the largest partner networks in the industry and can provide a quote for any vendor in 30 minutes.

iv. Describe the experience and qualification of key employees.

Name	Position
Craig P. Abod	**Carahsoft President and Program Executive Sponsor**

Background

- Top corporate executive with more than 25 years of experience in government sales, government marketing, and Federal Contract program management
- Carahsoft founder and serial entrepreneur with a stellar track record of building effective operations and driving incredible growth (In 11 years, Craig has grown the company from $0 to over $2.2 billion in revenue.)
- Highly successful at building strategic, long-term business relationships with high-level decision makers in industry and government
- Hands-on leader with meticulous attention to detail and unwavering commitment to providing unparalleled value to vendor/reseller partners and government customers
- Distinguished career highlighted by over $3B in Government Bookings
- Expert at determining, defining, goaling and driving organizations to deliver and track results against key performance indicators and relevant business metrics
- Knowledgeable and skilled contract negotiator successful in the acquisition of many functional selling contracts to improve both vendor sales and government purchaser/ consumer experience

Skills

- Expert in strategy, mission, and vision planning
- Proven leader with the ability to steer multi-faceted dynamic organizations to deliver successful results
- Highly experienced in all functional business areas including sales, marketing, corporate strategy, finance and administration, IT/MIS, contracts management, operations/customer service, HR
- Deep knowledge of the US Public Sector Industry and the US Information Technology Industry landscapes combined with an ability to facilitate business between them
- Loyal supporter and mentor to small and medium-sized companies wanting to do business with the government
- Proven ability to structure and negotiate complex deals

Relevant Experience

Has established productive partnerships with more than 200 manufacturers and built an ecosystem of 1,000+ reseller, integrator and service partners, enabling year-over-year double and triple digit growth in public sector revenue for many of these partners. Has overseen the acquisition of more than 100 contract vehicles to accelerate vendor sales and simplify end-user procurement. Has continuously built out the corporate infrastructure and staff to scale in advance of growth. Runs an organization of more than 500 employees that is singularly focused on delivering solid results to its manufacturer partners.

Founder and President
Carahsoft Technology Corp.

2004 to present

Prior to founding Carahsoft, Craig spent more than 15 years as a senior executive in the government IT marketplace.

Recognition

Carahsoft measures its success by the accolades received from the company' vendors, the channel industry, and the business community. Year-over-year accolades include:

- #1 Top Ranked GSA Schedule Holder 2014 (GSA 70; GSA 132-32, 132-33)
- Washington Technology Top 100 Government Contractors (2010-2015)
- Washington Post 200 (2009-2014)
- Inc500/5000 Fastest Growing Private Companies Hall of Fame (2008-2015); Top 10 Revenue Producer
- 2015 EY Entrepreneur of the Year, Metro DC
- Washington Business Journal
  - Fastest Growing Companies (2007-2014)
  - Top Private Companies (2007-2015)
  - Largest Government Contractors (2011-2015)
- CRN's Solutions Provider 500 list (2007-2015)
- Washington SmartCEO magazine's Future 50 (2009-2015)

Recent recognition also includes:

- HP Federal Software Partner of the Year 2015
- Red Hat Distribution Partner of the Year 2015
- FireEye Distributor of the Year 2014, 2013
- Red Hat North America Public Sector Distributor of the Year 2014
- HP PartnerOne Software Growth Reseller of the Year 2014
- Symantec Distribution "SymSMART" Sales Champ 2013
- Red Hat 2013 North American Public Sector Distributor of the Year
- Arista's 2013 Elite Partner Certification Recognition Award
- CollabNet 2013 Federal Partner of the Year
- EMC 2013 Services Partner of the Year
- HP Software 2013 Federal Partner of the Year
- Splunk 2013 Partner of the Year

Name	Position
Robert R. Moore	**Carahsoft Vice President and Project Manager**

Background

- Senior Sales Executive with a 15 year accomplished career track
- Held senior sales management positions throughout a dynamic tenure in US Government Information Technology Sales
- Developed multiple successful; selling organizations from the ground up to revenues greater than $200M
- Has contributed to the development of several organizations from the start-up/ incubator phase into mature successful selling phases
- Successful and experienced at performing all aspects of monthly sales forecasting and competitive analyses to develop highly successful selling organizations
- 15 years of total experience in Government IT Sales in positions that have ranged from technical account manager, director of sales and several senior sales management posts

Skills

- Sales Team Training & Supervision
- Strategic & Tactical Planning
- Competitive Sales Analysis
- Government Contract Negotiations
- Broker Vendor Relations
- Account Development/ Acquisition
- Sales Presentations and Closing
- Policy Formulation and Dispersal

Relevant Experience

As Vice President at Carahsoft, holds full responsibility for all sales operations through a team of Sales Managers and three (3) independent sales organizations comprised of 46 sales representatives covering U.S. Government nationwide. Has solidified exclusive partnerships with multiple Information Technology Manufacturers, expanding product awareness and distribution throughout the Public Sector/ Government vertical. Has acquired a broad portfolio of IDIQ, GWAC, and similar contracts that include GSA Schedule 70, Agency Specific Blanket Purchase Agreements, and State specific contracts and successfully leveraged these contracts into successful selling vehicles. Grew national government sales organization from 4 to over 40, in charge of on-site sales training, policy formulation, goal setting, incentive programs, sales commissions and sustaining growth in annual revenues of 15% - 35%. Spear headed selling strategies and marketing plans that included competitive upgrade programs, user group forums, solution based selling and consistently realized a 30% - 50% Return on Investment. Familiar and responsible for all aspects of operations and performance of the sales organization.

Name	Position
Mary Lange	**Marketing Manager**

Background

- More than 15 years' experience as senior marketing executive for government IT solutions providers and commercial software manufacturers
- 10 years' experience growing and managing marketing teams to support demand generation for software/hardware manufacturers in the public sector
- Committed to ensuring marketing operational success through implementation of best practices and meticulous assessment of value provided through each program
- Have directed competitive research, product marketing, new business development activities, sales training, product launches, and channel and internal communications/promotional programs

Skills

- Expert in strategic and tactical marketing planning and execution for public sector markets
- Demonstrated expertise translating technical products and services into understandable, persuasive collateral materials and proposals
- Proven demand generation/customer retention expertise
- Also experienced in:
  - Channel marketing and enablement activities
  - Program initiative/campaign development and execution
  - Product launches and special event planning
  - Employee communication and team building
  - Executive speech writing
  - Analyst, public and community relations management

Relevant Experience

Have directed all strategic and tactical marketing initiatives for several Government IT solutions providers supporting multiple vendor and reseller partners. Responsible for marketing and corporate communications, public and vendor relations, demand creation initiatives, advertising programs, MDF management and maximization, and ROI analysis. Work closely with vendor and reseller partners and Carahsoft sales reps to develop and implement a high volume of compelling and cost-effective lead generation programs, contributing to company's double- and triple-digit growth rates in public sector revenues.

Name	Position
Kai Hollenhorst	**Carahsoft State and Local Contracts Manager**

Background

- Contracts Specialist for 2 years
- Worked in government contracting for almost 5 years and worked in various different procurement channels
- Developed multiple winning solicitation responses to statewide vehicles
- Manages several large scale contracting initiatives in the cooperative space
- Successful and experienced at performing all aspects of monthly sales forecasting and competitive analyses to develop highly successful selling organizations
- Organizes large scale manufacturer catalogs for contracts in the state and local portfolio

Skills

- Strategic & Tactical Planning
- Competitive Sales Analysis
- Government Contract Negotiations
- Broker Vendor Relations
- Account Development/ Acquisition
- Policy Formulation and Dispersal
- Procurement administration
- Program management

Relevant Experience

Worked on several large scale cooperative contracting initiatives that have extensive customer base with several hundred industry manufacturers utilizing them as the go to market vehicle. Worked with contracting officers across the country to enable information technology procurement for public sector agencies through contract negotiation, compliance management, operational administration, and opportunity seeking and capture activities. Has acquired a broad portfolio of IDIQ, GWAC, and similar contracts that include GSA Schedule 70, Agency Specific Blanket Purchase Agreements, and State specific contracts and successfully leveraged these contracts into successful selling vehicles. Expanded the offering potential of awarded contracts through dynamic partnership networks to help facilitate W/MBE HUB companies.

v. Describe Offeror's experience working with the government sector.

Carahsoft has been providing best of breed hardware, software, and support solutions to federal, state, and local government agencies since 2004, processing over 388,969 orders. Additionally, over the past 15 years Carahsoft has acquired and maintained a wide variety of purchasing contract vehicles for agencies at the state, local, and federal levels. Associated with all contracts are dedicated and experienced contract

management resources. A list of available contracts can be found at www.carahsoft.com/contracts/index.php.

vi. Describe past litigation, bankruptcy, reorganization, state investigations of entity or current officers and directors.

Carahsoft does not have any such actions.

vii. Provide a minimum of 10 customer references relating to the products and services within this RFP. Include entity name, contact name and title, contact phone and email, city, state, years serviced, description of services and annual volume.

See our below section "a. References".

viii. Provide any additional information relevant to this section.

Not applicable

a. References

Reference # 1	
Entity Name	OARnet
Contact Name and Title	Dennis Walsh, Chief Relationship Officer
City and State	Columbus, OH
Phone Number	614-292-9037
Years Serviced	5/1/2015
Description of Services	VMware products and services
Annual Volume	$750,000

Reference # 2	
Entity Name	NJedge
Contact Name and Title	Joe Rearden, VMware Program Manager
City and State	Newark, NJ
Phone Number	973-596-5473
Years Serviced	12/20/11-06/29/16
Description of Services	VMware, F5, and Nutanix hardware and software products and services
Annual Volume	$2,000,000

Reference # 3	
Entity Name	North Carolina Community Colleges
Contact Name and Title	Patrick Demorais
City and State	Raleigh, NC
Phone Number	(919) 807-6996
Years Serviced	09/01/2014- Present
Description of Services	VMware, Computer Hardware/Software and Telephone Equipment Services, and Maintenance
Annual Volume	$35,000

Reference # 4	
Entity Name	Dallas ISD
Contact Name and Title	Leatha Mullins, CIO- Dallas County Schools
City and State	Dallas, TX
Phone Number	214-944-4559
Years Serviced	01/01/2014-Present
Description of Services	Symantec Netbackup, Endpoint Protection products and services
Annual Volume	$175,000

Reference # 5	
Entity Name	University of North Carolina- General Administration
Contact Name and Title	Paul M. Hudy- Associate CIO for IT Infrastructure and Administration
City and State	Chapel Hill, NC
Phone Number	(919) 962-4583
Years Serviced	1 Year
Description of Services	Program Management- VMware Enterprise License Agreement
Annual Volume	$1,000,000

Reference # 6	
Entity Name	City of Seattle
Contact Name and Title	Michael Mears, Purchasing and Contracting Services
City and State	Seattle, WA
Phone Number	206-684-4570
Years Serviced	07/11/14-12/19/16
Description of Services	All GSA vendors, General Purpose Commercial Information Technology Equipment, Software, and Services
Annual Volume	$30,000

Reference # 7	
Entity Name	Miami-Dade County
Contact Name and Title	Mirta Cardoso
City and State	Miami, FL
Phone Number	(305) 596-8690
Years Serviced	11/01/11-10/31/14
Description of Services	Adobe products and services
Annual Volume	$215,000

Reference # 8	
Entity Name	City of New York
Contact Name and Title	John Winker, Associate Commissioner Financial Services
City and State	New York City, NY
Phone Number	212-788-6454
Years Serviced	06/27/2014-06/27/2015
Description of Services	VMware
Annual Volume	$13,000,000

Reference # 9	
Entity Name	Virginia Association of State College and University Purchasing Professionals
Contact Name and Title	Michael Warlick, Senior Buyer
City and State	Charlottesville, VA
Phone Number	434-924-8918
Years Serviced	05/02/14-12/19/16
Description of Services	ServiceNow and VMware products and services, as well as other solutions not relevant to this contract
Annual Volume	$20,000

Reference # 10	
Entity Name	Washington Learning Source
Contact Name and Title	Angela Bolam, Program Coordinator
City and State	Renton, WA
Phone Number	425-917-7901
Years Serviced	07/22/14-07/21/19
Description of Services	F5, FireEye, Symantec, and VMware products and services, as well as other solutions not relevant to this contract
Annual Volume	$100,000

TAB 5 – VALUE ADD

i. Provide any additional information related to products and services Offeror proposes to enhance and add value to the Contract.

Carahsoft will provide the following additional value-added services at no additional cost to Region 4 ESC:

1. Dedicated Account Manager
2. Program Management
3. Training Webcasts & Access to Carahsoft Facilities
4. Proactive Marketing of the Contract
5. Monthly/Quarterly Reports
6. Dedicated Phone Lines & Live Chat
7. Dedicated Contract Microsite
8. Dedicated Email Address

The following is an in-depth description of the bulleted list above.

1. Dedicated Account Management

In support of the Contract, Carahsoft will provide a focused Account Manager (AM), who will be dedicated to supporting your requirements and this Contract. The AM will be responsible for all aspects of Contract management and be the single point of contact for providing technical help for all the products offered on this proposal.

Sales, order management, and contracting functions that Carahsoft will do for this contract include the following:

- Assistance with the established license distribution procedures
- Product expertise/assistance
- Configuration assistance
- Support for downloads
- Support for customers migrating from existing license contracts
- On demand historical download reports
- Contracts questions
- Assistance with product version, updates and upgrade questions
- Ensure timely delivery of Evidence of Entitlement (or related)
- Evidence of Entitlement (or related) supported by matching receipt
- Co-terming maintenance renewals and existing agreements

2. Program Management

Carahsoft will assign a Program Manager for this Contract who will provide strategic leadership and vision while executing the Contract. The Program Manager's responsibilities will include quality assurance, progress/status reporting, schedule, risk identification/handling/mitigation strategy and program reviews.

3. Training Webcasts & Access to Carahsoft Facilities

At no additional cost, Carahsoft will provide a regular training webcast for Region 4 ESC. These webcasts shall include information regarding new product releases, product patch/ upgrade information or short training webcasts should the need arise and educate users on the following:

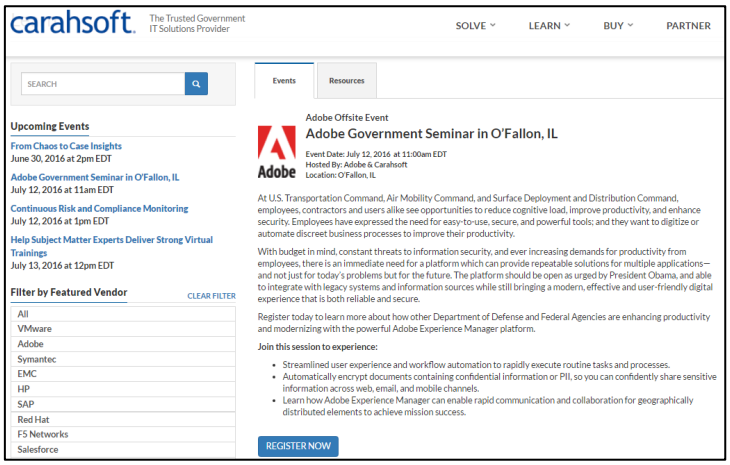
- The terms of the Contract
- Software available on the Contract
- Updates and upgrades as they become available
- New technologies as they become available

These webinars will also be archived and housed on the Contract website so users can view them on demand.

Region 4 ESC will have access to training facilities (user groups, vendor day, and product training) located at Carahsoft headquarters in Reston, Virginia, upon request.

4. Proactive Marketing of the Contract

Carahsoft has conducted over 1,400 government specific marketing events last year alone. A few examples include:



- Quarterly Newsletters
- Annual government summits
- Brochures
- Product specific webcasts
- Onsite training seminars
- Representation at government shows
- Host Government User Groups
- Outbound Call campaigns
- Executive Forums
- News Announcements
- Social media promotion (Twitter, Linked In, Facebook, Carahsoft Community)
- Website content/reciprocal links (Carahsoft website page; content for contract sponsor page)
- Marketing materials (FAQs, contract overviews, solution spec sheets, powerpoint slides)
- Training documents
- Co-branded tradeshow graphics, giveaways, display materials
- Tradeshow participation (national, state and local government and education shows)
- Digital and print ads
- Email campaigns
- Proactive marketing opportunity available through:
  - National Coalition for Public Procurement (NCPP) – publicprocurementcoalition.org
  - Institute for Public Procurement (NIGP) – nigp.org
  - National Association of Counties (NACo) – naco.org
  - The United States Conference of Mayors – usmayors.org
  - National League of Cities – nlc.org

- National Governors Association – nga.org
- Relevant State Associations

Carahsoft feels that this proactive marketing will be valuable to Region 4 ESC in terms of promoting this Contract, as well as educating end user on the benefits of the Contract.

5. Monthly/Quarterly Reports

In managing similar Contracts with other government agencies, Carahsoft has developed numerous best practices with providing monthly usage reports. As part of this Contract, Carahsoft will provide monthly license distribution reports to include the following:

- Dates licenses were downloaded
- Dates licenses were shipped
- Ship to Point of Contact
- Number of Licenses
- Version numbers
- Deliver to address
- Current price of the software

This report will differentiate between existing licenses being rolled into the Contract, and new licenses deployed under this agreement. In addition to the monthly reports, Carahsoft will have the ability to produce on-demand usage reports as requested through the Account Manager.

6. Dedicated Phone Lines & Live Chat



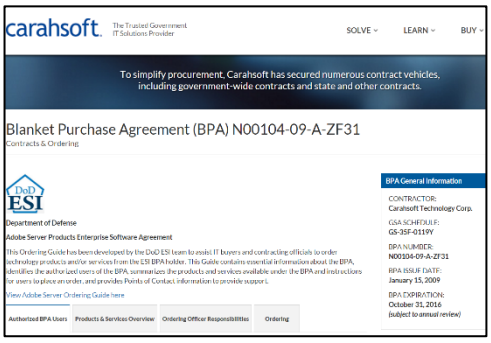
Carahsoft will provide a dedicated phone line to be used exclusively for activities supporting this Contract. Both toll and toll-free lines will be made available.

The telephone number will be included on all quotations, emails, website(s), and other documentation regarding this Contract. This dedicated line rings simultaneously to a group of individuals working on this Contract, ensuring that calls are always answered live. Additionally, Carahsoft offers Live Chat capabilities through our homepage (www.carahsoft.com). The Live Chat feature will provide Region 4 ESC with another channel for contacting Carahsoft, and expedite the process for receiving immediate customer service.

7. Dedicated Contract Microsite

Carahsoft will develop and maintain a microsite that will be dedicated to this Contract. This will be a supplement to the Vendor support site and will include materials such as:

- Contract Information
- Contract FAQ Document
- Product Information
- Catalog/ Pricelist Information
- Additional Contractual Information



The following are examples of Dedicated Websites for current Carahsoft contracts:

- Department of Defense ESI BPA Contract # N00104-12-A-ZF31 (http://www.carahsoft.com/buy/esi-bpa-contracts/department-defense-esi-desktop-bpa-contract-n00104-12-zf31)
- Department of the Navy ESI BPA Contract # N00104-09-A-ZF31 (http://www.carahsoft.com/buy/esi-bpa-contracts/don)
- NASA SEWP V Contract # NNG15SC03B/NNG15SC27B (http://www.carahsoft.com/buy/sewp)

8. Dedicated Email Address

Additionally, a dedicated email address will be created in support of this at Region4ESC.Contract @carahsoft.com or any email Region 4 ESC would like. As with the phone lines, these email aliases would be routed to all individuals at Carahsoft that support this Contract. In this manner, any inquiries received via email would be addressed immediately which would once again enable the quickest execution for all customer service actions.

TAB 6 – ADDITIONAL REQUIRED DOCUMENTS (APPENDIX C)

a. Acknowledgment and Acceptance of Region 4 ESC's Open Records Policy (Appendix C, Doc #1)

Please see the following page for our Acknowledgment and Acceptance of Region 4 ESC's Open Records Policy (Appendix C, Doc #1).

Appendix C, Doc #1

ACKNOWLEDGMENT AND ACCEPTANCE

OF REGION 4 ESC's OPEN RECORDS POLICY

OPEN RECORDS POLICY

All proposals, information and documents submitted are subject to the Public Information Act requirements governed by the State of Texas once a Contract(s) is executed. If an Offeror believes its response, or parts of its response, may be exempted from disclosure, the Offeror must specify page-by-page and line-by-line the parts of the response, which it believes, are exempt and include detailed reasons to substantiate the exemption. Price is not confidential and will not be withheld. Any unmarked information will be considered public information and released, if requested under the Public Information Act.

The determination of whether information is confidential and not subject to disclosure is the duty of the Office of Attorney General (OAG). Region 4 ESC must provide the OAG sufficient information to render an opinion and therefore, vague and general claims to confidentiality by the Offeror are not acceptable. Region 4 ESC must comply with the opinions of the OAG. Region 4 ESC assumes no responsibility for asserting legal arguments on behalf of any Offeror. Offeror is advised to consult with their legal counsel concerning disclosure issues resulting from this procurement process and to take precautions to safeguard trade secrets and other proprietary information.

Signature below certifies complete acceptance of Region 4 ESC's Open Records Policy, except as noted below (additional pages may be attached, if necessary).

Check one of the following responses to the Acknowledgment and Acceptance of Region 4 ESC's Open Records Policy below:

X We acknowledge Region 4 ESC's Open Records Policy and declare that no information submitted with this proposal, or any part of our proposal, is exempt from disclosure under the Public Information Act.

☐ We declare the following information to be a trade secret or proprietary and exempt from disclosure under the Public Information Act.

(Note: Offeror must specify page-by-page and line-by-line the parts of the response, which it believes, are exempt. In addition, Offeror must include detailed reasons to substantiate the exemption(s). Price is not confident and will not be withheld. All information believed to be a trade secret or proprietary must be listed. It is further understood that failure to identify such information, in strict accordance with the instructions, will result in that information being considered public information and released, if requested under the Public Information Act.)

11/22/19 Proposals Director

Date *Authorized Signature & Title*

b. Antitrust Certification Statement (Tex. Government Code § 2155.005) (Appendix C, Doc #2)

Please see the following page for our Antitrust Certification Statement (Tex. Government Code § 2155.005) (Appendix C, Doc #2).

Appendix C, Doc #2

ANTITRUST CERTIFICATION STATEMENTS
(Tex. Government Code § 2155.005)
Attorney General Form

I affirm under penalty of perjury of the laws of the State of Texas that:

1. I am duly authorized to execute this Contract on my own behalf or on behalf of the company, corporation, firm, partnership or individual (Company) listed below;

2. In connection with this proposal, neither I nor any representative of the Company has violated any provision of the Texas Free Enterprise and Antitrust Act, Tex. Bus. & Comm. Code Chapter 15;

3. In connection with this proposal, neither I nor any representative of the Company has violated any federal antitrust law; and

4. Neither I nor any representative of the Company has directly or indirectly communicated any of the contents of this proposal to a competitor of the Company or any other company, corporation, firm, partnership or individual engaged in the same line of business as the Company.

Company	Carahsoft Technology Corporation	**Contact**	Kristina Smith **Signature**
	11493 Sunset Hills Road		Kristina Smith **Printed Name**
	Suite 100		Contracts Director **Position with Company**
Address	Reston, VA 20190		
		Official Authorizing Proposal	Jennifer Kanach **Signature**
			Jennifer Kanach **Printed Name**
Phone	703.871.8500		Proposals Director **Position with Company**
Fax	703.871.8505		

c. Implementation of House Bill 1295 Certificate of Interested Parties (Form 1295) (Appendix C, Doc #3)

We have submitted a Form 1295 application for this submission and are awaiting government acknowledgement. Please find our completed form on the following page.

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY
CERTIFICATION OF FILING

Certificate Number:
2019-564431

Date Filed:
11/22/2019

Date Acknowledged:

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.
Carahsoft Technology Corporation
Reston, VA United States

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.
Region 4

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.
19-19
Information Technology Solutions

4 Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
		Controlling	Intermediary
Abod, Craig	Reston, VA United States	X	

5 Check only if there is NO Interested Party. ☐

6 UNSWORN DECLARATION

My name is Jennifer Kanach, and my date of birth is 7/5/83.

My address is 11493 Sunset Hills Drive, Suite 100 (street), Reston (city), VA (state), 20190 (zip code), USA (country).

I declare under penalty of perjury that the foregoing is true and correct.

Executed in Fairfax County, State of Virginia, on the 22 day of November (month), 2019 (year).

PARKER J RYBAK
NOTARY PUBLIC
REGISTRATION # 7831646
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
MAY 27, 2023

Signature of authorized agent of contracting business entity
(Declarant)

d. Texas Government Code 2270 Verification Form (Appendix C, Doc #4)

Please see the following page for our Texas Government Code 2270 Verification Form (Appendix C, Doc #4).

Appendix C, DOC # 4

Texas Government Code 2270 Verification Form

House Bill 89 (85R Legislative Session), which adds Chapter 2270 to the Texas Government Code, provides that a governmental entity may not enter into a contract with a company without verification that the contracting vendor does not and will not boycott Israel during the term of the contract.

Furthermore, Senate Bill 252 (85R Legislative Session), which amends Chapter 2252 of the Texas Government Code to add Subchapter F, prohibits contracting with a company engaged in business with Iran, Sudan or a foreign terrorist organization identified on a list prepared by the Texas Comptroller.

I, Jennifer Kanach, as an authorized representative of

Carahsoft Technology Corporation, a contractor engaged by

Insert Name of Company

Region 4 Education Service Center, 7145 West Tidwell Road, Houston, TX 77092, verify by this writing that the above-named company affirms that it (1) does not boycott Israel; and (2) will not boycott Israel during the term of this contract, or any contract with the above-named Texas governmental entity in the future.

Also, our company is not listed on and we do not do business with companies that are on the Texas Comptroller of Public Accounts list of Designated Foreign Terrorists Organizations found at https://comptroller.texas.gov/purchasing/docs/foreign-terrorist.pdf.

I further affirm that if our company's position on this issue is reversed and this affirmation is no longer valid, that the above-named Texas governmental entity will be notified in writing within one (1) business day and we understand that our company's failure to affirm and comply with the requirements of Texas Government Code 2270 et seq. shall be grounds for immediate contract termination without penalty to the above-named Texas governmental entity.

I swear and affirm that the above is true and correct.

Jennifer Kanach

Signature of Named Authorized Company Representative

11/22/19

Date

e. Special Conditions (Appendix C, Doc #5)

Please see the following page for our completed Special Conditions (Appendix C, Doc #5).

Appendix C, DOC # 5

SPECIAL CONDITIONS

Awarded Offerors may need to respond to events and losses where products and services are needed for the immediate and initial response to emergency situations such as, but not limited to, water damage, fire damage, vandalism cleanup, biohazard cleanup, sewage decontamination, deodorization, and/or wind damage during a disaster or emergency situation. By submitting a proposal, the Offeror is accepted these Special Conditions required by the Federal Emergency Management Agency (FEMA).

Conflicts of Interest

No employee, officer, or agent may participate in the selection, award, or administration of a contract supported by a FEMA award if he or she has a real or apparent conflict of interest. Such a conflict would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of these parties, has a financial or other interest in or a tangible personal benefit from a firm considered for award. 2 C.F.R. § 200.318(c)(1); See also Standard Form 424D, ¶ 7; Standard Form 424B, ¶ 3.
i. FEMA considers a "financial interest" to be the potential for gain or loss to the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of these parties as a result of the particular procurement. The prohibited financial interest may arise from ownership of certain financial instruments or investments such as stock, bonds, or real estate, or from a salary, indebtedness, job offer, or similar interest that might be affected by the particular procurement. ii. FEMA considers an "apparent" conflict of interest to exist where an actual conflict does not exist, but where a reasonable person with knowledge of the relevant facts would question the impartiality of the employee, officer, or agent participating in the procurement. c. Gifts. The officers, employees, and agents of Region 4 ESC nor the Participating Public Agency ("NFE") must neither solicit nor accept gratuities, favors, or anything of monetary value from contractors or parties to subcontracts. However, NFE's may set standards for situations in which the financial interest is de minimus, not substantial, or the gift is an unsolicited item of nominal value. 2 C.F.R. § 200.318(c)(1). d. Violations. The NFE's written standards of conduct must provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of the NFE. 2 C.F.R. § 200.318(c)(1). For example, the penalty for a NFE's employee may be dismissal, and the penalty for a contractor might be the termination of the contract.

Contractor Integrity

A contractor must have a satisfactory record of integrity and business ethics. Contractors that are debarred or suspended as described in Chapter III, ¶ 6.d must be rejected and cannot receive contract awards at any level.

Public Policy

A contractor must comply with the public policies of the Federal Government and state, local government, or tribal government. This includes, among other things, past and current compliance with the:
a. Equal opportunity and nondiscrimination laws
b. Five affirmative steps described at 2 C.F.R. § 200.321(b) for all subcontracting under contracts supported by FEMA financial assistance; and FEMA Procurement Guidance June 21, 2016 Page IV- 7
c. Applicable prevailing wage laws, regulations, and executive orders

Affirmative Steps

For any subcontracting opportunities, Contractor must take the following Affirmative steps:

1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and
5. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce;

Bid Guarantee

For proposals that are to include construction/reconstruction/renovation and related services, bids must be accompanied by Certified or Cashier's Check or an approved Bid Bond in the amount of not less than five percent (5%) of the total bid. Surety shall provide a copy of the Power of Attorney authorizing the Executing Agent the authority to execute the bid bond documents and bind the Surety to the bid bond conditions. The bid bond shall have a corporate Surety that is licensed to conduct business in the state of the lead agency and authorized to underwrite bonds in the amount of the bid bond.

Prevailing Wage Requirements

When applicable, the awarded Contractor(s) and any and all subcontractor(s) agree to comply with all laws regarding prevailing wage rates including the Davis-Bacon Act, applicable to this solicitation and/or Participating Public Agencies. The Participating Public Agency shall notify the Contractor of the applicable pricing/prevailing wage rates and must apply any local wage rates requested. The Contractor and any subcontractor(s) shall comply with the prevailing wage rates set by the Participating Public Agency.

Alternative Pricing for Federal Funding

When applicable, such as when products and services are used in response to an emergency or disaster recovery situation in which federal funding may be used, pricing may not include cost plus a percentage of cost or pricing based on time and materials. If time and materials is necessary in an applicable federal funding situation, a ceiling price that the contract exceeds at its own risk will be needed. In addition, Offeror is subject to and must comply with all federal requirements applicable to the funding including, but not limited, the to the 2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II, Required Contract Clauses.

Federal Requirements

If products and services are issued in response to an emergency or disaster recovery the items below, located in this Special Conditions section of the Federal Funds Certifications, are activated and required when federal funding may be utilized.

2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II, Required Contract Clauses

1. Termination for Convenience:

The right to terminate this Contract for the convenience of Region 4 ESC is retained by Region 4 ESC. In the event of a termination for convenience by Region 4 ESC, Region 4 ESC shall, at least ten (10) calendar days in advance, deliver written notice of the termination for convenience to Contractor. Upon Contractor's receipt of such written notice, Contractor immediately shall cease the performance of the Work and shall take reasonable and appropriate action to secure and protect the Work then in place. Contractor shall then be paid by Region 4 ESC, in accordance with the terms and provisions of the Contract Documents, an amount not to exceed the actual labor costs incurred, the actual cost of all materials installed and the actual cost of all materials stored at the project site or away from the project site, as approved in writing by Region 4 ESC but not yet paid for and which cannot be returned, and actual, reasonable and documented demobilization costs, if any, paid by Contractor and approved by Region 4 ESC in connection with the Scope of Work in place which is completed as of the date of termination by Region 4 ESC and that is in conformance with the Contract Documents, less all amounts previously paid for the Work. No amount ever shall be owed or paid to Contractor for lost or anticipated profits on any part of the Scope of Work not performed or for consequential damages of any kind.

2. Equal Employment Opportunity:

Region 4 ESC highly encourages Contractors to implement Affirmative Action practices in their employment programs. This means Contractor should not discriminate against any employee or applicant for employment because of race, color, religion, sex, pregnancy, sexual orientation, political belief or affiliation, age, disability or genetic information.

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the contractor's non-compliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: *Provided,* however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

3. "<u>During the performance of this contract, the contractor agrees as follows</u>:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions as may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States."

4. Davis Bacon Act and Copeland Anti-Kickback Act.

(1) Applicability of Davis-Bacon Act. The Davis-Bacon Act only applies to the emergency Management Preparedness Grant Program, Homeland Security Grant Program, Nonprofit Security Grant Program, Tribal Homeland Security Grant Program, Port Security Grant Program, and Transit Security Grant Program. **It does not apply to other FEMA grant and cooperative agreement programs, including the Public Assistance Program**.

(2) All prime construction contracts in excess of $2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. §§ 3141-3144 and 3146-3148) as supplemented by Department of Labor regulations at 29 C.F.R. Part 5 (Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction)). See 2 C.F.R. Part 200, Appendix II, ¶ D.

(3) In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week.

(4) The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

(5) In contracts subject to the Davis-Bacon Act, the contracts must also include a

provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. § 3145), as supplemented by Department of Labor regulations at 29 C.F.R. Part 3 (Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States). The Copeland Anti-Kickback Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to FEMA.

(6) The regulation at 29 C.F.R. § 5.5(a) does provide the required contract clause that applies to compliance with both the Davis-Bacon and Copeland Acts. However, as discussed in the previous subsection, the Davis-Bacon Act does not apply to Public Assistance recipients and subrecipients. **In situations where the Davis-Bacon Act does not apply, neither does the Copeland "Anti-Kickback Act.**" However, for purposes of grant programs where both clauses do apply, FEMA requires the following contract clause:

"Compliance with the Copeland "Anti-Kickback" Act.

(1) Contractor. The contractor shall comply with 18 U.S.C. § 874, 40U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.

(2) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as the FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses

(3) Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12."

5. Contract Work Hours and Safety Standards Act.

(1) Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.

(2) Where applicable (see 40 U.S.C. § 3701), all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704, as supplemented by Department of Labor regulations at 29 C.F.R. Part 5. See 2 C.F.R. Part 200, Appendix II, ¶ E.

(3) Under 40 U.S.C. § 3702, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week.

(4) The requirements of 40 U.S.C. § 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or

under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

(5) The regulation at 29 C.F.R. § 5.5(b) provides the required contract clause concerning compliance with the Contract Work Hours and Safety Standards Act:

"Compliance with the Contract Work Hours and Safety Standards Act.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The (write in the name of the Federal agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section."

6. Rights to Inventions Made Under a Contract or Agreement.

(1) Stafford Act Disaster Grants. This requirement **does not apply to the Public Assistance**, Hazard Mitigation Grant Program, Fire Management Assistance Grant Program, Crisis Counseling Assistance and Training Grant Program, Disaster Case Management Grant Program, and Federal Assistance to Individuals and Households – Other Needs Assistance Grant Program, as

FEMA awards under these programs do not meet the definition of "funding agreement."

(2) If the FEMA award meets the definition of "funding agreement" under 37 C.F.R. § 401.2(a) and the non-Federal entity wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the non-Federal entity must comply with the requirements of 37 C.F.R. Part 401 (Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements), and any implementing regulations issued by FEMA. See 2 C.F.R. Part 200, Appendix II, ¶ F.

(3) The regulation at 37 C.F.R. § 401.2(a) currently defines "funding agreement" as any contract, grant, or cooperative agreement entered into between any Federal agency, other than the Tennessee Valley Authority, and any contractor for the performance of experimental, developmental, or research work funded in whole or in part by the Federal government. This term also includes any assignment, substitution of parties, or subcontract of any type entered into for the performance of experimental, developmental, or research work under a funding agreement as defined in the first sentence of this paragraph.

7. Clean Air Act and the Federal Water Pollution Control Act. Contracts of amounts in excess of $150,000 must contain a provision that requires the contractor to agree to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. §§ 1251-1387). Violations must be reported to FEMA and the Regional Office of the Environmental Protection Agency. See 2 C.F.R. Part 200, Appendix II, ¶ G.

(1) The following provides a sample contract clause concerning compliance for contracts of amounts in excess of $150,000:

"Clean Air Act

(1) The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.

(2) The contractor agrees to report each violation to the (name of the state agency or local or Indian tribal government) and understands and agrees that the (name of the state agency or local or Indian tribal government) will, in turn, report each violation as required to assure notification to the (name of recipient), Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

(3) The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

Federal Water Pollution Control Act

(1) The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.

(2) The contractor agrees to report each violation to the (name of the state agency or local or Indian tribal government) and understands and agrees that the (name of the

state agency or local or Indian tribal government) will, in turn, report each violation as required to assure notification to the (name of recipient), Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

(3) The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA."

8. Debarment and Suspension.

(1) Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.

(2) Non-federal entities and contractors are subject to the debarment and suspension regulations implementing Executive Order 12549, *Debarment and Suspension* (1986) and Executive Order 12689, *Debarment and Suspension* (1989) at 2 C.F.R. Part 180 and the Department of Homeland Security's regulations at 2 C.F.R. Part 3000 (Non procurement Debarment and Suspension).

(3) These regulations restrict awards, subawards, and contracts with certain parties that are debarred, suspended, or otherwise excluded from or ineligible for participation in Federal assistance programs and activities. See 2 C.F.R. Part 200, Appendix II, ¶ H; and *Procurement Guidance for Recipients and Subrecipients Under 2 C.F.R. Part 200 (Uniform Rules): Supplement to the Public Assistance Procurement Disaster Assistance Team (PDAT) Field Manual* Chapter IV, ¶ 6.d, and Appendix C, ¶ 2 [hereinafter *PDAT Supplement*]. A contract award must not be made to parties listed in the SAM Exclusions. SAM Exclusions is the list maintained by the General Services Administration that contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. SAM exclusions can be accessed at www.sam.gov. See 2 C.F.R. § 180.530; *PDAT Supplement,* Chapter IV, ¶ 6.d and Appendix C, ¶ 2.

(4) In general, an "excluded" party cannot receive a Federal grant award or a contract within the meaning of a "covered transaction," to include subawards and subcontracts. This includes parties that receive Federal funding indirectly, such as contractors to recipients and subrecipients. The key to the exclusion is whether there is a "covered transaction," which is any non-procurement transaction (unless excepted) at either a "primary" or "secondary" tier. Although "covered transactions" do not include contracts awarded by the Federal Government for purposes of the non-procurement common rule and DHS's implementing regulations, it does include some contracts awarded by recipients and subrecipient.

(5) Specifically, a covered transaction includes the following contracts for goods or services:

(1) The contract is awarded by a recipient or subrecipient in the amount of at least $25,000.

(2) The contract requires the approval of FEMA, regardless of amount.

(3) The contract is for federally required audit services.

(4) A subcontract is also a covered transaction if it is awarded by the contractor of a recipient or subrecipient and requires either the approval of FEMA or is in excess of $25,000.

d. The following provides a debarment and suspension clause. It incorporates an optional method of verifying that contractors are not excluded or disqualified:

"Suspension and Debarment

(1) This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such the contractor is required to verify that none of the contractor, its principals (defined at 2 C.F.R. § 180.995), or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

(2) The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

(3) This certification is a material representation of fact relied upon by (insert name of subrecipient). If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to (name of state agency serving as recipient and name of subrecipient), the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

(4) The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions."

9. Byrd Anti-Lobbying Amendment.

a. Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.

b. Contractors that apply or bid for an award of $100,000 or more must file the required certification. See 2 C.F.R. Part 200, Appendix II, ¶ I; 44 C.F.R. Part 18; *PDAT Supplement*, Chapter IV, 6.c; Appendix C, ¶ 4.

c. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award. See *PDAT Supplement*, Chapter IV, ¶ 6.c and Appendix C, ¶ 4.

d. The following provides a Byrd Anti-Lobbying contract clause:

"Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352 (as amended)

Contractors who apply or bid for an award of $100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient."

APPENDIX A, 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements (To be submitted with each bid or offer exceeding $100,000) The undersigned [Contractor] certifies, to the best of his or her knowledge, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form- LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor, Carahsoft Technology Corporation, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 *et seq*., apply to this certification and disclosure, if any.



Signature of Contractor's Authorized Official

Jennifer Kanach, Proposals Director

Name and Title of Contractor's Authorized Official

11/22/19

Date

10. Procurement of Recovered Materials.

a. Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.

b. A non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with Section 6002 of the Solid Waste Disposal Act, Pub. L. No. 89-272 (1965) (codified as amended by the Resource Conservation and Recovery Act at 42 U.S.C. § 6962). See 2 C.F.R. Part 200, Appendix II, ¶ J; 2 C.F.R. § 200.322; *PDAT Supplement*, Chapter V, ¶ 7.

c. The requirements of Section 6002 include procuring only items designated in guidelines of the EPA at 40 C.F.R. Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired by the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

d. The following provides the clause that a state agency or agency of a political subdivision of a state and its contractors can include in contracts meeting the above contract thresholds:

"(1) In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA- designated items unless the product cannot be acquired—

(i) Competitively within a timeframe providing for compliance with the contract performance schedule;

(ii) Meeting contract performance requirements; or

(iii) At a reasonable price.

(2) Information about this requirement, along with the list of EPA- designate items, is available at EPA's Comprehensive Procurement Guidelines web site, https://www.epa.gov/smm/comprehensive- procurement-guideline-cpg-program."

11. Additional FEMA Requirements.

a. The Uniform Rules authorize FEMA to require additional provisions for non-Federal entity contracts. FEMA, pursuant to this authority, requires or recommends the following:

b. Changes.

To be eligible for FEMA assistance under the non-Federal entity's FEMA grant or cooperative agreement, the cost of the change, modification, change order, or constructive change must be allowable, allocable, within the scope of its grant or cooperative agreement, and reasonable for the completion of project scope. FEMA recommends, therefore, that a non-Federal entity include a changes clause in its contract that describes how, if at all, changes can be made by either party to alter the method, price, or schedule of the work without breaching the contract. The language of the clause may differ depending on the nature of the contract and the end-item procured.

c. Access to Records.

All non-Federal entities must place into their contracts a provision that all contractors and their successors, transferees, assignees, and subcontractors acknowledge and

agree to comply with applicable provisions governing Department and FEMA access to records, accounts, documents, information, facilities, and staff. See DHS Standard Terms and Conditions, v 3.0, ¶ XXVI (2013).

d. The following provides a contract clause regarding access to records:

"Access to Records. The following access to records requirements apply to this contract:

(1) The contractor agrees to provide (insert name of state agency or local or Indian tribal government), (insert name of recipient), the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.

(2) The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

(3) The contractor agrees to provide the FEMA Administrator or his authorized representatives access to construction or other work sites pertaining to the work being completed under the contract."

12. DHS Seal, Logo, and Flags.

a. All non-Federal entities must place in their contracts a provision that a contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval. See DHS Standard Terms and Conditions, v 3.0, ¶ XXV (2013).

b. The following provides a contract clause regarding DHS Seal, Logo, and Flags: "The contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre- approval."

13. Compliance with Federal Law, Regulations, and Executive Orders.

a. All non-Federal entities must place into their contracts an acknowledgement that FEMA financial assistance will be used to fund the contract along with the requirement that the contractor will comply with all applicable federal law, regulations, executive orders, and FEMA policies, procedures, and directives.

b. The following provides a contract clause regarding Compliance with Federal Law, Regulations, and Executive Orders: "This is an acknowledgement that FEMA financial assistance will be used to fund the contract only. The contractor will comply will all applicable federal law, regulations, executive orders, FEMA policies, procedures, and directives."

14. No Obligation by Federal Government.

    a. The non-Federal entity must include a provision in its contract that states that the Federal Government is not a party to the contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

    b. The following provides a contract clause regarding no obligation by the Federal Government: "The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract."

15. Program Fraud and False or Fraudulent Statements or Related Acts.

    a. The non-Federal entity must include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

    b. The following provides a contract clause regarding Fraud and False or Fraudulent or Related Acts: "The contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the contractor's actions pertaining to this contract."

Additional contract clauses per 2 C.F.R. § 200.325

For applicable construction/reconstruction/renovation and related services: A payment and performance bond are both required for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided in the contract.

Offeror agrees to comply with all terms and conditions outlined in the Special Conditions section of this solicitation.

Offeror's Name: Carahsoft Technology Corporation

Address, City, State, and Zip Code: 11493 Sunset Hills Road, Suite 100, Reston, VA 20190

Phone Number: 703.871.8500 Fax Number: 703.871.8505

Printed Name and Title of Authorized Representative: Jennifer Kanach, Proposals Director

Email Address: sales@Carahsoft.com

Jennifer Kanach Date: 11/22/19

Signature of Authorized Representative

f. Questionnaire (Appendix C, Doc #6)

Please see the following page for our completed Questionnaire.

Appendix C, DOC # 6

QUESTIONNAIRE

Please provide responses to the following questions that address your company's operations, organization, structure and processes for providing products and services.

1. Diversity Programs

- Do you currently have a diversity program or any diversity partners that you do business with? ☐Yes ☒No
  (If the answer is yes, attach a statement detailing the structure of your program, along with a list of your diversity alliances and a copy of their certifications.)

2. Diverse Vendor Certification Participation

Region 4 ESC encourages the use of under-utilized businesses (HUB), minority and women business enterprises (MWBE), and small and/or disadvantages business enterprises (SBE) both as prime and subcontractors. Offerors shall indicate below whether or not they and/or any of their subcontractors (and if so which) hold certification in any of the classified areas and include proof of such certification with their response.

a. **Minority Women Business Enterprise**
Respondent certifies that this firm is an MWBE ☐Yes ☒No

List certifying agency: _____

b. **Small Business Enterprise (SBE) or Disadvantaged Business Enterprise (DBE)**
Respondent certifies that this firm is a SBE or DBE ☐Yes ☒No

List certifying agency: _____

c. **Historically Underutilized Businesses (HUB)**
Respondent certifies that this firm is a HUB ☐Yes ☒No

List certifying agency: _____

d. **Historically Underutilized Business Zone Enterprise (HUBZone)**
Respondent certifies that this firm is a HUBZone ☐Yes ☒No

List certifying agency: _____

e**. Other**
Respondent certifies that this firm is a recognized diversity certificate holder ☐Yes ☒No

List certifying agency: _____

3. Has Offeror made and is Offeror committed to continuing to take all affirmative steps set forth in 2 CFR 200.321 as it relates to the scope of work outlined in this solicitation? ☒Yes ☐No

g. Any additional agreements Offeror will require Participating Agencies to sign

Not applicable.

Addenda 1-3

Please see the following pages for Addenda 1-3.

7145 West Tidwell Road ~ Houston, Texas 77092
(713)-462-7708
www.esc4.net

NOTICE TO OFFEROR

ADDENDUM NO. 1

Solicitation Number 19-19

Request for Proposal ("RFP")
by

Region 4 Education Service Center ("ESC")
for
Educational Software Solutions and Services

SUBMITTAL DEADLINE: Thursday, November 19, 2019, 10:00 AM CT

This Addendum No. 1 amends the Request for Proposals (RFP) for Educational Software Solutions and Services 19-19 ("Addendum"). To the extent of any discrepancy between the original RFP and this Addendum, this Addendum shall prevail.

This Addendum No. 1 is hereby issued to:

1. **Update/Add the following documents in <u>Appendix C: Additional Required Documents</u>**

   - Doc # 3 Certificate of Interested Parties
   - DOC #5 Special Conditions
   - DOC #6 Questionnaire
   - DOC #7 For applicable construction/reconstruction/renovation and related services, a bid Guarantee is required not less than five percent (5%) of the total bid. Surety shall provide a copy of the Power of Attorney authorizing the Executing Agent the authority to execute the bid bond documents and bind the Surety to the bid bond conditions. The bid bond shall have a corporate Surety that is licensed to conduct business in Texas and authorize to underwrite bonds in the amount of the bid bond.

Appendix C, DOC # 3

Implementation of House Bill 1295

Certificate of Interested Parties (Form 1295):

In 2015, the Texas Legislature adopted House Bill 1295, which added section 2252.908 of the Government Code. The law states that a governmental entity or state agency may not enter into certain contracts with a business entity unless the business entity submits a disclosure of interested parties to the governmental entity or state agency at the time the business entity submits the signed contract to the governmental entity or state agency. The law applies only to a contract of a governmental entity or state agency that either (1) requires an action or vote by the governing body of the entity or agency before the contract may be signed or (2) has a value of at least $1 million. The disclosure requirement applies to a contract entered into on or after January 1, 2016.

The Texas Ethics Commission was required to adopt rules necessary to implement that law, prescribe the disclosure of interested parties form, and post a copy of the form on the commission's website. The commission adopted the Certificate of Interested Parties form (Form 1295) on October 5, 2015. The commission also adopted new rules (Chapter 46) on November 30, 2015, to implement the law. The commission does not have any additional authority to enforce or interpret House Bill 1295.

Filing Process:

Staring on January 1, 2016, the commission made available on its website a new filing application that must be used to file Form 1295. A business entity must use the application to enter the required information on Form 1295 and print a copy of the completed form, which will include a certification of filing that will contain a unique certification number. An authorized agent of the business entity must sign the printed copy of the form. The completed Form 1295 with the certification of filing must be filed with the governmental body or state agency with which the business entity is entering into the contract.

The governmental entity or state agency must notify the commission, using the commission's filing application, of the receipt of the filed Form 1295 with the certification of filing not later than the 30th day after the date the contract binds all parties to the contract. This process is known as acknowledging the certificate. The commission will post the acknowledged Form 1295 to its website within seven business days after receiving notice from the governmental entity or state agency. The posted acknowledged form does not contain the declaration of signature information provided by the business.

A certificate will stay in the pending state until it is acknowledged by the governmental agency. Only acknowledged certificates are posted to the commission's website.

Electronic Filing Application: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm

Frequently Asked Questions:
https://www.ethics.state.tx.us/resources/FAQs/FAQ_Form1295.php

Changes to Form 1295: https://www.ethics.state.tx.us/data/filinginfo/1295Changes.pdf

Appendix C, DOC # 5

SPECIAL CONDITIONS

Awarded Offerors may need to respond to events and losses where products and services are needed for the immediate and initial response to emergency situations such as, but not limited to, water damage, fire damage, vandalism cleanup, biohazard cleanup, sewage decontamination, deodorization, and/or wind damage during a disaster or emergency situation. By submitting a proposal, the Offeror is accepted these Special Conditions required by the Federal Emergency Management Agency (FEMA).

Conflicts of Interest

No employee, officer, or agent may participate in the selection, award, or administration of a contract supported by a FEMA award if he or she has a real or apparent conflict of interest. Such a conflict would arise when the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of these parties, has a financial or other interest in or a tangible personal benefit from a firm considered for award. 2 C.F.R. § 200.318(c)(1); See also Standard Form 424D, ¶ 7; Standard Form 424B, ¶ 3.
i. FEMA considers a "financial interest" to be the potential for gain or loss to the employee, officer, or agent, any member of his or her immediate family, his or her partner, or an organization which employs or is about to employ any of these parties as a result of the particular procurement. The prohibited financial interest may arise from ownership of certain financial instruments or investments such as stock, bonds, or real estate, or from a salary, indebtedness, job offer, or similar interest that might be affected by the particular procurement. ii. FEMA considers an "apparent" conflict of interest to exist where an actual conflict does not exist, but where a reasonable person with knowledge of the relevant facts would question the impartiality of the employee, officer, or agent participating in the procurement. c. Gifts. The officers, employees, and agents of Region 4 ESC nor the Participating Public Agency ("NFE") must neither solicit nor accept gratuities, favors, or anything of monetary value from contractors or parties to subcontracts. However, NFE's may set standards for situations in which the financial interest is de minimus, not substantial, or the gift is an unsolicited item of nominal value. 2 C.F.R. § 200.318(c)(1). d. Violations. The NFE's written standards of conduct must provide for disciplinary actions to be applied for violations of such standards by officers, employees, or agents of the NFE. 2 C.F.R. § 200.318(c)(1). For example, the penalty for a NFE's employee may be dismissal, and the penalty for a contractor might be the termination of the contract.

Contractor Integrity

A contractor must have a satisfactory record of integrity and business ethics. Contractors that are debarred or suspended as described in Chapter III, ¶ 6.d must be rejected and cannot receive contract awards at any level.

Public Policy

A contractor must comply with the public policies of the Federal Government and state, local government, or tribal government. This includes, among other things, past and current compliance with the:
a. Equal opportunity and nondiscrimination laws
b. Five affirmative steps described at 2 C.F.R. § 200.321(b) for all subcontracting under contracts supported by FEMA financial assistance; and FEMA Procurement Guidance June 21, 2016 Page IV- 7
c. Applicable prevailing wage laws, regulations, and executive orders

Affirmative Steps

For any subcontracting opportunities, Contractor must take the following Affirmative steps:

1. Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
2. Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;
4. Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and
5. Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce;

Bid Guarantee

For proposals that are to include construction/reconstruction/renovation and related services, bids must be accompanied by Certified or Cashier's Check or an approved Bid Bond in the amount of not less than five percent (5%) of the total bid. Surety shall provide a copy of the Power of Attorney authorizing the Executing Agent the authority to execute the bid bond documents and bind the Surety to the bid bond conditions. The bid bond shall have a corporate Surety that is licensed to conduct business in the state of the lead agency and authorized to underwrite bonds in the amount of the bid bond.

Prevailing Wage Requirements

When applicable, the awarded Contractor(s) and any and all subcontractor(s) agree to comply with all laws regarding prevailing wage rates including the Davis-Bacon Act, applicable to this solicitation and/or Participating Public Agencies. The Participating Public Agency shall notify the Contractor of the applicable pricing/prevailing wage rates and must apply any local wage rates requested. The Contractor and any subcontractor(s) shall comply with the prevailing wage rates set by the Participating Public Agency.

Alternative Pricing for Federal Funding

When applicable, such as when products and services are used in response to an emergency or disaster recovery situation in which federal funding may be used, pricing may not include cost plus a percentage of cost or pricing based on time and materials. If time and materials is necessary in an applicable federal funding situation, a ceiling price that the contract exceeds at its own risk will be needed. In addition, Offeror is subject to and must comply with all federal requirements applicable to the funding including, but not limited, the to the 2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II, Required Contract Clauses.

Federal Requirements

If products and services are issued in response to an emergency or disaster recovery the items below, located in this Special Conditions section of the Federal Funds Certifications, are activated and required when federal funding may be utilized.

2 C.F.R. § 200.326 and 2 C.F.R. Part 200, Appendix II, Required Contract Clauses

1. Termination for Convenience:

The right to terminate this Contract for the convenience of Region 4 ESC is retained by Region 4 ESC. In the event of a termination for convenience by Region 4 ESC, Region 4 ESC shall, at least ten (10) calendar days in advance, deliver written notice of the termination for convenience to Contractor. Upon Contractor's receipt of such written notice, Contractor immediately shall cease the performance of the Work and shall take reasonable and appropriate action to secure and protect the Work then in place. Contractor shall then be paid by Region 4 ESC, in accordance with the terms and provisions of the Contract Documents, an amount not to exceed the actual labor costs incurred, the actual cost of all materials installed and the actual cost of all materials stored at the project site or away from the project site, as approved in writing by Region 4 ESC but not yet paid for and which cannot be returned, and actual, reasonable and documented demobilization costs, if any, paid by Contractor and approved by Region 4 ESC in connection with the Scope of Work in place which is completed as of the date of termination by Region 4 ESC and that is in conformance with the Contract Documents, less all amounts previously paid for the Work. No amount ever shall be owed or paid to Contractor for lost or anticipated profits on any part of the Scope of Work not performed or for consequential damages of any kind.

2. Equal Employment Opportunity:

Region 4 ESC highly encourages Contractors to implement Affirmative Action practices in their employment programs. This means Contractor should not discriminate against any employee or applicant for employment because of race, color, religion, sex, pregnancy, sexual orientation, political belief or affiliation, age, disability or genetic information.

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the contractor's non-compliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: *Provided,* however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

3. "<u>During the performance of this contract, the contractor agrees as follows</u>:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive considerations for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions as may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, That in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States."

4. Davis Bacon Act and Copeland Anti-Kickback Act.

(1) Applicability of Davis-Bacon Act. The Davis-Bacon Act only applies to the emergency Management Preparedness Grant Program, Homeland Security Grant Program, Nonprofit Security Grant Program, Tribal Homeland Security Grant Program, Port Security Grant Program, and Transit Security Grant Program. **It does not apply to other FEMA grant and cooperative agreement programs, including the Public Assistance Program**.

(2) All prime construction contracts in excess of $2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. §§ 3141-3144 and 3146-3148) as supplemented by Department of Labor regulations at 29 C.F.R. Part 5 (Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction)). See 2 C.F.R. Part 200, Appendix II, ¶ D.

(3) In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week.

(4) The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

(5) In contracts subject to the Davis-Bacon Act, the contracts must also include a

provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. § 3145), as supplemented by Department of Labor regulations at 29 C.F.R. Part 3 (Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States). The Copeland Anti-Kickback Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to FEMA.

(6) The regulation at 29 C.F.R. § 5.5(a) does provide the required contract clause that applies to compliance with both the Davis-Bacon and Copeland Acts. However, as discussed in the previous subsection, the Davis-Bacon Act does not apply to Public Assistance recipients and subrecipients. **In situations where the Davis-Bacon Act does not apply, neither does the Copeland "Anti-Kickback Act.**" However, for purposes of grant programs where both clauses do apply, FEMA requires the following contract clause:

"Compliance with the Copeland "Anti-Kickback" Act.

(1) Contractor. The contractor shall comply with 18 U.S.C. § 874, 40U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into this contract.

(2) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as the FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses

(3) Breach. A breach of the contract clauses above may be grounds for termination of the contract, and for debarment as a contractor and subcontractor as provided in 29 C.F.R. § 5.12."

5. Contract Work Hours and Safety Standards Act.

(1) Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.

(2) Where applicable (see 40 U.S.C. § 3701), all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704, as supplemented by Department of Labor regulations at 29 C.F.R. Part 5. See 2 C.F.R. Part 200, Appendix II, ¶ E.

(3) Under 40 U.S.C. § 3702, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week.

(4) The requirements of 40 U.S.C. § 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or

under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

(5) The regulation at 29 C.F.R. § 5.5(b) provides the required contract clause concerning compliance with the Contract Work Hours and Safety Standards Act:

"Compliance with the Contract Work Hours and Safety Standards Act.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The (write in the name of the Federal agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this section."

6. Rights to Inventions Made Under a Contract or Agreement.

(1) Stafford Act Disaster Grants. This requirement **does not apply to the Public Assistance**, Hazard Mitigation Grant Program, Fire Management Assistance Grant Program, Crisis Counseling Assistance and Training Grant Program, Disaster Case Management Grant Program, and Federal Assistance to Individuals and Households – Other Needs Assistance Grant Program, as

FEMA awards under these programs do not meet the definition of "funding agreement."

(2) If the FEMA award meets the definition of "funding agreement" under 37 C.F.R. § 401.2(a) and the non-Federal entity wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the non-Federal entity must comply with the requirements of 37 C.F.R. Part 401 (Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements), and any implementing regulations issued by FEMA. See 2 C.F.R. Part 200, Appendix II, ¶ F.

(3) The regulation at 37 C.F.R. § 401.2(a) currently defines "funding agreement" as any contract, grant, or cooperative agreement entered into between any Federal agency, other than the Tennessee Valley Authority, and any contractor for the performance of experimental, developmental, or research work funded in whole or in part by the Federal government. This term also includes any assignment, substitution of parties, or subcontract of any type entered into for the performance of experimental, developmental, or research work under a funding agreement as defined in the first sentence of this paragraph.

7. Clean Air Act and the Federal Water Pollution Control Act. Contracts of amounts in excess of $150,000 must contain a provision that requires the contractor to agree to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act (42 U.S.C. §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. §§ 1251-1387). Violations must be reported to FEMA and the Regional Office of the Environmental Protection Agency. See 2 C.F.R. Part 200, Appendix II, ¶ G.

(1) The following provides a sample contract clause concerning compliance for contracts of amounts in excess of $150,000:

"Clean Air Act

(1) The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.

(2) The contractor agrees to report each violation to the (name of the state agency or local or Indian tribal government) and understands and agrees that the (name of the state agency or local or Indian tribal government) will, in turn, report each violation as required to assure notification to the (name of recipient), Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

(3) The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

Federal Water Pollution Control Act

(1) The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.

(2) The contractor agrees to report each violation to the (name of the state agency or local or Indian tribal government) and understands and agrees that the (name of the

state agency or local or Indian tribal government) will, in turn, report each violation as required to assure notification to the (name of recipient), Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

(3) The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA."

8. Debarment and Suspension.

(1) Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.

(2) Non-federal entities and contractors are subject to the debarment and suspension regulations implementing Executive Order 12549, *Debarment and Suspension* (1986) and Executive Order 12689, *Debarment and Suspension* (1989) at 2 C.F.R. Part 180 and the Department of Homeland Security's regulations at 2 C.F.R. Part 3000 (Non procurement Debarment and Suspension).

(3) These regulations restrict awards, subawards, and contracts with certain parties that are debarred, suspended, or otherwise excluded from or ineligible for participation in Federal assistance programs and activities. See 2 C.F.R. Part 200, Appendix II, ¶ H; and *Procurement Guidance for Recipients and Subrecipients Under 2 C.F.R. Part 200 (Uniform Rules): Supplement to the Public Assistance Procurement Disaster Assistance Team (PDAT) Field Manual* Chapter IV, ¶ 6.d, and Appendix C, ¶ 2 [hereinafter *PDAT Supplement*]. A contract award must not be made to parties listed in the SAM Exclusions. SAM Exclusions is the list maintained by the General Services Administration that contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549. SAM exclusions can be accessed at www.sam.gov. See 2 C.F.R. § 180.530; *PDAT Supplement,* Chapter IV, ¶ 6.d and Appendix C, ¶ 2.

(4) In general, an "excluded" party cannot receive a Federal grant award or a contract within the meaning of a "covered transaction," to include subawards and subcontracts. This includes parties that receive Federal funding indirectly, such as contractors to recipients and subrecipients. The key to the exclusion is whether there is a "covered transaction," which is any non-procurement transaction (unless excepted) at either a "primary" or "secondary" tier. Although "covered transactions" do not include contracts awarded by the Federal Government for purposes of the non-procurement common rule and DHS's implementing regulations, it does include some contracts awarded by recipients and subrecipient.

(5) Specifically, a covered transaction includes the following contracts for goods or services:

(1) The contract is awarded by a recipient or subrecipient in the amount of at least $25,000.

(2) The contract requires the approval of FEMA, regardless of amount.

(3) The contract is for federally required audit services.

(4) A subcontract is also a covered transaction if it is awarded by the contractor of a recipient or subrecipient and requires either the approval of FEMA or is in excess of $25,000.

d. The following provides a debarment and suspension clause. It incorporates an optional method of verifying that contractors are not excluded or disqualified:

"Suspension and Debarment

(1) This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such the contractor is required to verify that none of the contractor, its principals (defined at 2 C.F.R. § 180.995), or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

(2) The contractor must comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

(3) This certification is a material representation of fact relied upon by (insert name of subrecipient). If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to (name of state agency serving as recipient and name of subrecipient), the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

(4) The bidder or proposer agrees to comply with the requirements of 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions."

9. Byrd Anti-Lobbying Amendment.

a. Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.

b. Contractors that apply or bid for an award of $100,000 or more must file the required certification. See 2 C.F.R. Part 200, Appendix II, ¶ I; 44 C.F.R. Part 18; *PDAT Supplement*, Chapter IV, 6.c; Appendix C, ¶ 4.

c. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award. See *PDAT Supplement*, Chapter IV, ¶ 6.c and Appendix C, ¶ 4.

d. The following provides a Byrd Anti-Lobbying contract clause:

"Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352 (as amended)

Contractors who apply or bid for an award of $100,000 or more shall file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Each tier shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient."

APPENDIX A, 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements (To be submitted with each bid or offer exceeding $100,000) The undersigned [Contractor] certifies, to the best of his or her knowledge, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form- LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
3. The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31, U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

The Contractor, Carahsoft Technology Corporation, certifies or affirms the truthfulness and accuracy of each statement of its certification and disclosure, if any. In addition, the Contractor understands and agrees that the provisions of 31 U.S.C. § 3801 *et seq*., apply to this certification and disclosure, if any.



Signature of Contractor's Authorized Official

Jennifer Kanach, Proposals Director

Name and Title of Contractor's Authorized Official

11/22/19

Date

10. Procurement of Recovered Materials.

    a. Applicability: This requirement applies to all FEMA grant and cooperative agreement programs.

    b. A non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with Section 6002 of the Solid Waste Disposal Act, Pub. L. No. 89-272 (1965) (codified as amended by the Resource Conservation and Recovery Act at 42 U.S.C. § 6962). See 2 C.F.R. Part 200, Appendix II, ¶ J; 2 C.F.R. § 200.322; *PDAT Supplement*, Chapter V, ¶ 7.

    c. The requirements of Section 6002 include procuring only items designated in guidelines of the EPA at 40 C.F.R. Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired by the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

    d. The following provides the clause that a state agency or agency of a political subdivision of a state and its contractors can include in contracts meeting the above contract thresholds:

"(1) In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA- designated items unless the product cannot be acquired—

    (i) Competitively within a timeframe providing for compliance with the contract performance schedule;

    (ii) Meeting contract performance requirements; or

    (iii) At a reasonable price.

(2) Information about this requirement, along with the list of EPA- designate items, is available at EPA's Comprehensive Procurement Guidelines web site, https://www.epa.gov/smm/comprehensive- procurement-guideline-cpg-program."

11. Additional FEMA Requirements.

    a. The Uniform Rules authorize FEMA to require additional provisions for non-Federal entity contracts. FEMA, pursuant to this authority, requires or recommends the following:

    b. Changes.

To be eligible for FEMA assistance under the non-Federal entity's FEMA grant or cooperative agreement, the cost of the change, modification, change order, or constructive change must be allowable, allocable, within the scope of its grant or cooperative agreement, and reasonable for the completion of project scope. FEMA recommends, therefore, that a non-Federal entity include a changes clause in its contract that describes how, if at all, changes can be made by either party to alter the method, price, or schedule of the work without breaching the contract. The language of the clause may differ depending on the nature of the contract and the end-item procured.

c. Access to Records.

All non-Federal entities must place into their contracts a provision that all contractors and their successors, transferees, assignees, and subcontractors acknowledge and

agree to comply with applicable provisions governing Department and FEMA access to records, accounts, documents, information, facilities, and staff. See DHS Standard Terms and Conditions, v 3.0, ¶ XXVI (2013).

d. The following provides a contract clause regarding access to records:

"Access to Records. The following access to records requirements apply to this contract:

(1) The contractor agrees to provide (insert name of state agency or local or Indian tribal government), (insert name of recipient), the FEMA Administrator, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.

(2) The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

(3) The contractor agrees to provide the FEMA Administrator or his authorized representatives access to construction or other work sites pertaining to the work being completed under the contract."

12. DHS Seal, Logo, and Flags.

a. All non-Federal entities must place in their contracts a provision that a contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre-approval. See DHS Standard Terms and Conditions, v 3.0, ¶ XXV (2013).

b. The following provides a contract clause regarding DHS Seal, Logo, and Flags: "The contractor shall not use the DHS seal(s), logos, crests, or reproductions of flags or likenesses of DHS agency officials without specific FEMA pre- approval."

13. Compliance with Federal Law, Regulations, and Executive Orders.

a. All non-Federal entities must place into their contracts an acknowledgement that FEMA financial assistance will be used to fund the contract along with the requirement that the contractor will comply with all applicable federal law, regulations, executive orders, and FEMA policies, procedures, and directives.

b. The following provides a contract clause regarding Compliance with Federal Law, Regulations, and Executive Orders: "This is an acknowledgement that FEMA financial assistance will be used to fund the contract only. The contractor will comply will all applicable federal law, regulations, executive orders, FEMA policies, procedures, and directives."

14. No Obligation by Federal Government.

    a. The non-Federal entity must include a provision in its contract that states that the Federal Government is not a party to the contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract.

    b. The following provides a contract clause regarding no obligation by the Federal Government: "The Federal Government is not a party to this contract and is not subject to any obligations or liabilities to the non-Federal entity, contractor, or any other party pertaining to any matter resulting from the contract."

15. Program Fraud and False or Fraudulent Statements or Related Acts.

    a. The non-Federal entity must include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

    b. The following provides a contract clause regarding Fraud and False or Fraudulent or Related Acts: "The contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the contractor's actions pertaining to this contract."

Additional contract clauses per 2 C.F.R. § 200.325

For applicable construction/reconstruction/renovation and related services: A payment and performance bond are both required for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided in the contract.

Offeror agrees to comply with all terms and conditions outlined in the Special Conditions section of this solicitation.

Offeror's Name: Carahsoft Technology Corporation

Address, City, State, and Zip Code: 11493 Sunset Hills Road, Suite 100, Reston, VA 20190

Phone Number: 703.871.8500 Fax Number: 703.871.8505

Printed Name and Title of Authorized Representative: Jennifer Kanach, Proposals Director

Email Address: sales@Carahsoft.com

Jennifer Kanach Date: 11/22/19

Signature of Authorized Representative

Appendix C, DOC # 6

QUESTIONNAIRE

Please provide responses to the following questions that address your company's operations, organization, structure and processes for providing products and services.

1. Diversity Programs

- Do you currently have a diversity program or any diversity partners that you do business with? ☐Yes ☒No
  (If the answer is yes, attach a statement detailing the structure of your program, along with a list of your diversity alliances and a copy of their certifications.)

2. Diverse Vendor Certification Participation

Region 4 ESC encourages the use of under-utilized businesses (HUB), minority and women business enterprises (MWBE), and small and/or disadvantages business enterprises (SBE) both as prime and subcontractors. Offerors shall indicate below whether or not they and/or any of their subcontractors (and if so which) hold certification in any of the classified areas and include proof of such certification with their response.

a. **Minority Women Business Enterprise**
Respondent certifies that this firm is an MWBE ☐Yes ☒No

List certifying agency: _____

b. **Small Business Enterprise (SBE) or Disadvantaged Business Enterprise (DBE)**
Respondent certifies that this firm is a SBE or DBE ☐Yes ☒No

List certifying agency: _____

c. **Historically Underutilized Businesses (HUB)**
Respondent certifies that this firm is a HUB ☐Yes ☒No

List certifying agency: _____

d. **Historically Underutilized Business Zone Enterprise (HUBZone)**
Respondent certifies that this firm is a HUBZone ☐Yes ☒No

List certifying agency: _____

e**. Other**
Respondent certifies that this firm is a recognized diversity certificate holder ☐Yes ☒No

List certifying agency: _____

3. Has Offeror made and is Offeror committed to continuing to take all affirmative steps set forth in 2 CFR 200.321 as it relates to the scope of work outlined in this solicitation? ☒Yes ☐No

RECEIPT OF ADDENDUM NO. 1 ACKNOWLEDGEMENT

Offeror shall acknowledge this addendum by signing below and include in their proposal response.

Company Name Carahsoft Technology Corporation

Contact Person Jennifer Kanach

Signature 

Date 11/22/19

Crystal Wallace
Region 4 Education Service Center
Business Operations Specialist

7145 West Tidwell Road ~ Houston, Texas 77092
(713)-462-7708
www.esc4.net

NOTICE TO OFFEROR

ADDENDUM NO. 2

Solicitation Number 19-19

Request for Proposal ("RFP")
by

Region 4 Education Service Center ("ESC")
for
Educational Software Solutions and Services

SUBMITTAL DEADLINE: Tuesday, November 19, 2019, 10:00 AM CT

This Addendum No. 2 amends the Request for Proposals (RFP) for Educational Software Solutions and Services 19-19 ("Addendum"). To the extent of any discrepancy between the original RFP and this Addendum, this Addendum shall prevail.

- Clarify the submission deadline as follows:
  - Tuesday, November 19, 2019 @ 10:00 AM CT
- Remove bullet point referencing Doc # 7 in Addendum No. 1

RECEIPT OF ADDENDUM NO. 2 ACKNOWLEDGEMENT

Offeror shall acknowledge this addendum by signing below and include in their proposal response.

Company Name Carahsoft Technology Corporation

Contact Person Jennifer Kanach

Signature 

Date 11/22/19

Crystal Wallace
Region 4 Education Service Center
Business Operations Specialist

7145 West Tidwell Road ~ Houston, Texas 77092
(713)-462-7708
www.esc4.net

NOTICE TO OFFEROR

ADDENDUM NO. 3

Solicitation Number 19-19

Request for Proposal ("RFP")
by

Region 4 Education Service Center ("ESC")
for
Software Solutions and Services

SUBMITTAL DEADLINE: Tuesday, November 26, 2019, 10:00 AM CT

This Addendum No. 3 amends the Request for Proposals (RFP) for Educational Software Solutions and Services 19-19 ("Addendum"). To the extent of any discrepancy between the original RFP and this Addendum, this Addendum shall prevail.

This Addendum No. 3 is hereby issued to extend the submittal deadline as follows:

As indicated above the Submittal Deadline is hereby changed from Tuesday, November 19, 2019 to **Tuesday, November 26, 2019. Time remains at 10:00 AM CT**

RECEIPT OF ADDENDUM NO. 3 ACKNOWLEDGEMENT

Offeror shall acknowledge this addendum by signing below and include in their proposal response.

Company Name Carahsoft Technology Corporation

Contact Person Jennifer Kanach

Signature 

Date 11/22/19

Crystal Wallace
Region 4 Education Service Center
Business Operations Specialist

Carahsoft Contract # R191902
Educational Software and Value Added OEMs

Manufacturer	Discount off List
[S] Cube	2.00%
1 Kosmos, Inc.	2.00%
10Zig Products Tier 1	2.00%
10Zig Products Tier 2	6.00%
10Zig Products Tier 3	15.00%
10Zig Services	2.00%
1E, Inc.	2.00%
1nteger, LLC dba Kharon	2.00%
3CLogic	0.50%
460 TECH, LLC dba BEINCOURT	2.00%
4iQ Inc.	2.00%
7SIGNAL	0.50%
Abbyy	3.00%
Abnormal Security Corporation	2.00%
Acalvio Technologies	2.00%
Accela Licenses	3.54%
Accela Subscription	0.33%
Accela Training and Support	3.55%
AchieveIt Online, LLC.	0.50%
Aclima, Inc.	2.00%
Aconex	3.00%
Acquia	2.38%
Acronis	1.50%
Actiance Maintenance	3.67%
Actiance Products- Tier 1	3.86%
Actiance Products- Tier 2	12.84%
Actiance Professional Services	0.08%
Actsoft, Inc.	2.00%
Adaptus LLC	1.00%
ADF Solutions	0.50%
Adobe- Consulting & Training Tier 1	0.00%
Adobe- Consulting & Training Tier 2	2.29%
Adobe- License Tier 1	0.00%
Adobe- License Tier 2	7.50%
Adobe- Maintenance Tier 1	0.00%
Adobe- Maintenance Tier 2	7.51%
Adobe- Other Products Tier 1	0.00%
Adobe- Other Products Tier 2	6.91%
Advologix	0.50%
AECOM Technical Services, Inc.	2.00%
Aerospike, Inc.	2.00%
AgileCraft	2.00%
AINS, LLC	2.00%
Air Xeo Inc.	2.00%
Airgility, Inc.	2.00%
Airversity, Inc.	0.50%
AirWorks Solutions, Inc.	2.00%
Aisera, Inc.	2.00%
Akamai Tier 1	19.00%
Akamai Tier 2	24.00%
Akamai Tier 3	35.00%
Akitabox	1.00%
Alert Logic Maintenance	3.00%
Alert Logic Products	3.00%
Alert Logic Professional Services	3.00%
AlertEnterprice, Inc.	2.00%
Alfresco	2.29%
All Other Accela Products and Services	0.33%
All Other Actiance Products and Services	0.08%

Carahsoft Contract # R191902
Educational Software and Value Added OEMs

Manufacturer	Discount off List
All Other Akamai Products and Services	10.00%
All Other Appsense Products and Services	8.00%
All Other Arista Networks Products and Services	0.27%
All Other Autodesk Products and Services	1.30%
All Other Avue Technologies Products and Services	0.59%
All Other Blackbag Technologies Products and Services	1.30%
All Other BMC Products and Services	0.00%
All Other Bomgar Products and Services	0.00%
All Other Box Products and Services	5.00%
All Other EnterpriseDB Products and Services	6.05%
All Other F5 Networks Products and Services	0.47%
All Other I2, Inc Products and Services	2.12%
All Other Identity Automation Products and Services	0.04%
All Other Imation Products and Services	3.97%
All Other Kofax Products and Services	0.00%
All Other mPower Innovations Products and Services	0.00%
Alorica	0.50%
Alteryx	2.00%
ALTR Solutions Inc.	0.50%
Amazon Web Services	0.00%
AMIICUSS, LLC.	2.00%
Anaplan	1.00%
Andrews Consulting Group Inc. (ACG)	3.44%
Anjuna Security, Inc.	3.00%
Annese Managed Services	5.00%
Annese Professional Services	5.00%
Apex IT	2.00%
APIsec.ai, Inc.	2.00%
APOS	1.25%
Appbus Inc.	2.00%
Apperian	1.30%
Appgate	0.50%
Appian Corporation	2.00%
Application Perfection	1.32%
Applied Insight, LLC	2.00%
AppOmni, Inc.	2.00%
Apporto Corporation	2.00%
AppSec	8.83%
AppSense Products	12.82%
Appsense Training	8.00%
Apptio	1.00%
Arbola	1.00%
Archive360	0.50%
Arcos	1.00%
Arctic Wolf Networks	0.50%
Arete Advisors LLC.	2.00%
ARInspect, INC.	2.00%
Arista Networks Products- Tier 1	0.27%
Arista Networks Products- Tier 2	2.32%
Arista Networks Services & Maintenance	0.27%
Armis, Inc.	5.00%
ArmorText	0.50%
Arria NLG	0.50%
Asana, Inc.	2.00%
ASG Technologies	2.00%
ASR Analytics	0.50%
Assima	2.00%
Astera Software	2.00%
Atlassian	2.00%

Carahsoft Contract # R191902
Educational Software and Value Added OEMs

Manufacturer	Discount off List
Attestiv	0.50%
Autodesk Maintenance- Tier 1	0.85%
Autodesk Maintenance- Tier 2	7.92%
Autodesk Maintenance- Tier 3	16.79%
Autodesk Products- Tier 1	1.30%
Autodesk Products- Tier 2	11.53%
Autodesk Products- Tier 3	20.45%
Automize A/S	2.00%
Automox, Inc.	0.50%
AutoRABIT	2.00%
AutoReturn US, LLC	2.00%
Avaap USA, LLC.	2.00%
Avecto	2.00%
AvePoint Public Sector Inc.	5.35%
Avepoint Services	3.00%
Avisare Corp.	2.00%
Avocette	2.00%
Avoka	2.57%
Avolution	0.50%
Avue Technologies Products	0.59%
Avue Technologies Subscription	0.75%
Axonius Federal Systems LLC	2.00%
Ayasdi, Inc.	2.00%
Babel Street, Inc.	2.00%
Backblaze, Inc.	0.50%
BackOffice Associates LLC	1.02%
Bayshore Networks	0.50%
Beezy Inc.	0.50%
BEINCOURT	0.50%
Bentley	2.00%
BetterGIS	0.50%
BetterUp	0.50%
BeyondTrust Corporation	2.00%
Big Compass	2.00%
BigID	0.50%
Binti, Inc.	2.00%
Black Swift Technologies, LLC	0.50%
BlackBag Technologies Licenses	1.30%
BlackBag Technologies Perpetual	13.66%
Blackberry	2.00%
BlackDuck	2.99%
Blackthorn.io, Inc.	0.50%
Blancco	2.00%
Blocksi, Inc.	2.00%
BlocPower, LLC.	2.00%
Blue Fusion Technologies	2.00%
Blueforce Development Corp.	0.50%
Bluesource	5.00%
BMC Software- Tier 1	0.00%
BMC Software- Tier 2	3.00%
Boeing	1.02%
Bomgar Products- Tier 1	0.00%
Bomgar Products- Tier 2	1.85%
Bomgar Products- Tier 3	3.06%
Bomgar Services	0.00%
Bomgar Support	1.85%
Bonfire	0.50%
Boomi	1.00%
Booz Allen Hamilton Inc.	2.00%

Carahsoft Contract # R191902
Educational Software and Value Added OEMs

Manufacturer	Discount off List
Boundless	5.00%
Box Inc. Maintenance	5.00%
Box Inc. Products	17.23%
BoxTone	3.69%
Bravium Consulting Inc.	0.50%
Brazen Technologies, Inc.	2.00%
Bright Pattern Inc.	0.50%
Broadcom, Inc.	2.00%
Bromium	0.75%
Bugcrowd, Inc.	0.50%
BYOS USA, Inc	2.00%
C2 Labs	0.50%
CA Technologies	2.00%
CAFM Resources	4.54%
Calypso AI Corp.	0.50%
Canda Solutions	23.18%
Capsule Tech Inc.	0.01%
Carahsoft	0.50%
CareAR	0.50%
CareerBuilder Tier 1	6.71%
CareerBuilder- Tier 2	7.14%
CareerBuilder- Tier 3	8.16%
Carnegie Speech Company	2.33%
Carpathia	8.47%
Case Commons	2.00%
Casepoint LLC	2.00%
Cellebrite	1.00%
Celonis Inc.	2.00%
CelWell Services	1.50%
Censys, Inc	2.00%
Center for Internet Security (CIS)	3.00%
Centrifuge Systems	2.11%
Centripetal Networks	2.00%
CEPTES Software Pvt Ltd	0.50%
Certes Network- Tier 1	11.65%
Certes Network- Tier 2	18.11%
Certipath	1.00%
CGI	0.01%
Chainalysis	1.10%
Change and Innovation Agency, LLC.	2.00%
ChargePoint, Inc.	0.50%
Check Point Software Technologies Ltd.	2.00%
Chiliad Inc.	1.02%
Chooch Intelligence Technologies Co.	0.50%
Chorus Intelligence, Inc.	2.00%
Cicer One	0.50%
Cideon	2.99%
Ciena Maintenance	8.07%
Ciena Products- Tier 1	7.75%
Ciena Products- Tier 2	12.75%
Ciena Products- Tier 3	38.28%
Ciena Products- Tier 4	41.30%
Ciena Products- Tier 5	50.38%
Ciena Products- Tier 6	58.75%
Ciena Support	8.07%
Cipher Cloud	0.01%
CIS	13.00%
Cision US Inc.	2.00%
Citibot	0.50%

Carahsoft Contract # R191902
Educational Software and Value Added OEMs

Manufacturer	Discount off List
Clarifai, Inc.	0.50%
Clariti	0.50%
Class Technologies, Inc	2.00%
Clear Skye	0.50%
ClearCube	0.50%
ClearInsight Solutions	2.00%
ClearStory Data	2.00%
Cleversafe Products	2.83%
Cleversafe Services and Training	0.01%
Clockwork-Solutions	8.07%
Cloud Academy Inc.	0.50%
Cloud Services	5.00%
Cloud SynApps	2.00%
Cloud Warriors Government LLC	2.00%
CloudBees, Inc.	2.00%
CloudBolt	2.00%
CloudCheckr	0.50%
CloudCover	0.50%
Cloudera	3.70%
CloudSaver	0.50%
Cloudtamer.io	0.50%
Coalfire	1.00%
Cobwebs America Inc	2.00%
Code42	0.50%
CodeLock, Inc.	2.00%
Codescience, Inc.	2.00%
Cofense, Inc.	0.50%
CogAbility, Inc.	2.00%
Cohesity, Inc.	2.00%
CollabNet- Tier 1	0.99%
CollabNet- Tier 2	2.28%
CollabraLink Technologies, Inc, dba Groundswell	2.00%
Collabware Systems, Inc.	2.00%
Collibra	0.75%
Commvault Systems, Inc.	0.50%
Compart North America, Inc.	2.00%
ComplianceQuest	0.50%
Composite Software	0.01%
Computable Insights LLC	0.01%
ComScore	3.03%
Condusiv	8.75%
Conga	2.00%
ContraForceGroup, Inc	0.50%
Contrast Security	0.50%
Copado	0.50%
CORASCloud, Inc.	0.50%
Core Security	2.00%
Corellium, Inc.	2.00%
CoreView USA, Inc.	0.50%
CornerstoneAI Audits, Inc.	0.50%
Corporate Reimbursement Services Inc.	3.03%
CounterCraft Security, Inc.	2.00%
Coupa	2.00%
Coursera, Inc.	2.00%
Crave.io Inc.	2.00%
Crayon Software Experts, LLC.	0.50%
Cribl, Inc	0.50%
Critical Start	0.50%
Cronos Consulting Group	0.50%

Carahsoft Contract # R191902
Educational Software and Value Added OEMs

Manufacturer	Discount off List
CrowdAI	0.50%
Crowdstrike, Inc	5.00%
Cubic Digital Intelligence	2.90%
CustomerTimes Corp.	2.00%
CVENT	0.50%
CyanGate	2.00%
Cyara Inc.	0.50%
Cyber Crucible, Inc.	2.00%
Cyber-Ark	18.55%
CyberReef	2.00%
Cybersixgill	0.50%
Cybersoft	3.06%
Cybrary, Inc	2.00%
CyCognito Inc.	0.50%
CyGlass Technology Services, Inc.	2.00%
Cylance	1.00%
Cynerio Inc.	2.00%
Cynet	8.00%
D2L	2.00%
D2L Ltd	2.00%
DADoES, Inc. DBA Rendered.ai	2.00%
Daric Holdings Inc.	0.50%
DarkOwl, LLC	2.00%
Darzin Softare Pty Ltd	0.50%
Data Direct Networks- Tier 1	0.00%
Data Direct Networks- Tier 2	2.04%
Data Direct Networks- Tier 3	5.61%
Dataguise	0.00%
Dataiku, Inc.	2.00%
Datameer	2.33%
DatAnchor	0.50%
Datanova Scientific LLC	2.00%
Datapipe	0.50%
DataRobot, Inc.	2.00%
DataShapes, Inc.	2.00%
Datawatch	0.01%
Decipher Technology Studios	0.50%
Decision Lens	0.50%
Deep Instinct	2.00%
DeepSeas, LLC.	2.00%
Deepwatch, Inc.	2.54%
Defend3D	2.00%
Delinea	1.00%
Dell	1.50%
Delphix Products- Tier 1	3.44%
Delphix Products- Tier 2	8.47%
Delphix Support and Services	8.47%
Denodo Technologies	2.00%
DigEplan	0.50%
Digital Era	0.50%
Digital Guardian	2.00%
Digital Map	1.00%
Digital Realty	3.01%
Digital Reasoning	3.44%
DigitalBlue Software	2.00%
DigitalXForce Corporation	2.00%
DigitSec, Inc.	2.00%
Discover Technologies LLC	0.50%
Discovered Intelligence, Inc.	2.00%

Carahsoft Contract # R191902
Educational Software and Value Added OEMs

Manufacturer	Discount off List
Docebo NA, Inc.	2.00%
DocuSign- Tier 1	0.00%
DocuSign- Tier 2	1.02%
Domino Data Lab, Inc.	2.00%
Draganfly, Inc.	2.00%
Dreamfactory	3.43%
Druva, Inc.	2.00%
DTEN	0.50%
Dun & Bradstreet	0.50%
Earthling Security	0.01%
Easyvista	2.00%
eCare Vault, Inc.	2.00%
eCivis	1.00%
Edbrix Inc.	0.50%
EdPower	1.00%
Ekahau	2.00%
Elastic	1.00%
ElectrifAi	0.50%
Ellucian Company L.P.	2.00%
EMC Products- Tier 1	0.00%
EMC Products- Tier 2	1.30%
EMC Products- Tier 3	11.83%
EMC Products- Tier 4	22.15%
EMC Support and Services- Tier 1	0.00%
EMC Support and Services- Tier 2	1.00%
EMC Support and Services- Tier 3	12.76%
EMC Support and Services- Tier 4	22.15%
Emergency Visions	2.33%
Endeca Maintenance- Tier 1	0.00%
Endeca Maintenance- Tier 2	6.46%
Endeca Maintenance- Tier 3	10.20%
Endeca Products- Tier 1	0.00%
Endeca Products- Tier 2	3.96%
Endeca Products- Tier 3	6.08%
Endeca Products- Tier 4	10.20%
Endeca Services	10.35%
Enhanced Voting	2.00%
Enterprise DB Products- Tier 1	0.99%
Enterprise DB Products- Tier 2	2.28%
Enterprise Elements Inc.	4.54%
Entrust Corporation	2.00%
Epik Solutions	0.50%
E-Plansoft	3.00%
Equinix Security LLC	2.00%
e-Share	0.50%
eSignifi	0.50%
Esper Regulatory Technologies, Inc.	2.00%
eSyncTraining Tier 1	0.00%
eSyncTraining Tier 2	3.00%
eSyncTraining Tier 3	6.00%
EVAN360 LLC	0.50%
Everbridge, Inc.	2.00%
Everlaw, Inc.	2.00%
EVGA- Tier 1	2.29%
EVGA- Tier 2	18.37%
EvolveWare, Inc.	2.00%
Exabeam	1.00%
Experian	0.74%
Exterro	3.00%

Carahsoft Contract # R191902
Educational Software and Value Added OEMs

Manufacturer	Discount off List
ExtraHop	3.00%
Exyn Technologies	2.00%
F5 Networks Products- Tier 1	0.47%
F5 Networks Products- Tier 2	1.58%
F5 Networks Products- Tier 3	3.85%
F5 Networks Products- Tier 4	7.26%
F5 Networks Support	0.48%
F5 Networks Training	1.61%
Fend Incorporated	2.00%
FI Consulting, Inc	2.00%
Fidelis Cybersecurity, Inc.	2.00%
FileTrail	0.50%
Fitbit, LLC	2.00%
Five9	0.50%
Fivetran Inc.	2.00%
Flashpoint	0.50%
FlexAnalytics Intel Center Products	0.01%
FlexAnalytics Maintenance	3.03%
FlexAnalytics Other Products	3.03%
Flexera	1.50%
Flosum	0.50%
Flow Corporation- Tier One	0.75%
Flow Corporation- Tier Two	2.00%
Fluid Mobility Inc.	2.00%
FM:Systems Group LLC	0.50%
FogHorn Systems	0.50%
ForceBrain.com	0.50%
ForceBrain.com Inc. dba SUMO Scheduler	2.00%
Forcepoint	0.50%
ForeScout	2.00%
Forgerock	2.50%
FormAssembly	2.00%
FormStack	0.50%
Fornetix	2.00%
Fortinet Tier One	1.50%
Fortinet Tier Two	3.00%
Fortra, LLC	2.00%
Forum Systems	2.00%
Forward Networks, Inc.	0.50%
Fulcrum	2.00%
Fusion Health	0.50%
Fusion Risk Management	0.50%
Fusion-IO- Tier 1	0.00%
Fusion-IO- Tier 2	8.16%
Fusion-IO- Tier 3	19.88%
Gallus Communications LLC dba TASSTA Americas	2.00%
GCOM Software, LLC.	5.00%
Gemba Software Solutions dba ProcedureFlow	2.00%
Genesys	1.26%
Geofeedia	1.00%
Geollect	0.50%
Geonorth	0.50%
Geosite	0.50%
GeoSolutions USA Corp.	2.00%
Geospark Analytics dba Seerist Federal	2.00%
Gigamon	0.00%
Gigantor Technologies Inc.	0.50%
Gimmal	3.00%
GitLab, Inc.	2.00%

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Educational Software and Value Added OEMs

Manufacturer	Discount off List
GL Suite, Inc	2.00%
Glasswall Solutions Limited	2.00%
Globalscape	3.19%
Golden	0.50%
Golden Recursion Inc.	8.00%
Goldfinger Holdings	0.50%
GoodMaps, Inc.	0.50%
Google	1.00%
GoSecure, Inc.	2.00%
Gov Grants	2.00%
Governmentjobs.com, Inc dba NeoGov	2.00%
Granicus Tier 1	4.00%
Granicus Tier 2	6.00%
Gravel Road Data Labs, LLC.	0.50%
Gray Quarter, Inc.	0.50%
GreenAppy	0.75%
Greenlight Group	2.99%
GreyNoise Intelligence, Inc.	0.50%
Greystones Consulting Group, dBA Greystones Group	2.00%
Gridless Tier 1	2.00%
Gridless Tier 2	5.71%
GroundWork Products and Services- Tier 1	2.28%
GroundWork Products and Services- Tier 2	4.69%
Groupdolists	0.50%
H2O.ai, Inc.	0.50%
Halcyon Tech, Inc.	2.00%
Hale International Recruitment US, LLC	2.00%
HashiCorp	1.20%
Haystax	0.75%
HCL	1.20%
Heimdall Data LLC	0.50%
Hello Lamp Post ltd	2.00%
Hexagon Geospatial	0.50%
Hexalytics, Inc.	2.00%
HHS Technology Group, LLC	2.00%
Hike2	2.00%
Hitachi Vantara	2.00%
HKA Tech, LLC	2.00%
Holonic Technologies, Inc.	0.50%
Hootsuite Media, Inc.	2.00%
Horizon3.ai	0.50%
HPE	3.00%
HSO	0.50%
Human Security, Inc.	2.00%
Hycu, Inc.	2.00%
HyperOffice	4.54%
HyTrust	2.99%
I2, Inc Maintenance- Tier 1	3.50%
I2, Inc Maintenance- Tier 2	11.53%
I2, Inc Maintenance- Tier 3	22.38%
I2, Inc Maintenance- Tier 4	30.87%
I2, Inc Products- Tier 1	2.12%
I2, Inc Products- Tier 2	13.58%
I2, Inc Products- Tier 3	20.14%
IBM	1.00%
IBM Products- Tier 1	0.00%
IBM Products- Tier 2	0.97%
IBM Products- Tier 3	13.04%
IBM Services	0.00%

Carahsoft Contract # R191902
Educational Software and Value Added OEMs

Manufacturer	Discount off List
iBoss	0.50%
Icaros, Inc.	0.50%
Icertis, Inc.	2.00%
iDefender LLC	0.50%
Identity Automation Maintenance	0.04%
Identity Automation Products- Tier 1	0.04%
Identity Automation Products- Tier 2	9.09%
Identity Automation Support- Tier 1	0.04%
Identity Automation Support- Tier 2	9.09%
IKANOW	3.69%
ikeGPS	0.75%
ILA Corporation DBA VM2020 Solutions	0.50%
iLAB, LLC.	2.00%
Illume	3.68%
Illumio, Inc.	2.00%
Image Access Corporation	2.00%
Imagine Solutions DBA Encapture	2.00%
iMapData	17.24%
Imation Maintenance	6.03%
Imation Products- Tier 1	2.02%
Imation Products- Tier 2	6.04%
Imperva	2.00%
Imprivata Maintenance	0.38%
Imprivata Products- Tier 1	0.37%
Imprivata Products- Tier 2	7.43%
Imprivata Services	7.47%
Imprivata, Inc.	2.00%
Incode Technologies	1.00%
Indigov Corporation	2.00%
Infinera	0.50%
Info Security Corp (ISC)	6.26%
Infoblox Products	10.00%
Infoblox Services	3.00%
Inkit, Inc.	2.00%
INKY	1.00%
Innive Inc.	0.50%
InSource	0.50%
Inspired E-Learning	2.00%
Instabase, Inc.	2.00%
Insystech	0.50%
Intact Partners, Inc.	0.50%
Intellective	0.50%
Intelligent Automation, LLC dba BlueHalo Labs	2.00%
Interactive Data, LLC	0.50%
Intergral	3.69%
Intermap Technologies	0.01%
Interset	2.00%
InterWorks, Inc.	2.00%
Intrusion Inc.	2.00%
Inttensity	2.57%
Invictus Apps, Inc.	2.00%
Invincea Maintenance and Services	0.00%
Invincea Products	0.00%
iOra	1.04%
Iron Mountain Information Management, LLC	2.00%
IronKey by Imation	5.22%
IronNet	2.00%
ISI Solutions, Inc dba sFiles	2.00%
ITS Partners	0.50%

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Educational Software and Value Added OEMs

Manufacturer	Discount off List
Ivanti	0.50%
IX LAYER, Inc.	0.50%
JackBe	2.58%
Jacobs Technology Inc.	2.00%
Jama Software	3.03%
Janya	0.31%
Jetdocs Inc.	2.00%
Jive Products	2.42%
Jive Support and Services	2.53%
JSMPros, Inc.	2.00%
Juniper Networks, Inc.	0.50%
Kahua	2.00%
Kapow Software	2.99%
Kaseware, Inc.	2.00%
Keene Village Plastics	2.00%
Keeper Security	10.00%
Keralia	0.50%
Keyavi Data Corp	0.50%
Kinney Group, Inc.	2.00%
Know Who	1.01%
Knowledge Broker Tier 1	0.00%
Knowledge Broker Tier 2	20.00%
Knowledge Broker Tier 3	40.00%
Knowmadix	5.00%
Kofax	1.00%
Kofax Products- Tier 1	2.83%
Kofax Products- Tier 2	14.12%
Kofax Support	14.11%
Kore.ai, Inc.	2.00%
Kove Corporation	0.75%
Krista Software	0.50%
Kroll Ontrack Licenses	7.47%
Kroll Ontrack Maintenance	7.41%
Kroll Ontrack Services	0.00%
Kyndi, Inc.	2.00%
Kyndryl Federal, LLC	2.00%
Kyriba	0.50%
Lacuna Technologies, Inc.	2.00%
Lanuage Weaver/SDL	13.27%
LaunchPad Careers Inc.	0.01%
Leadership Connect	0.50%
Leankor Inc.	2.00%
Leaptree Limited	0.50%
Learn to Win	0.50%
Legendary Supply Chain, Inc.	2.00%
LeGuard, Inc.	0.50%
LEIDIT LLC	0.50%
Lexicon Technologies Inc.	6.03%
Lexis Nexis	2.00%
LG Electronics	28.57%
Liferay	1.00%
Lightsense	0.50%
Lilt, Inc.	2.00%
LinkedIn	2.00%
Linksys USA, Inc.	2.00%
Liquidware Labs License	8.43%
Liquidware Labs Support and Services	8.05%
Litify Inc.	2.00%
LiveAction	0.50%

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Educational Software and Value Added OEMs

Manufacturer	Discount off List
Livestream Learning Studio, LLC.	2.00%
LNB Solutions Inc.	3.00%
Localist	0.50%
Locality Media	0.50%
LogicMonitor, Inc.	2.00%
Looker	0.50%
Lookout Inc.	8.00%
Lovelytics, LLC	2.00%
Lucid Software, Inc.	2.00%
Lucidworks	3.20%
Luminare, Inc.	2.00%
LuminosoTechnologies Inc	0.01%
Lumu Technologies	2.00%
M2Mobi	1.00%
Magnet Forensics	0.50%
Manage Mobility	27.00%
Mandiant, Inc.	0.50%
Mango Technologies, Inc. DBA ClickUp	2.00%
MangoApps, Inc.	2.00%
Manhattan Software	2.75%
MapBox	1.50%
Mark43, Inc.	2.00%
MarkLogic	7.88%
Material Security	0.50%
Mattermost	0.50%
Mattermost, Inc.	2.00%
Maverick Quantum, Inc.	2.00%
McAfee	3.50%
Mediatech, Inc.	2.00%
Menlo Security, Inc.	2.00%
Mercurio Analytics, Inc.	2.00%
Metalogix Software US, Inc Maintenance- Tier 1	2.40%
Metalogix Software US, Inc Maintenance- Tier 2	3.47%
Metalogix Software US, Inc Products- Tier 1	2.73%
Metalogix Software US, Inc Products- Tier 2	3.47%
Metalogix Software US, Inc Products- Tier 3	64.35%
Metalogix Software US, Inc Professional Services	4.68%
Metalogix Software US, Inc Services	2.73%
Metazoa	0.50%
Metrc, LLC	0.50%
Micro Focus- Tier 1	0.00%
Micro Focus- Tier 2	1.92%
Micro Focus- Tier 3	12.45%
Micro Focus- Tier 4	26.30%
Micro Focus- Tier 5	80.01%
Microsoft	1.00%
Millsapps, Ballinger & Associates	2.00%
Mimecast North America, Inc.	0.50%
MiserWare License- Tier 1	22.92%
MiserWare License- Tier 2	48.27%
MiserWare License- Tier 3	58.46%
MiserWare Services	22.92%
MobiChord	0.50%
MobileMind Technologies	0.50%
MobilePD	1.02%
ModelOp	0.50%
Modria	1.26%
Modzy	0.50%
MongoDB Products and Services Tier 1	3.00%

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Educational Software and Value Added OEMs

Manufacturer	Discount off List
MongoDB Products and Services Tier 2	4.45%
Mosse Security	0.50%
MotionDSP	2.99%
Moveworks, Inc.	2.00%
mPower Innovations Maintenance	1.12%
mPower Innovations Products- Tier 1	0.00%
mPower Innovations Products- Tier 2	1.12%
mPower Innovations Professional Services	2.07%
MURAL	2.00%
mxHero	0.50%
MySQL	23.82%
Nally Ventures	0.50%
NaphCare, Inc.	0.50%
Natsoft Corporation	2.00%
NCS Technologies	8.16%
Nearmap	0.50%
NetDocuments Software, Inc.	2.00%
Netfoundry	0.50%
NetImpact Stategies, Inc.	0.50%
NetImpact Strategies, Inc.	2.00%
Netography, Inc.	0.50%
Netskope, Inc.	2.00%
New Relic	1.00%
NewSci	1.00%
Next Level Security Systems Products- Tier 1	1.01%
Next Level Security Systems Products- Tier 2	13.11%
Nile-Global, Inc.	2.00%
Nintex	0.50%
nlyte Software	2.75%
NNData Corporation	0.50%
NNT	0.50%
Nok Nok Labs, Inc.	2.00%
Noname Public Sector LLC.	2.00%
Northwoods	2.00%
Novodynamics	3.03%
Nozomi Networks, Inc.	2.00%
NU Borders, LLC	2.00%
Nuance	2.00%
Nucleus Cyber	0.50%
Nucleus Security LLC	0.50%
NuHarbor Security, Inc.	2.00%
Nullable, Inc. dba Aware	2.00%
Nutanix	4.16%
Nuvalence, LLC	2.00%
Nuvolo Technologies	0.50%
NWO.ai, Inc.	2.00%
Nyriad, Inc.	2.00%
Oak Innovation Limited	0.50%
Oblong	3.03%
OC Systems Products	1.77%
OC Systems Support and Services	11.85%
Ocient, Inc.	0.50%
Oculis Labs	3.69%
Odaseva	2.00%
Okta	2.00%
Omnilink	1.17%
ON2IT, Inc.	3.00%
Onapsis	1.00%
Onsolve	0.50%

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Manufacturer	Discount off List
Open Systems US, Inc.	2.00%
OpenCounter, Inc.	0.50%
OpenGov	2.00%
OpenSGI	2.33%
OpenText- Tier 1	2.33%
OpenText- Tier 2	14.97%
OpenText- Tier 3	58.84%
OPSWAT, Inc.	2.00%
Optensity	3.54%
Optezo, Inc.	0.50%
Orbital Insight, Inc.	2.00%
OSaaS LLC	2.00%
Otava	2.00%
OurBond, Inc.	2.00%
Outpost Security, LLC	2.00%
OutSystems	1.10%
Oversight Systems, Inc.	2.00%
OwnBackup	0.80%
PagerDuty, Inc.	0.50%
Palette	3.00%
Palo Alto	8.00%
Paperless Innovations, Inc	2.00%
Parascript, LLC	2.00%
Partners In Leadership, LLC d/b/a Culture Partners	2.00%
Passage Technology LLC	0.50%
PaymentWorks, Inc.	2.00%
Payscale, Inc.	2.00%
PC Matic, Inc	2.00%
PCI Pal (U.S.) Inc	10.00%
Pentaho Products- Tier 1	0.27%
Pentaho Products- Tier 2	1.92%
People Services Center, Inc. DBA CATCH Intelligence	2.00%
Peregrine Technologies, Inc.	2.00%
Permion Government	2.00%
PermitRocket	2.00%
Permuta Technologies, Inc.	2.00%
Pernix Data	2.00%
Persado	0.50%
PhoneLiveStreaming	0.50%
Photon Medical Communications, Inc.	2.00%
Ping Identity	2.00%
Pivotal Products	3.00%
Pivotal Services	0.00%
piXlogic	2.99%
Planet Technologies, Inc.	2.00%
PlatCore	0.50%
platfora	0.01%
Plauti B.V.	2.00%
Plotly (US), Inc.	2.00%
Plurilock	2.00%
Poly	0.50%
PowerDMS	1.00%
Precise	4.54%
Precise Biometrics Inc.	1.52%
Precisio Business Solutions, Corp. dba Ascent Solutions	2.00%
Premier Technology Advisors	8.00%
Procore Tecnologies	0.50%
Progress Software	1.22%
Project Hosts Inc.	2.00%
Promise Network, Inc.	2.00%
Proofpoint	5.00%
ProSymmetry	0.50%
Proven Optics LLC	0.50%
Provisions Group, LLC	2.00%

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Educational Software and Value Added OEMs

Manufacturer	Discount off List
Pulselight Holdings, Inc.	0.50%
Pyramid Analytics USA, Inc.	0.50%
Qadium	2.00%
QFlow Systems, Inc.	2.00%
Qii.AI	0.50%
QlikTech Inc.	0.75%
QlikView- Tier 1	0.00%
QlikView- Tier 2	1.02%
Qmulos, LLC.	2.00%
Qrypt, Inc.	2.00%
Quality Technology Services	0.75%
Qualtrics	1.00%
Qualys, Inc.	2.00%
Quantifind	0.50%
Quantum4D	2.63%
Questica	0.50%
Queue-it	0.50%
QuSecure, Inc.	2.00%
r4 Technologies, Inc.	0.50%
Radiant Logic	0.50%
RangeForce	0.50%
Rapid7	2.00%
ReadSpeaker	3.00%
Ready.net, Inc	2.00%
ReadyWorks Inc.	2.00%
RealEyes Connect LLC	3.44%
Recite Me, LLC	2.00%
Recommind	0.01%
Recorded Future	2.63%
Red Hat- Tier 1	0.00%
Red Hat- Tier 2	10.20%
Red Hat- Tier 3	20.44%
Red Hat Training	0.77%
Red Hats- Tier 4	28.03%
RegScale	0.50%
REI Systems	0.50%
Relativity ODA, LLC	2.00%
Remediant	0.50%
Remix Technologies	2.00%
RepRisk AG	2.00%
Rescale, Inc.	0.50%
Resiliant, Inc.	2.00%
ResourceX	2.00%
ReSTNSX, Inc.	2.00%
Revere Data	2.57%
ReversingLabs	0.01%
Rhondos	0.50%
Ripcord, Inc.	2.00%
Risklens	2.00%
Riskonnect Tier 1	0.00%
Riskonnect Tier 2	15.00%
RiskRecon	2.00%
Riverbed	2.00%
R-Mor, LLC.	2.00%
RSA	2.00%
Rubrik	5.00%
Rumble, Inc dba runZero	2.00%
RunAi Labs USA, Inc.	2.00%
R-Zero Systems, Inc.	2.00%
Saasyan	0.50%
SafeBreach, Inc.	2.00%
SafeGuard Cyber	0.50%
SafeNet	0.00%
SailPoint	0.50%
Salesforce	2.21%

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Educational Software and Value Added OEMs

Manufacturer	Discount off List
Salty Cloud, PBC	2.00%
Samsung	33.67%
Samsung Knox	2.00%
SANS Institute	2.00%
SAP	0.00%
SAP- Concur	1.00%
Saviynt, Inc	1.20%
Scale AI, Inc.	0.50%
SchoolBanks, Inc.	0.50%
SDL Government	6.26%
S-Docs, Inc.	2.00%
Seamlessdocs	4.00%
Secured Communications, Inc.	2.00%
Secureworks	1.30%
Security Scorecard, Inc.	2.00%
Security Services	5.00%
Semarchy, Inc	2.00%
Semperis, Inc.	2.00%
Sensics	1.53%
SentinelOne	1.50%
SEP TECH	0.50%
Sequoia	0.50%
Seros	4.54%
Sertifi	0.50%
ServiceNow	0.50%
SevOne Maintenance and Services	0.97%
SevOne Products	1.89%
Shavlik	0.51%
Sherpa	0.50%
Shiftsmart, Inc.	2.00%
SigBee, Inc.	2.00%
SimpliGov LLC	1.00%
Siren Data Intelligence, Inc.	0.25%
Skedulo	0.40%
Sketchbox	0.50%
Skuid	0.50%
Skycam Aviation, Inc.	2.00%
Skyline Software Systems, Inc.	2.00%
Skyline Technology Solutions, LLC	2.00%
Skyport Systems	2.00%
SKyX Systems Corp	1.00%
Slack	0.50%
Smartsheet	2.00%
SND Software, Inc.	2.00%
Snowflake	2.00%
SOA Software	2.63%
Social Solutions	0.50%
SocialTrendly, Inc. DBA BLACKBIRD.AI	2.00%
Socrata	3.00%
Socure, Inc.	2.00%
Softdocs	0.50%
Solarwinds	3.00%
Solix	11.85%
Sonim	2.00%
Sonitum, Inc.	2.00%
Sophos, Inc.	2.00%
SparkCognition Government Systems, Inc.	2.00%
Spatialitics, LLC	0.50%
Spectra Logic	1.00%
Spire Global, Inc.	0.50%
Splashtop	0.50%
Splashtop, Inc.	2.00%
Splunk	1.26%
SportGait, LLC	2.00%
Sprinklr	0.50%

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Educational Software and Value Added OEMs

Manufacturer	Discount off List
Sprout Social, Inc.	3.00%
Stave	0.50%
Stealthbits	2.63%
SteriLumen, Inc.	0.50%
Stony Point, Inc.	2.00%
StreamLink Software Inc. DBA AmpliFund	2.00%
Striveworks, Inc.	2.00%
Submittable Holdings, Inc.	2.00%
SuccessKPI, Inc.	2.00%
Suggestion Ox, Inc	2.00%
Superior Wireless Consulting, Inc., dba Intratem	2.00%
Swiftly, Inc.	0.50%
Sword GRC, Inc.	2.00%
Sylabs, Inc	2.00%
Symmetry Systems	0.50%
Synasta Corporation	2.00%
Synergist Technologies, LLC	2.00%
Syntasa	1.00%
System Automation Corporation	0.50%
Tableau	0.70%
Talend USA	0.50%
Talkdesk	0.50%
Tanium	4.00%
Tasktop	0.01%
Team Cymru, Inc,	2.00%
Tecnics Consulting Inc.	0.50%
TelaForce, LLC	0.50%
Telos Corporation	0.50%
Tenable	2.00%
Tenfold	2.00%
Tensor Networks	0.50%
Teradata Government Systems, LLC	2.00%
Teradici	18.37%
TERIDA LLC	2.00%
TerraGo	2.99%
Tetra 4D	2.83%
Tetrad Digital Intergrity, LLC	2.00%
Text to Them	4.00%
Thales e-Security	2.00%
The Tomorrow Companies, Inc.	2.00%
The Wire Digital, Inc. dba WireScreen	2.00%
Thentia	0.50%
Thetus	2.99%
ThinLaunch Software LLC	2.62%
Thought Stream LLC, d/b/a Bluescape	2.00%
ThreatLocker	0.50%
Throughline	2.00%
Thycotic	0.50%
TIBCO Software Federal Inc.	25.00%
TimeTrade	0.50%
Tintri	0.27%
TonicAI, Inc.	2.00%
Torch Research, LLC dba Torch.AI	2.00%
TouchShare	0.00%
Traction on Demand	0.50%
TranslateLive, LLC	2.00%
TransUnion	8.16%
Tricentis	2.00%
Trimble Inc.	2.00%
Trinity Cyber LLC	0.50%
Tripwire Maintenance and Services	2.00%
Tripwire Tier 1	0.00%
Tripwire Tier 2	3.06%
Tripwire Tier 3	12.00%
Trusona, Inc.	2.00%

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Educational Software and Value Added OEMs

Manufacturer	Discount off List
Trustwave	9.00%
TTEC Government Solutions, LLC.	2.00%
TTech Inc. dba AIRIA	2.00%
Tufin	2.00%
Twilio	1.60%
Two Six Labs, LLC dba Two Six Technologies	2.00%
TyGR LLC	0.50%
Typesafe	23.18%
UberEther, Inc.	2.00%
UC innovation Inc	0.50%
Udacity, Inc.	0.50%
UiPath	2.00%
Unit4 Business Software Inc.	0.50%
Userway Inc.	0.50%
UXStorm	4.00%
Valimail Inc.	0.50%
Vantiq Inc.	2.00%
Vast Data Federal, Inc.	0.50%
VectorZero Technologies, LLC	2.00%
Veeam Software Corporation	2.50%
Vehicle Tracking Solutions	2.00%
Velosimo, Inc.	2.00%
Venafi Tier 1	7.00%
Venafi Tier 2	10.00%
Venafi Tier 3	12.00%
Veracode	2.63%
Verbit, Inc.	2.00%
Verdiem	0.95%
Verge Technologies, Inc.	2.00%
Verisys- Tier 1	0.00%
Verisys- Tier 2	0.00%
Veritas Products and Services- Tier 1	0.00%
Veritas Products and Services- Tier 2	0.51%
Veritas Products and Services- Tier 3	1.09%
Veritas Products and Services- Tier 4	10.00%
Veritas Products and Services- Tier 5	20.19%
Veritas Products and Services- Tier 6	40.29%
Veritas Products and Services- Tier 7	50.00%
Veritas Products and Services- Tier 8	70.75%
Veritas Products and Services- Tier 9	83.59%
Veritone	1.00%
Veritone, Inc.	2.00%
Verkada	3.00%
Verkada, Inc.	2.00%
Vertiba	2.00%
Vexcel Corporation	2.00%
Vibronyx, Inc.	2.00%
Viewfinity	14.08%
Village Chif Pty Ltd	0.50%
Vimeo	0.50%
Vintra	0.50%
VIQ Solutions	2.00%
Virtru	1.02%
Virtual Forge Inc.	2.00%
Virtual Instruments Tier 1	1.00%
Virtual Instruments Tier 2	4.00%
Virtuestream	1.02%
Vision Genesis	1.02%
Vision-e	0.50%
Visium Analytics, LLC	0.50%
Vivi LLC	0.50%
VMware Inc.- Tier 1	0.00%
VMware Inc.- Tier 2	1.02%
VMware Inc.- Tier 3	5.10%
VMware Inc.- Tier 4	12.01%

Carahsoft Contract # R191902
Educational Software and Value Added OEMs

Manufacturer	Discount off List
WalkMe	0.50%
Wasabi Technologies, Inc.	2.00%
Waterfall Security Solutions, LTD	2.00%
WhiteCanyon Software	2.03%
Wickr	2.00%
WinMagic Corp.	2.00%
WireSpring Technologies, Inc.	3.00%
Wiz, Inc.	2.00%
Wolters Kluwer	0.50%
Wonderschool, Inc	2.00%
Workiva, Inc.	2.00%
Workshare Technology Tier 1	2.00%
Workshare Technology Tier 2	8.00%
WPI Services	0.01%
WSD Digital, LLC d/b/a ReFrame Solutions	2.00%
x Matters	7.06%
Xaqt	0.50%
Xceedium Inc.	0.01%
xXsigo Systems	4.39%
Yansa Labs	0.50%
Yext, Inc.	0.50%
Yubico, Inc.	2.00%
Zammo, Inc.	0.50%
Zebra Technologies International, LLC	2.00%
ZenCity	0.50%
ZenLedger, Inc.	2.00%
Zentera Systems, Inc.	2.00%
Zimbra	3.00%
Zimperium, Inc.	0.50%
Zoobean, Inc.	2.00%
Zoom	1.00%
Zscaler	2.00%

7. C.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Jarrett Nelson, Public Works Project Manager

Co-Submitter: Sam Beckett

Date: 08/31/2023

Meeting Date: 09/05/2023

TITLE:

Consideration and Approval of Contract: A Cooperative Purchase Contract with Pueblo Mechanical and Controls, LLC to remove and replace the boilers at the Flagstaff City Hall Building in the amount of $305,745.58 utilizing the Mohave Educational Services Cooperative Contract #19F-PMAC2-0904.

STAFF RECOMMENDED ACTION:

1. Approve the Cooperative Purchase Contract with Pueblo Mechanical and Controls, LLC to remove and replace the boilers at the Flagstaff City Hall Building in the amount of $305,745.58 utilizing the Mohave Educational Services Cooperative Contract #19F-PMAC2-0904; and
2. Authorize the City Manager to execute the necessary documents.

Executive Summary:

The City Hall building houses numerous city offices, provides service counters to the public and houses the City Council Chambers. This entire building is currently heated by two, nearly 40-year-old boilers, that are well beyond their serviceable lifespan. The company who manufactured the equipment has been out of business for over 20 years and replacement parts are no longer readily available. If the units fail during the winter the building does not have any other heat source to provide back up and would eventually freeze, which would cause significant damage to the building and disrupt the ability to provide essential services to the community. This Council action, if approved, will allow the facilities team to deliver the replacement project with Pueblo Mechanical and Controls, LLC (Pueblo Mechanical) to ensure the City Hall heat continues functioning thus allowing the building to continue serving the community as it was intended to.

Financial Impact:

The cost of this project is **$305,745.58** and will be funded from account number 001-06-152-0512-3-4224. The new high efficiency boilers will reduce energy consumption by 15% which will reduce energy usage costs and greatly reduce the risk of losing heat to the entire building during the winter, causing expensive damage to the building.

Policy Impact:

The award of this Cooperative Purchase Contract will renew existing City infrastructure and allow it to continue serving the community as it was intended to do.

Connection to PBB Priorities/Objectives, Carbon Neutrality Plan & Regional Plan:

Priority Based Budget Key Community Priorities and Objectives

High Preforming Governance:

1. Deliver quality community assets – This project will invest in the maintenance and renewal of a community asset to keep it functioning as intended and provide a quality experience to users of the facility.
2. Enhance the organizations fiscal stability & increase efficiency & effectiveness - This project will increase the efficiency and reduce operating costs of the building.

Carbon Neutrality Plan

Carbon Neutrality Strategies List: FS-1 Reduce or remove natural gas usage in municipal buildings - The new high efficiency boilers are over 95% efficient and will significantly reduce the natural gas consumption of the building. Electrification was explored as an option for replacement however it was determined that expensive electrical upgrades to the building were required, a comparable electric boiler was significantly more expensive than gas, the solar panels at the facility are not enough to offset the buildings existing electrical usage before increasing the load with an electric boiler and the grid power required to run the comparable electric boilers would cost the city approximately 3 times as much as natural gas.

Regional Plan

Chapter VII Energy:
Goal E.I. Increase Energy Efficiency - The high efficiency boilers installed in this project will increase the energy efficiency of the building.

Has There Been Previous Council Decision on This:

No.

Background/History:

The Cooperative Purchase Contract through Contract #19F-PMAC2-0904, Mohave Educational Services Cooperative was vetted by the Purchasing Section to insure the best pricing for this product. Purchasing confirmed that Mohave has performed a proper and competitive formal solicitation with a Request for Qualifications that meets public procurement requirements. Purchasing staff reviewed the agency contract and has determine it relevant to the City's needs for this procurement and that it is currently active.

Due to the large size, Contract #19-PMAC2-0904 has been attached to the staff summary in two parts. You can also access the agency document and award information online through https://mesc.org/about-vendor%e2%80%8b/?contract_id=19F-PMAC2-0904.

Attachments:

COF Cooperative contract 2024-29
Exhibit A.1 Quote
Exhibit A.2 - Mech Spec
Exhibit B - Contract Amendment
Part 1 - Agency Contract Package
Part 2 - Agency Contract Package

COOPERATIVE PURCHASE CONTRACT
Contract No. 2024-29

This Cooperative Purchase Contract is made and entered into this _____ day of _____, 20_____by and between the City of Flagstaff, Arizona, a political subdivision of the State of Arizona ("City") and Pueblo Mechanical and Controls, LLC, an Arizona Limited Liability Company ("Contractor").

RECITALS:

A. Contractor is a fully authorized vendor of chiller and boiler maintenance and repair services;

B. The Mohave Educational Services Cooperative, Procurement Department, Public Sector conducted a competitive and open procurement process through Request for Qualifications Solicitation No. 19F-0808 that resulted in Contract No. 19F-PMAC2-0904 with Contractor ("Agency Contract"); and

C. The City has authority to enter into a cooperative purchase contract with Contractor utilizing the Agency Contract.

AGREEMENT:

NOW THEREFORE, in consideration for the mutual promises contained herein, the Parties agree:

1. Materials and or Services Purchased: Contractor shall provide to the City the materials and or services, as specified in the Scope of Work attached as ***Exhibit A***, and in accordance with the Agency Contract. A general description of materials and/or services being purchased is:

CITY OF FLAGSTAFF CITY HALL BOILER & PUMP UPGRADES

2. Specific Requirements of City: Contractor shall comply with all specific purchase and delivery requirements and/or options of City, as specified in the Scope of Work attached as ***Exhibit A*** and incorporated by reference.

3. Payment: Payment to Contractor for the materials and or services provided for **three hundred five thousand seven hundred forty-five dollars and fifty-eight cents ($305,745.58), in addition to other fees and taxes**; made in accordance with the price list and terms set forth in the Agency Contract.

4. Terms and Conditions of Agency Contract Apply: All provisions of the Agency Contract documents attached as ***Exhibit B***, including any amendments, are incorporated in and shall apply to this Contract as though fully set forth herein. Contractor is responsible for promptly notifying City in writing of any changes to the Agency Contract, including, specifically changes in price for materials and/or services.

5. Certificates of Insurance: All insurance provisions of the Agency Contract shall apply, including any requirement to name the City as an additional insured. Prior to commencing performance under this Contract, Contractor shall furnish City with a copy of the current Certificate of Insurance required by the Agency Contract.

6. Term: This Cooperative Purchase Contract shall commence upon execution by the Parties and shall continue until expiration or termination of the underlying Agency Contract, unless sooner terminated by City in writing.

7. Renewal: This Cooperative Purchase Contract shall be automatically renewed if the underlying Agency Contract is renewed, for the same renewal period, unless City provides advance written notice to Contractor of its intention to non-renew.

PUEBLO MECHANICAL & CONTROLS, LLC:

By:_____

Title:_____

CITY OF FLAGSTAFF

By:_____

Title:_____

ATTEST:

_____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney's Office

Last Updated July 20,2023

EXHIBIT A
SCOPE OF WORK
(attached)

1. Flagstaff City Hall Boiler and Pump Upgrades PROPOSAL # 20-003938
2. Mechanical Specifications City of Flagstaff Boiler

EXHIBIT B
AGENCY CONTRACT
(attached)

1. Agency Contract Package 19F-PMAC2-0904
2. Contract Amendment Summary
3. Contract Pricing

PROJECT PROPOSAL

SUBMITTED BY PUEBLO MECHANICAL & CONTROLS

Project Name: Flagstaff City Hall Boiler and Pump Upgrades

Customer: City of Flagstaff | 211 W Aspen Avenue

Proposal #: 20-003938

Contract#: Mohave JOC # 19F-PMAC2-0904

Date: 08/29/2023

Dear Manny,

Pueblo Mechanical and Controls appreciates the opportunity to look at this project and is pleased to provide the following scope for Flagstaff City Hall Boiler and Pump Upgrades.

Base Scope of Work:

- Lock out and tag out existing (2) boilers, (2) pumps, and gas line to make safe for demolition.
- Isolate and drain hot water loop as required.
- Disconnect electrical, gas, hot water piping, and flue from existing boiler.
- Demo and environmentally dispose of existing boiler.
- Existing housekeeping pad to be reused.
- Provide and install (2) new Lochinvar Condensing Boiler:
    - BTU In 725/ BTU Out 705
    - 95% Efficient
    - 7 – 1 turndown ratio
    - 10 year heat exchanger warranty
    - Factory start up
- Provide and install (5) new pumps:
    - Model # TBD (Qty 3)
        - 60 feet of head
        - 5 HP motor
        - 460 volt 3 phase
    - Model # TBD (Qty 2)
        - 20 feet of head
        - .75 HP motor
        - 120 volt 1 phase
- Provide and install new Expansion tank per plans.
- Provide and install new Air dirt separator per plans.
- Provide and install new VFD's per plans.
- Reconnect existing electrical to new boilers and pumps. Run new circuits as required.
- Reconnect existing flue to new boiler.
- Provide and install new inlet air to new boilers.

AZ ROC LICENSES
B-01 #173953 | C-11 #324363 | CR-37 #323201 | CR-39 #176640 | CR-74 #260462

PROJECT PROPOSAL

SUBMITTED BY PUEBLO MECHANICAL & CONTROLS

- Provide and install new supply and return HHW Piping including new shut-off valves for new pumps, and boilers.
- Provide and install new pressure gauges and thermometers on new boilers.
- Provide and install new boiler drain to existing floor sink.
- Make-up water piping will remain in-place and will be re-used for this project.
- Provide and install new 2" fiberglass insulation for all new piping and jacket with ASJ.
- Reconnect existing gas line with new dirt leg and isolation valve to each boiler.
- Controls are to be provided by others.
- Crane and rigging as required.
- Start up and test for proper operation.
- Provide 2 year parts and labor warranty.

Clarifications:

- There is a 3.2% fee associated with our accepting credit cards for payment
- This project proposal is valid for 30 days
- All work described above is to be completed during normal business hours

We Exclude the Following:

- Repair or replacement of any existing device found to be inoperable.
- Engineering/Design fees.
- Permits, utility tap fees, site utilities, meters, and fire protection.
- 3rd Party engineering/design review costs and fees.
- Fire/ life safety systems.
- Architectural louvers.
- Seismic restraints.
- BIM or other CAD related modeling or drawings of any kind.
- Formal Commissioning or commissioning assist.
- Asbestos abatement, testing, reporting.
- Poured or formed concrete work, including housekeeping pads.
- Cutting and framing of openings in walls, floors, or roof.
- Certified Testing, Adjusting, & Balancing.
- Painting
- Controls.
- Glycol and or chemical treatment.
- Spring vibration isolation
- Temporary HVAC equipment.
- Pueblo Mechanical and Controls shall not be held liable for existing code deficiencies requiring correction by an inspecting agency.
- Any work not included in scope of work listed above.

AZ ROC LICENSES
B-01 #173953 | C-11 #324363 | CR-37 #323201 | CR-39 #176640 | CR-74 #260462

PROJECT PROPOSAL

SUBMITTED BY PUEBLO MECHANICAL & CONTROLS

Material, Service, & Labor Subtotal:		**$**	**301,227.17**
Bonding:	**1.50%**	**$**	**4,518.41**
Base Bid Total Cost:		**$**	**305,745.58**

We look forward to providing this important service. Please call if you have any questions.

Best Regards,

ROSS RISANO | **HVAC SOLUTIONS**
PUEBLO MECHANICAL & CONTROLS

O: 800.840.9170
F: 888.473.4374
C: 520.404.1702
W: pueblo-mechanical.com
E: ross@pueblo-mechanical.com

Acceptance of Proposal: The above prices, specifications and conditions are satisfactory and are hereby accepted. Terms & Conditions of this proposal are stated in the Master Agreement of the Cooperative Contract stated in this proposal. You are authorized to do the work as specified.

Name _____ Signature _____ Date _____

Due to the high cost of equipment and/or extended nature of this project progress billing may be required; if a purchase order is created for this project the owner agrees to accept progress billing for demonstrated and verifiable completed work and/or arrival of equipment items pending installation.

SPECIFICATIONS

15010 GENERAL PROVISIONS:

1. SCOPE: THIS SECTION ESTABLISHES AND DESCRIBES REQUIRED STANDARDS OF QUALITY AND PERFORMANCE FOR PRODUCTS, SYSTEMS AND METHODS ENCOMPASSED BY DIVISION 15000. THIS SECTION ALSO SUMMARIZES THE VARIOUS SYSTEMS TO BE INSTALLED UNDER DIVISION 15000.

15010.1 SPECIAL CONDITIONS:

1. THE SPECIFICATIONS AND ACCOMPANYING DRAWINGS ARE INTENDED TO COVER SYSTEMS WHICH WILL FIT THE AVAILABLE SPACE, WHICH WILL NOT INTERFERE WITH THE GENERAL STRUCTURAL DESIGN. CAREFULLY EXAMINE THE DRAWINGS FOR ALL BRANCHES OF WORK AND BE RESPONSIBLE FOR THE PROPER FITTING OF MATERIAL AND APPARATUS INTO THE BUILDING.NOTIFY ENGINEER/ARCHITECT OF ANY DISCREPANCIES, OMISSIONS OR QUESTIONS IMMEDIATELY.

2. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND NOTIFY ARCHITECT/ ENGINEER OF ANY DISCREPANCIES PRIOR TO BIDDING. ANY EXTRA EXPENSES AS A RESULT OF FAILURE TO ADEQUATELY REVIEW THE EXISTING CONDITIONS WILL BE BORNE BY THE CONTRACTOR.

3. ALL EQUIPMENT SHALL BE UL OR ETL LISTED.

15010.2 REGULATIONS, CODES AND PERMITS:

GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ALL TAX FEES AND OTHER COSTS IN CONNECTION WITH WORK; FILE ALL NECESSARY PLANS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL REGULATING AUTHORITIES HAVING JURISDICTION; OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR WORK AND DELIVER SAME TO ARCHITECT BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR WORK.

15010.3 COORDINATION OF WORK:

DRAWINGS ARE DIAGRAMMATIC FOR PIPING, CONDUITS AND DUCTWORK THAT IS NOT INDICATED IN DETAIL. SIZES OF PIPING, CONDUITS, AND DUCTWORK AND THEIR LOCATIONS ARE INDICATED AS INSIDE CLEAR DIMENSIONS, BUT IS NOT INTENDED TO SHOW EVERY OFFSET OF FITTING OR EVERY STRUCTURAL DIFFICULTY THAT MAY BE ENCOUNTERED DURING INSTALLATION OF THE WORK. THE ALIGNMENT OF PIPING, CONDUIT, OR DUCTWORK SHALL BE VARIED FROM THAT INDICATED ON THE DRAWINGS WITHOUT EXTRA EXPENSE TO THE OWNER WHERE NECESSARY TO AVOID STRUCTURAL OR MECHANICAL DIFFICULTIES, OR TO AVOID THE WORK OF ANY OTHER TRADES.

15010.4 WORKMANSHIP:

PERFORM LABOR IN A THOROUGH AND COMPLETE WORKMANLIKE MANNER AND WITH ALL REASONABLE RAPIDITY TO THE SATISFACTION OF THE ARCHITECT.

15010.6 ALTERNATES:

1. ALTERNATE FIXTURES AND EQUIPMENT WILL BE ACCEPTED WITH PRIOR WRITTEN APPROVAL FROM THE ENGINEER.

2. ALTERNATE MATERIALS WILL ONLY BE ACCEPTABLE WITH PRIOR WRITTEN APPROVAL OF THE ENGINEER.

3. ADDITIONAL ENGINEERING REQUIREMENTS DUE TO ALTERNATE MATERIALS, FIXTURES OR EQUIPMENT WILL BE PERFORMED AT ENGINEERS STANDARD HOURLY RATES WITH A MINIMUM $250.00 PAYABLE BY CONTRACTOR PRIOR TO PERFORMANCE OF WORK.

15010.7 CUTTING AND PATCHING:

1. CUT COMPLETED CONSTRUCTION WORK ONLY IF SLEEVES, OPENING, CHASES, ETC., WERE INADVERTENTLY OMITTED AND ONLY WITH THE SPECIFIED APPROVAL OF THE ARCHITECT. IN NO CASE SHALL REINFORCING STEEL BE CUT WITHOUT THE SPECIFIC PERMISSION OF THE ARCHITECT.

15010.8 INSTALLATION INSTRUCTIONS:

1. ALL EQUIPMENT SHALL BE UL LISTED & INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. SHOULD ANY VARIANCE BETWEEN PLANS AND SPECIFICATIONS OCCUR WITH THESE INSTRUCTIONS, THE ARCHITECT OR ENGINEER SHOULD BE CONTACTED IMMEDIATELY SO THAT ANY VARIATIONS IN INSTALLATION CAN BE KNOWN BY ALL PARTIES CONCERNED.

2. UNLESS OTHERWISE NOTED ON THE EQUIPMENT SCHEDULE, ALL MECHANICAL EQUIPMENT SHALL BE MOUNTED ON VIBRATION ISOLATORS TO PREVENT THE TRANSMISSION OF VIBRATION AND MECHANICALLY TRANSMITTED SOUND TO THE BUILDING STRUCTURE. VIBRATION ISOLATORS SHALL BE SELECTED IN ACCORDANCE WITH THE WEIGHT DISTRIBUTION SO AS TO PRODUCE REASONABLY UNIFORM DEFLECTION.

3. INSTRUCT OWNER IN THE PROPER OPERATION AND MAINTENANCE OF EQUIPMENT. PROVIDE OWNER WITH BOUND OPERATING AND MAINTENANCE MANUALS, INCLUDE PARTS LIST, MAINTENANCE SCHEDULE, AND NAME, ADDRESS, AND PHONE NUMBER OF LOCAL PRODUCT REPRESENTATIVE.

4. PROVIDE START-UP BY MANUFACTURER.

15010.9 GUARANTEE:

EACH COMPLETED SYSTEM SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF THE WORK BY THE OWNER. THE CONTRACTOR SHALL GUARANTEE EACH SYSTEM IN WRITING TO BE FREE OF DEFECTS OF MATERIAL AND WORKMANSHIP AND TO PERFORM SATISFACTORILY UNDER ALL CONDITIONS OF LOAD OR SERVICE. THE GUARANTEES SHALL PROVIDE THAT ANY ADDITIONAL CONTROLS, PROTECTIVE DEVICES, OR EQUIPMENT WILL BE PROVIDED AS NECESSARY TO MAKE THE SYSTEMS OR EQUIPMENT OPERATE SATISFACTORILY, THAT ANY FAULTY MATERIALS OR WORKMANSHIP WILL BE REPLACED OR REPAIRED, AND THAT ON FAILURE OF THE GUARANTOR TO DO THE ABOVE AFTER WRITTEN NOTICE FROM THE OWNER, THE OWNER MAY HAVE THE WORK DONE AT THE COST OF THE GUARANTOR.

15020 BASIC MATERIALS AND METHODS:

SCOPE: THIS SECTION SETS FORTH PRODUCTS AND METHODS OF INSTALLATION FOR PLUMBING, HEATING, VENTILATION AND AIR CONDITIONING.

15020.1 SLEEVES:

WHERE PIPING, DUCTWORK, STACKS, ETC., PASSES THROUGH SUCH BUILDING ELEMENTS AS WALLS, FLOORS, ROOFS, FOOTINGS, ETC., PROVIDE SLEEVES UNLESS INDICATED OTHERWISE.

15020.2 HANGERS AND SUPPORTS:

SUPPORT HANGERS OF HORIZONTAL PIPE WITH VERTICALLY ADJUSTABLE HANGERS ON MALLEABLE SKIVEL RING OR WROUGHT STEEL CLEVIS TYPE HANGER SUSPENDED ON THREADED STEEL ROD HANGERS, EQUAL TO FEE AND MASON FIG. 199 AND FIG. 239 RESPECTIVELY WITH CLEVIS TYPE UTILIZED FOR LARGER PIPING.

15020.3 VALVES:

ALL VALVES SHALL BE CRANE, JENKINS, STOCKHAM OR MUELLER, DESIGNED FOR 125 PSI MINIMUM WORKING PRESSURE. ALL WATER VALVES SHALL BE FULL PORT BALL 1/4 TURN VALVES UNLESS OTHERWISE SPECIFIED OR REQUIRED FOR SPECIAL INSTALLATION OF FLOW CONTROL.

15030 INSULATION:

SCOPE: FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY TO INSTALL INSULATION MATERIAL TO DUCTWORK, PIPES AS INDICATED ON DRAWINGS AND AS SPECIFIED HEREIN. THIS SECTION SETS FORTH PRODUCTS AND METHODS OF INSTALLATION FOR PLUMBING, AIR CONDITIONING, HEATING, AND VENTILATION SYSTEMS. FLAME-SPREAD INDEX OF LESS THAN 25 AND SMOKE DEVELOPED RATING OF LESS THAN 50.

15030.2 PIPE INSULATION:

1. INSULATE CONDENSATE DRAIN PIPING WITH AS.I/SSL II 1" THICK FIBERGLASS PIPE INSULATION. (R-3) MANVILLE PIPE INSULATION OR OWENS-CORNING PIPE INSULATION. ALL INSULATION SHALL BE INSTALLED AS DESCRIBED HEREIN AND SHALL BE APPLIED IN STRICT ACCORDANCE WITH THE TRADE PRACTICES AND MANUFACTURERS RECOMMENDATIONS.

2. INSULATE ALL HYDRONIC HEATING WATER PIPING WITH AS./SSL II 2" THICK FIBERGLASS PIPE INSULATION. MANVILLE PIPE INSULATION OR OWENS-CORNING PIPE INSULATION. ALL INSULATION SHALL BE INSTALLED AS DESCRIBED HEREIN AND SHALL BE APPLIED IN STRICT ACCORDANCE WITH THE TRADE PRACTICES AND MANUFACTURERS RECOMMENDATIONS.

15040 WATER SYSTEMS:

SCOPE: DETERMINE IN ADVANCE OF CONSTRUCTION, THE LOCATION OF ALL PIPING SLEEVES, HANGERS, FLOW LINE ELEVATION, ETC. INSTALL PIPING SUBSTANTIALLY AS INDICATED, PARALLEL WITH THE BUILDING WALLS, UNLESS INDICATED OTHERWISE. PROVIDE PRV WHERE INCOMING PRESSURE EXCEEDS 80 PSI.

15040.1 HYDRONIC PIPING:

1. HYDRONIC HEATING PIPING SHALL BE SCHEDULE 40 BLACK STEEL.

2. PROVIDE DIELECTRIC INSULATOR ON ALL DISSIMILAR METALS.

3. FITTINGS TO BE ROUGH STEEL BUTT-WELDED FITTINGS OR VICTAULIC COUPLINGS.

15055 OTHER PIPING SYSTEMS

1. CONDENSATE DRAIN (CD) & DRAIN (D) PIPING SHALL BE COPPER TYPE 'M' HARD DRAWN PIPE TRAPPED & VENTED EQUIPMENT, SLOPE 1/8"/FT, PROVIDE CLEANOUT CAP AT ENDS OF PIPE.

2. A. FUEL GAS PIPING ABOVE GROUND 2" AND SMALLER BLACK STEEL SCHEDULE 40 W/ CLASS 150 MALLEABLE IRON THREADED FITTINGS. PROVIDE SUPPORT EVERY 6'.

B. FUEL GAS PIPING ABOVE GROUND 2 1/2" AND LARGER, BLACK STEEL SCHEDULE 40 W/ WROUGHT STEEL BUTTWELDED FITTINGS. PROVIDE SUPPORT EVERY 10'.

3. GAS FIRED CONDENSATE (CD) PIPING SHALL BE PVC PIPE WITH TRAP, SLOPE 1/8"/FT, PROVIDE CLEANOUT CAP AT ENDS OF PIPE. CONDENSATE PIPING SHALL BE ROUTED THRU A NEUTRALIZATION SYSTEM BEFORE BEING DISCHARGED.

15060 PLUMBING SPECIALTIES:

SCOPE: PROVIDE NEW FIXTURES, DRAINS, AND OTHER PLUMBING EQUIPMENT AS SPECIFIED HEREIN AND ON PLANS AND INSTALL TO OPERATE AS INTENDED.

15070.3 HVAC IDENTIFICATION:

PROVIDE A SECURELY FASTENED NAME PLATE OF 1/16" THICK BLACK BAKELITE WITH ENGRAVED WHITE CORE LETTERS AND 4 EDGE BEVEL, 2 1/2"X 3/4" PERMANENTLY IDENTIFYING EACH UNIT AND AREA SERVED.

15080 CONTROL:

WORK SPECIFIED HEREIN: FURNISH ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICES TO INSTALL A COMPLETE ELECTRICAL CONTROL SYSTEM AS SPECIFIED HEREIN, AND AS SHOWN ON PLANS.

Bowie Tiglas Engineering Inc. expressly reserves its common law copyright & other property rights in these plans. All designs, drawings, details, specifications and computer files are the property of Bowie Tiglas Engineering Engineering Inc. as instruments of service and may not be used for any other purpose without written consent of Bowie Tiglas Engineering Engineering Inc. No liability is assumed for deletions from these documents.

\\JUSTIN-2264\Users\Public\Documents\TIGLAS - JOB FILES\2020\20060 CGF City Hall Boiler\20060P.dwg - Jun 04, 2020 - 2:56pm by WORKSTATION A

MECHANICAL GENERAL NOTES:

SEE ELECTRICAL DRAWINGS FOR WIRING. MECHANICAL CONTRACTOR SHALL VERIFY AND FIELD COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL POWER REQUIREMENTS INCLUDING VOLTAGE ADN PHASE PRIOR TO ORDERING ANY EQUIPMENT.

MECHANICAL CONTRACTOR TO DEMO EXISTING BOILER, PUMPS, EXPANSION TANK AND AIR-DIRT-SEPARATOR. FIELD VERIFY EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

EXISTING BOILER CAPACITY = 813 MBH/650 MBH (INPUT/OUTPUT) EACH; NEW BOILER CAPACITY = 725 MBH/630 MBH (INPUT/OUTPUT) EACH
NET GAS DEMAND REDUCES FROM 1626 MBH TO 1450 MBH, THEREFORE NO CHANGE REQUIRED TO EXISTING NATURAL GAS METER/SERVICE/SUPPLY PIPING.

PROVIDE CONDENSATE NEUTRALIZATION KIT AT CONDENSING BOILER(S).

EXTEND EXISTING 2" NATURAL GAS SUPPLY, FULL SIZE, FROM DEMO'D BOILER TO NEW GAS CONNECTION(S) AT NEW BOILERS. REDUCE TO 1" CONNECTION AT FINAL BOILER CONNECTION.

MECHANICAL CONTRACTOR TO PROVIDE NEW PIPE INSULATION ON ALL EXISTING AND NEW HYDRONIC HEATING PIPING WITHIN BOILER ROOM.

MECHANICAL EQUIPMENT LIST:

ADS-1 TACO MODEL AC4F AIR-DIRT-SEPARATOR (4" INLET/OUTLET), ANSI CLASS 125.

ET-1 TACO MODEL CA450-125 EXPANSION TANK (119 GALLON ACCEPTANCE VOLUME) ANSI CLASS 125.

P-# PUMP SCHEDULE:

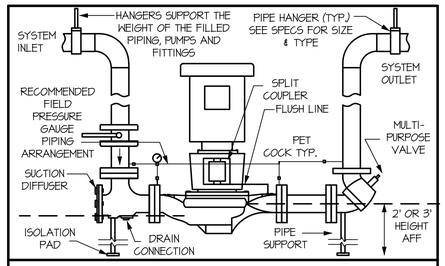
TAG	MANUF.	MODEL	RPM	IMPELLER DIAMETER	FLOW (GPM)	HEAD (FEET)	MOTOR (HP)	ELECTRICAL	FLANGE SIZE	NOTES:
P-1	TACO	KV-2009D-4P-PM	1760	8.5"	176	60	5.0	460V-3PH	2"x2"	1,2,3
P-1	TACO	KV-2009D-4P-PM	1760	8.5"	131	69	5.0	460V-3PH	2"x2"	1,2,3
BP-1,2	TACO	1935	1760	5.0"	71	20	0.75	120V-1PH	2"x2"	1

NOTES: 1. INSTALL PER MANUFACTURER'S REQUIREMENTS.
2. VERTICAL IN-LINE CLOSE-COUPLED CENTRIFUGAL PUMP, CASTE IRON CONSTRUCTION, ANSI CLASS 125, SHAFT GROUNDING RINGS.
3. MOTOR TO BE PREMIUM EFFICIENCY, INVERTER RATED, PROVIDE YASKAWA VARIABLE FREQUENCY DRIVE (NEMA 1)
4. ALTERNATIVE EQUIPMENT WITH COMPARABLE SPECIFICATIONS ACCEPTABLE

B-# BOILER SCHEDULE:

TAG	MANUFACTURER	MODEL #	NATURAL GAS (MBH)				CONNECTIONS				WEIGHT (LBS)	NOTES:
			INPUT	OUTPUT	EFF.	TURN DN.	GAS	WATER	INTAKE	VENT		
B-1,2	LOCHINVAR	FTX725N-8647	725	705	97.2%	7 to 1	1"	2.5"	4"	6"	510	1,2,3,4

NOTES: 1. INSTALL UNIT PER MANUFACTURER'S RECOMMENDATIONS
2. ELECTRICAL: 120V-1PH-60HZ.
3. PROVODE: INDOOR RATED MODEL WITH CASCADE SEQUENCER (STANDARD OPTION) FOR INTER-BOILER COMMUNICATION, CONDENSATE NEUTRALIZATION KIT, 10 YEAR HEAT EXCHANGER/1 YEAR PARTS WARRANTY.
4. 316L STAINLESS STEEL FIRE TUBE HEAT EXCHANGER.
5. ALTERNATIVE EQUIPMENT WITH COMPARABLE SPECIFICATIONS ACCEPTABLE



VERTICAL IN-LINE PUMP DETAIL NTS

REVISIONS	DATE

Bowie Tiglas Engineering Inc.
Consulting Engineers
Phone: 602.992.3900
Fax: 602.992.1541
24820 N 19TH AVE, STE 170
Phoenix, AZ. 85085
JustinJ@BowieTiglas.com
BTE # 20060

PRELIMINARY NOT FOR CONSTRUCTION

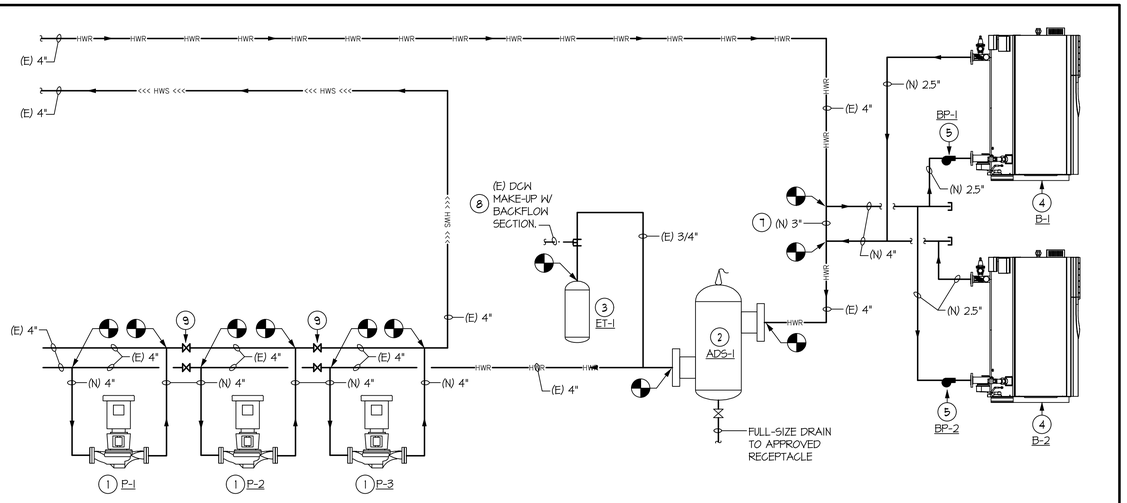
CITY OF FLAGSTAFF
CITY HALL BOILER REPLACEMENT
211 W. ASPEN AVE,
FLAGSTAFF ARIZONA 86001

DRAWN	JSB
CHECKED	JSB
DATE	JUNE 2020
SCALE	AS NOTED
JOB NUMBER	BTE # 20059

SHEET NO.

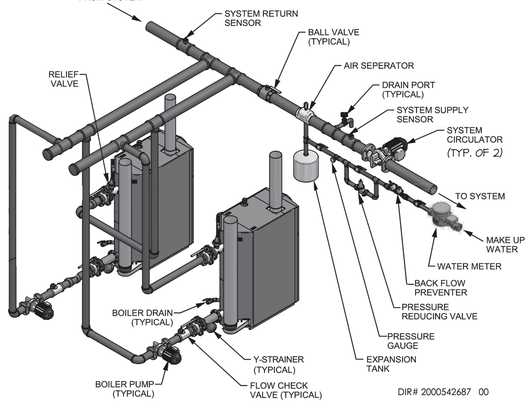
P-1

OF 2 SHEETS



HYDRONIC HEATING CENTRAL PLANT PIPING DIAGRAM

NTS



LOCHINVAR BOILER PRIMARY/SECONDARY PIPING DIAGRAM

NTS

MECHANICAL KEYNOTES:

1 HYDRONIC HEATING WATER PUMP (HWP-#). INSTALL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

2 AIR-DIRT-SEPARATOR (ADS-1), INSTALL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND RECOMMENDED PIPING METHODS.

3 EXPANSION TANK (ET-1), INSTALL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND RECOMMENDED PIPING METHODS.

4 HYDRONIC BOILER (B-#), INSTALL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. SEE 'LOCHINVAR CREST BOILER PRIMARY/SECONDARY PIPING DIAGRAM' FOR ADDITIONAL INFORMATION.

5 HYDRONIC BOILER CIRCULATOR PUMP (BP-#), INSTALL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. SEE 'LOCHINVAR CREST BOILER PRIMARY/SECONDARY PIPING DIAGRAM' FOR ADDITIONAL INFORMATION.

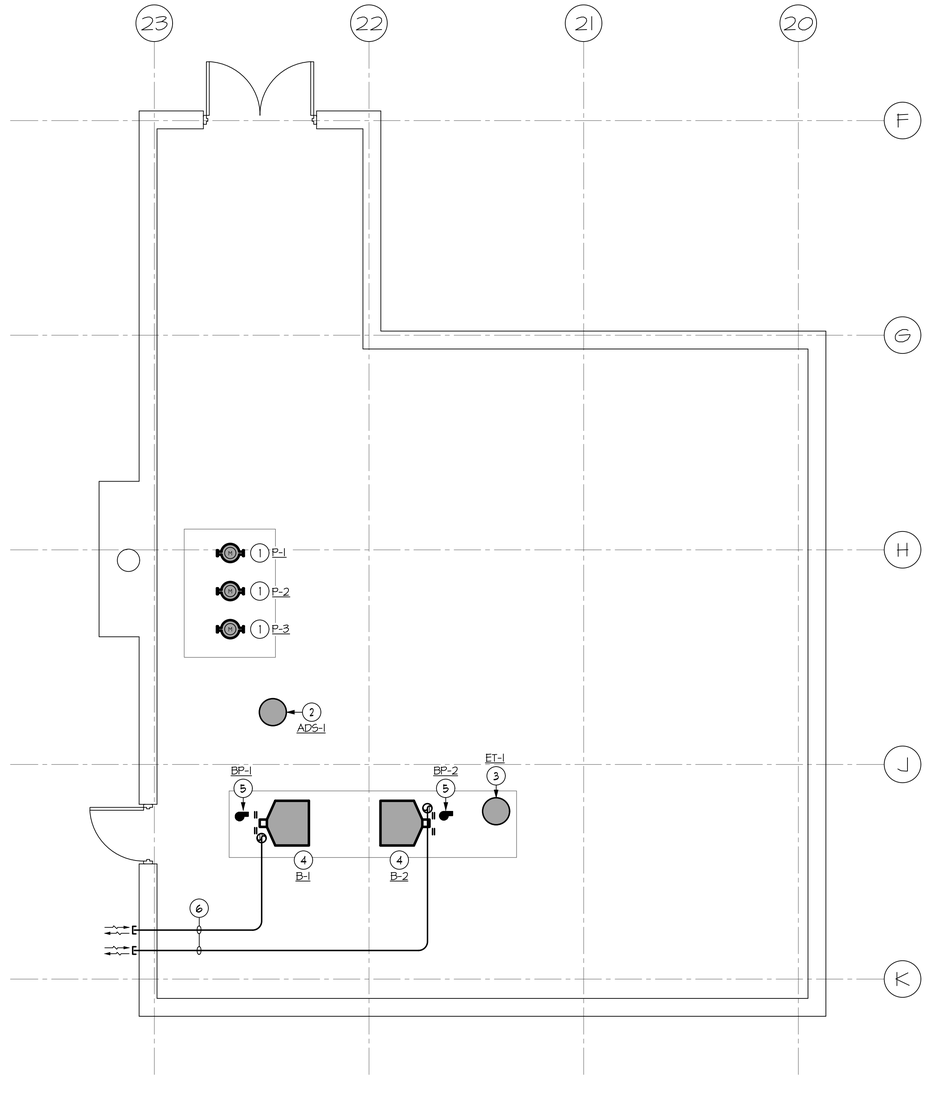
6 NATURAL GAS BOILER DIRECT VENT INTAKE & EXHAUST PIPING (SCHEDULE 40 PVC), SIZED AND INSTALLED PER MANUFACTURER'S REQUIREMENTS. FIELD ROUTE.

7 PROVIDE CLOSELY SPACED TEES IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

8 CONTRACTOR TO FIELD VERIFY FUNCTIONALITY OF EXISTING DGW MAKE-UP STATION, BACK-FLOW PREVENTER, ETC. AND SERVICE/REPLACE AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM. FIELD VERIFY EXISTING CONDITIONS.

9 EXISTING BELIMO MOTORIZED CONTROL VALVE TO REMAIN.

10 EXISTING SUPPLY/RETURN PIPING TO BUILDING TO REMAIN. SHOWN FOR REFERENCE ONLY.



1 HYDRONIC HEATING CENTRAL PLANT FLOOR PLAN

1/4" = 1'-0"

REVISIONS	DATE

Bowie Tiglas Engineering Inc.
Consulting Engineers
Phone: 602.992.3900
Fax: 602.992.1541
24820 N 19TH AVE, STE 170
Phoenix, AZ. 85085
Justin@BowieTiglas.com
BTE # 20060

PRELIMINARY NOT FOR CONSTRUCTION

CITY OF FLAGSTAFF
CITY HALL BOILER REPLACEMENT
211 W. ASPEN AVE,
FLAGSTAFF ARIZONA 86001

DRAWN	JSB
CHECKED	JSB
DATE	JUNE 2020
SCALE	AS NOTED
JOB NUMBER	BTE # 20059

SHEET NO.

P-2

OF 2 SHEETS

Bowie Tiglas Engineering Inc. expressly reserves its common law copyright & other property rights in these plans. All designs, drawings, details, specifications and models created by the use of Bowie Tiglas Engineering Engineering Inc. as instruments of service and may not be used for any other purpose without written consent of Bowie Tiglas Engineering Engineering Inc. No liability is assumed for deviations from these documents.

\\JUSTIN-2\Users\Public\Documents\TIGLAS JOB FILES\2020\20060 CGF City Hall Boiler\20060P.dwg Jun 04, 2020 - 2:56pm BY WORKSTATION A

7/25/2023

MOHAVE COOPERATIVE

Modification of Contract
(Contract Extension)
(Page 1 of 3)

Robert Carr
Pueblo Mechanical and Controls, LLC.
6771 E. Outlook Drive
Tucson, AZ 85756

RE: Contract # 19F-PMAC2-0904 modification of contract through an extension of contract is made by, and between, Pueblo Mechanical and Controls, LLC. and Mohave Educational Services Cooperative (Mohave).

In accordance with its terms and conditions, Mohave requests to extend contract 19F-PMAC2-0904 for a period of one (1) year, beginning 9/4/2023. The extension shall be under the same terms and conditions contained therein.

Provide your agreement to extend by completing the appropriate information below and on the following pages. If the contract is extended, Pueblo Mechanical and Controls, LLC. agrees to provide products or prices as per 19F-0808.

By signing this Modification of Contract, you hereby certify to the best of your knowledge and belief that your firm complies with Byrd Anti-Lobbying Amendment 31 U.S. Code § 1352, 2 CFR § 200.450 and Federal Acquisition Regulation 52.203-11

We agree to **modify** and **extend** the contract as specified above, abiding by the current terms and conditions, and any attached clarifications.

Signature Robert W. Carr Title OSM

Typed/Printed Name ROBERT W. CARR Date 8/8/2023

Upon your signed, executed Modification of Contract through a Contract Extension, you shall be bound to sell the materials and/or services offered to and accepted by Mohave in accordance with the solicitation, including all terms, conditions, specifications, amendments and any accepted written exceptions.

Nancy L. Colbaugh

Nancy Colbaugh, CPPB
Contracts Manager
Mohave Educational Services Cooperative, Inc.
625 East Beale Street | Kingman, AZ 86401
Phone 928-718-3228 | Fax 928-718-3232

If all pages of this notice are not received at Mohave's Kingman office on, or before, 9/4/2023, orders shall be held without processing. Email or fax completed extension to contracts@mesc.org or 928-718-3232.

To terminate the contract effective 9/4/2023, email or fax a notice of your request to cancel the contract to contracts@mesc.org or 928-718-3232. You agree to complete any authorized work or orders received prior to that date. Renewals not received within 14 days following 9/4/2023 may result in cancellation of the contract. However, any authorized orders received prior to this date, shall be completed under this contracts terms and conditions.

Modification of Contract
(Contract Extension)

Requested Pricing Modifications

We list your contract as utilizing Coefficient applied to UPB, Trade Service (TRA-SER) pricing and some fixed price for professional services.. Please confirm the following regarding pricing under your contract:

_X_ Our contract utilized firm-fixed pricing. We agree to hold the current prices until the next contract renewal date of 9/4/2024.

____ Our contract utilized percentage off MSRP/Retail pricing. The current price lists/catalogs are still applicable.

____ We are requesting a price modification. A price list/catalog will be submitted by _____. (Insert Date)

Remember that your firm cannot quote any new products contained in pricing submitted with your contract extension until it has been reviewed and a Contract Modification through a pricing update/product addition has been issued. Current contract pricing will remain in effect until this process is complete.

Please verify that the following information is correct and accurate:

POs Attn: Order Desk
Pueblo Mechanical and Controls, LLC.
6771 E. Outlook Drive
Tucson, AZ 85756

Remit to: Pueblo Mechanical and Controls, LLC.
Accounts Receivable
6771 E. Outlook Drive
Tucson, AZ 85756

Member Contact: Robert Carr
Contract Administrator: Robert Carr
Phone Number: 800-840-9170
Fax Number: 888-473-4374

Vendor Logo
Currently, we have the following logo on file for use on our website in our product/vendor finder:

PUEBLO™

If you wish to revise or update the logo we have on file, keep the following requirements in mind:

- *What file types are acceptable?* Vector point files are highly recommended (such as .ai or .eps files). If you don't have access to a vector point file, a large hi-resolution (approximately 150-300 dpi) JPEG, TIFF, BITMAP, GIF or PNG file will work. Having a file with a high dpi will help keep images looking sharp if we need to resize the logo.
- *What file size is recommended?* There is no limitation to the logo file size.

Modification of Contract
(Contract Extension)

Vendor Benefits Description

Currently, we have the following information on our website detailing the benefits of your contract for our members to view:

Pueblo Mechanical and Controls, LLC. is a recognized JOC expert, specializing in full spectrum energy efficient heating, cooling, ventilation, and air conditioning [HVAC] installation and service. Since 2001, having completed over 3,800 projects and thousands of service calls for educational institutions, cities, counties, and various federal and private organizations, state-wide. Procuring our services is simple, secure, and above all, cost effective!

Mohave makes utilizing its approved and trustworthy vendors convenient and statute compliant with guidelines and procedures in place that protect you, the customer. Service is friendly and lightning fast! Inquire about our affordable service contracts and enjoy continued technical and hands-on support for systems of all types and ages.

We proudly service a host of governmental agencies with guaranteed work; we will not rest until the project is done right and worthy of the Mohave membership we serve.

If you wish to revise or update the vendors benefits information we have on file, keep the following requirements in mind:

- The description should be 150-200 words that explain the benefits that your company can provide to our members through your Mohave contract.
- The description should give a brief overview for members who may be accessing information about your contract from our product vendor finder on Mohave's website.
- Please note that Mohave reserves the right to revise or modify the information provided either for content or length.

Email or fax request for information revisions or additional information to contracts@mesc.org or 928-718-3232. If you have any questions, contact your Contract Specialist either via email at michaelc@mesc.org or phone 928-718-3222.

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Award Documents

19F-PMAC2-0904
Pueblo Mechanical and Controls, LLC

19F-PMAC2-0904 Award Letter 2

19F-PMAC2-0904 Offer and Acceptance Form 5

19F-0808 Signed Award Recommendation 6

19F-0808 Evaluator Agreements 23

19F-PMAC2-0904 Federal and State Excluded Parties Documents 28

Click section title to be taken directly to that section.

4/5/18 EH

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NOTIFICATION OF AWARD LETTER

August 30, 2019

Sent this day via email to robc@pueblo-mechanical.com

Rob Carr, Contracts Manager
Pueblo Mechanical and Controls, LLC
6771 E. Outlook Drive
Tucson, AZ 85756

Congratulations, Pueblo Mechanical and Controls, LLC's response has been awarded a contract under JOC RFP 19F-0808. Attached is a copy of the Mohave signed *Offer and Acceptance Form*. Important notes and action items regarding the award are listed on the following pages. **Some action items contain important deadlines noted in bold font. Be sure to meet the requests and/or requirements on or before the deadlines noted.**

Your organization is bound by the terms of this contract; **only items specifically requested in this solicitation and awarded in your response to this solicitation will be authorized/allowed. Your award is for Division 23 Heating, Ventilation and Air Conditioning.**

Advise your Mohave customers to make purchase orders out to Pueblo Mechanical and Controls, LLC. In the event you receive a purchase order from a member that does not contain the "MESC REVIEWED" stamp, it should be faxed to (928-718-3232), or emailed (orders@mesc.org) to Mohave for review.

Do not perform any work or provide any products until you receive an "MESC Reviewed" purchase order.

We highly recommend having your staff review our vendor information pages at (http://www.mesc.org/resources-brochures) to learn more about working with Mohave. Especially helpful is the Vendor Handbook.

The procurement file for JOC RFP 19F-0808 shall be made available for public inspection on September 3, 2019.

Please check all the entries on the contract record attached. You may make additions or revisions to the description (40 words or less), contact persons, contact information, or other information about your contract. Email back any changes as soon as possible to mike@mesc.org.

Your contract number is 19F-PMAC2-0904 and will take effect on September 4, 2019.

If you have any questions regarding your new contract, please call me at (928) 718-3203. We look forward to working with you and your company in the future.

Michael Nentwig, CPPB
Contract Specialist I

- Please remind the member of their responsibility to independently verify that quotations and purchase orders comply with the terms of the award of a contract or procurement. This responsibility is set by rule and statute and cannot be changed by Mohave. Members can go to (service.mesc.org/PVF/plist.php) to assist in meeting this due diligence responsibility.
- Financial information included under Tab 2 of your response will be kept confidential.
- All products must be priced using contract pricing approved by Mohave.
- All quotes shall include your contract #19F-PMAC2-0904.
- **Promotional Pricing (temporary pricing reductions):** Your contract includes terms and conditions that allows your firm to offer temporary pricing reductions. A Promotional Pricing Offer allows you to provide products and services to members at a reduced cost for a limited time basis. Promotional pricing may increase your contract usage and exposure to members. Mohave encourages promotional pricing under the awarded contract to provide additional value to members. Promotional pricing requests are typically reviewed and approved the same day as submitted. Some reminders regarding pricing reductions:
    - Promotional Pricing may be offered at any time during a contract and shall become effective upon notice of acceptance from Mohave.
    - Promotional Pricing (e.g., quantity discounts, time sensitive offers, bundles) must apply to all Mohave orders of similar size and scope.
    - Promotional Pricing limited to a single member are not acceptable.
    - Special time-limited reductions are permissible under the following conditions: 1) reduction is available to all members equally; 2) reduction is for a specific time period, normally not less than thirty (30) days; 3) original price is not exceeded after the time-limit; and 4) Mohave has approved the new prices prior to any offer of the prices to a member.
- Michael Carter, CPPB will be the Contract Specialist assigned to your Mohave contract. Send requests for pricing updates or contractual inquiries to Michael Carter, CPPB - michael@mesc.org after the contract effective date of September 4, 2019. *All future pricing updates must be electronic. Updates on the original Excel workbooks are preferred. Similar formats in Word or PDF are acceptable.*
- Do not provide any goods/services until you receive a Mohave reviewed purchase order.
- Quick payment discounts must be approved by Mohave before being offered to members and must be available equally.
- Order cycle overview:
    1. Member forwards purchase orders to Mohave. Vendor is Pueblo Mechanical and Controls, LLC.
    2. Mohave reviews and emails member order with "*MESC Reviewed*" stamp, to Pueblo Mechanical and Controls, LLC.
    3. Pueblo Mechanical and Controls, LLC provides product/services.
    4. Pueblo Mechanical and Controls, LLC invoices member.
    5. Member pays Pueblo Mechanical and Controls, LLC.
    6. Pueblo Mechanical and Controls, LLC sends Usage and Reconciliation Report to Mohave.
    7. Pueblo Mechanical and Controls, LLC remits administration fee monthly, based on invoices paid.
    8. Mohave audits selected purchases.
- Upon award of your contract, you may request to use estimating software other than *RS Means Costworks*. The estimating software shall use *RS Means pricing data* and meet all of the requirements for pricing under this IFB. Estimating samples shall be provided to Mohave for review prior to Mohave's acceptance of estimating software to be used under an awarded contract. Mohave shall make the final determination if estimating software meets all the requirements and is acceptable. Contract vendor agrees that if proposed alternate estimating software does not continue to meet the requirements of the RFP/IFB, contract vendor shall immediately switch to *RS Means Costworks* as the estimating software under an awarded contract.

<u>REQUIREMENTS/ACTION ITEMS FOR THE AWARD:</u>

NOTES ON AWARD FOR: Pueblo Mechanical and Controls, LLC

- You agreed to provide a Reconciliation Report detailing activity under the contract, and payment for Mohave administration fees for invoices paid in the previous month. Your report is due on the 20th of each month. **Mohave's Audit Specialist will contact you and provide you with a sample report, based on reports provided under contract 14G-PMAC2-0904.**
- If no invoices were paid under the contract in the previous month, you may send an email to adminreport@mesc.org advising of no sales to report for the month.
- Because you have an existing Mohave contract, we want to address how to properly report invoices on your monthly reconciliation reports because it may be necessary to submit two separate reports until all old contract purchases are closed:
  - Line item purchase orders that remain open under 14G-PMAC2-0904 should be reported on 14G-PMAC2-0904 reconciliation reports.
  - Blanket purchase order invoices with a ship date prior to, or on September 3, 2019 should be reported on the 14G-PMAC2-0904 reconciliation report.
  - New purchase orders issued under the 19F-PMAC2-0904 contract should be reported under 19F-PMAC2-0904 reconciliation reports.
  - Blanket purchase order invoices with a ship date after September 3, 2019 should be reported on the 19F-PMAC2-0904 reconciliation reports.
- Administration fee payments should be mailed to:

  Mohave Educational Services
  625 E. Beale St.
  Kingman, AZ 86401
- In order to assist members with new contract award notices, Mohave will be releasing your contract award information to the members prior to September 4, 2019. Information regarding your contract award will be posted to our website and will be made available in our product vendor finder. Pricing from your awarded contract will also be made available to our members. All of this information will be accessible by our members before September 4, 2019. You may provide quotes to members for this contract. However, it will be your responsibility to inform members the contract is not effective until September 4, 2019, and members should not be processing purchase orders until that date. Acting on purchase orders (delivering products or services) prior to September 4, 2019 **is a violation of the contract.** Please ensure that your staff is aware of the effective date September 4, 2019, in order to avoid contract confusion.
- We feature marketing information about your current contract in the product vendor finder on our website. Please visit our website (www.mesc.org) and go to the "All Products/Vendors" under the "Contracts & Solicitations" menu. Find your company from the list and click on your name. Once on your company information, review the "About Vendor" section of the "Overview." Confirm in writing if that information is still accurate, or if changes need to be made. Mohave reserves the right to edit information for content or length. **Email this information to mike@mesc.org no later than September 20, 2019.**

Technical Proposal – Offer and Acceptance Form
(Place after Tab 1a)

RFP 19F-0808
Job Order Contracting for Various Construction Trades

To Mohave Educational Services Cooperative, Inc.:

The undersigned hereby certifies understanding and compliance with the requirements in all terms, conditions, specifications and amendments. Offeror further agrees to furnish materials and/or services in compliance with all terms, conditions, specifications and amendments in the solicitation and any written exceptions in the offer.

Federal Employer Identification Number 86-1027390

Company Name Pueblo Mechanical & Controls, LLC

Address 6771 E Outlook Drive City Tucson State AZ Zip 85756

Telephone Number 800.840.9170

The *Offer and Acceptance Form* should be submitted with a signature of the person authorized to sign the proposal. The person signing the proposal shall initial erasures, interlineations, or other modifications in proposal. Failure to sign the *Offer and Acceptance Form*, or to make other notations as indicated, may result in rejection of proposal.

Authorized Signature _____

Printed Name Rob Carr Title Contracts Manager

Primary Email robc@pueblo-mechanical.com Alternate email N/A

*Note: The primary email address will be used for all communication from Mohave regarding your response to this solicitation. Provide an alternate email address that will be used **only** if the primary email address is not valid.*

The contract vendor shall not commence any billable work or provide any material or service under this contract unless and until contract vendor receives a purchase order with Mohave's review noted.

Acceptance of Offer and Contract Award (Mohave Only)

Your Proposal is Hereby Accepted:

As an awarded contract vendor, you are now bound to sell the materials and/or services offered to and accepted by Mohave in accordance with the solicitation, including all terms, conditions, specifications, amendments and any accepted written exceptions.

This contract shall be referred to as Contract Number 19F-PMAC2-0904

Awarded this 30 day of August 2019.

This contract shall be effective the 4 day of September 2019.

Anita S. McLemore, C.P.M., Executive Director
Mohave Educational Services Cooperative, Inc.

MOHAVE
COOPERATIVE

Date: 8/30/19

To: Anita S. McLemore, C.P.M., Executive Director

Through: Nancy Colbaugh, CPPB, Contracts Manager

From: Michael Nentwig, CPPB, Contract Specialist I

Subject: Award Recommendation for JOC RFP 19F-0808, Job Order Contracting for Various Construction Trades

On August 8, 2019 Mohave received thirteen responses to JOC RFP 19F-0808. Twelve were determined to be acceptable for further consideration after the evaluation of technical proposals. One response did not provide all the required information and was consider non-responsive.

The offers were evaluated using the criteria set forth in the solicitation. The following is a summary of the final scores utilizing the Heisman method of ranking:

General Contracting Divisions 1 – 49 Heisman Ranking	Mike Nentwig	Michael Carter	Nancy Colbaugh	Jeff Bohnenkamp	Phil Allred	Average Rank
GCON, Inc.	2	1	1	1	1	**1.20**
SD Crane Builders, Inc.	1	2	3	3	2	**2.20**
SDB, Inc.	3	4	2	2	3	**2.80**
Caliente Construction, Inc.	4	3	4	5	5	**4.20**
McCarthy Building Companies, Inc.	5	5	5	4	4	**4.60**

Details for the recommended awards are as follows for Divisions 1-49 General Contracting:

- GCON, Inc. was the number one ranking offer for Division 1- 49 General Contracting services. They offered a full service general contracting management of all projects. They oversee the entire construction process with their in-house staff and with the use of qualified subcontractors. UPB, and Open Book pricing methodologies were offered along with maintenance services and extended warranties. GCON, Inc. has an aggregate bonding capacity of $90 Million and holds a current B-1 Arizona Registrar of Contractors license.
- SD Crane Builders, Inc. was the number two ranking offer for Division 1 – 49 General Contracting services. They offered general contracting and construction services, including new buildings, renovations, remodels and building improvements. UPB, and Open Book pricing methodologies were offered along with design and engineering services. SD Crane Builders, Inc. has an aggregate bonding capacity of $25 Million and holds a current B-1 Arizona Registrar of Contractors license.
- SBD, Inc. was the number three ranking offer for Division 1 – 49 General Contracting services. They offered complete construction and construction management services. Pre-construction services include cost estimating, site investigation, LEED analysis, constructability and value engineering. UPB, and Open Book pricing methodologies were offered along with design and engineering services. SDB, Inc. has an aggregate bonding capacity of $50 Million and holds a current A and B-1 Arizona Registrar of Contractors license.

- Caliente Construction, Inc. was the number four ranking offer for Division 1 – 49 General Contracting services. They offered complete contract management services that include existing conditions analysis, scope definition, procurement planning, project schedule development and management. UPB, and Open Book pricing methodologies were offered. In-house design and engineering services were not offered but can be provided through the use of a qualified subcontractor. Caliente Construction, Inc. has an aggregate bonding capacity of $75 Million and holds a current A, B and B-1 Arizona Registrar of Contractors license.
- McCarthy Building Companies, Inc. was the number five ranking offer for Division 1 – 49 General Contracting services. They offered construction and contraction management services. They have a local staff of over 796 craft workers and offered the following self-performed services to include solar, mechanical, electrical, concrete, plumbing, civil engineering and carpentry. UPB, and Open Book pricing methodologies were offered. In-house design and engineering services were not offered but can be provided through the use of a qualified subcontractor. McCarthy Building Companies, Inc. has an aggregate bonding capacity of $6 Billion and holds a current A, B, and B-1 Arizona Registrar of Contractors license.

Plumbing Division 22 Heisman Ranking	Mike Nentwig	Michael Carter	Nancy Colbaugh	Jeff Bohnenkamp	Phil Allred	Average Rank
Midstate Mechanical, Inc.	1	1	1	1	1	**1.00**
Sun Mechanical Contracting, Inc.	2	2	2	2	2	**2.00**
McCarthy Building Companies, Inc.	3	3	3	3	3	**3.00**
Uni-Tech Mechanical	4	4	4	4	4	**4.00**

Details for the recommended awards are as follows for Division 22 Plumbing:

- Midstate Mechanical, Inc. was the number one ranking offer for Division 22 Plumbing job order contracting services. They provide complete turnkey plumbing projects from their offices in Phoenix and Tucson and field offices in Flagstaff and Yuma. As a value add, they provide 3-D modeling of projects allowing for the offsite prefabrication of plumbing systems. This reduces the impact to building operations and maximizing onsite work. System commissioning, preventive maintenance, and repair services were offered. Midstate Mechanical, Inc. has an aggregate bonding capacity of $40 Million and holds a current B-1 and CR-37 Arizona Registrar of Contractors license.
- Sun Mechanical Contracting, Inc. was the number two ranking offer for Division 22 Plumbing job order contracting services. Value added services include the use of 3-D modeling and CAD to increase productivity. Members will have complete online access to all repair/service reports, work order history, and equipment logs. System commissioning, preventive maintenance, and repair services were offered. Sun Mechanical Contracting, Inc. has an aggregate bonding capacity of $125 Million and holds a current B-1 and CR-37 Arizona Registrar of Contractors license.
- McCarthy Building Companies, Inc. was the number three ranking offer for Division 22 Plumbing job order contracting services. They provide complete plumbing projects, by conducting a "Pre-project Planning and Performance" meeting to identify goals, develop the schedule to meet the quality requirements and customer expectations. McCarthy Building Companies, Inc. is a national company that employ 796 local craft workers and can leverage additional support from four regional offices within a half a day of travel. McCarthy Building Companies, Inc. has an aggregate bonding capacity of $6 Billion and holds a current A, B, B-1 and CR-37 Arizona Registrar of Contractors license.

JOC RFP 19F-0808 Award Recommendation

Heating, Ventilation and Air Conditioning Division 23 Heisman Ranking	Mike Nentwig	Michael Carter	Nancy Colbaugh	Jeff Bohnenkamp	Phil Allred	Average Rank
Midstate Mechanical, Inc.	1	1	1	1	1	**1.00**
Sun Mechanical Contracting, Inc.	2	2	2	2	3	**2.20**
McCarthy Building Companies, Inc.	4	5	3	3	2	**3.40**
Pueblo Mechanical and Controls, Inc.	5	3	4	4	4	**4.00**
HACI, Inc.	3	4	5	5	5	**4.40**

Details for the recommended awards are as follows for Division 23 Heating, Ventilation and Air Conditioning:

- Midstate Mechanical, Inc. was the number one ranking offer for Division 23 Heating, Ventilation and Air Conditioning job order contracting services. They can provide complete turnkey mechanical projects from their offices in Phoenix and Tucson and field offices in Flagstaff and Yuma. As a value add, they can provide 3-D modeling of projects allowing for the offsite prefabrication of HVAC systems. This reduces the impact to building operations and maximizing onsite work. System commissioning, preventive maintenance, and repair services were offered. Midstate Mechanical, Inc. has an aggregate bonding capacity of $40 Million and holds a current B-1 and CR-39 Arizona Registrar of Contractors license.
- Sun Mechanical Contracting, Inc. was the number two ranking offer for Division 23 Heating, Ventilation and Air Conditioning job order contracting services. Value added services include the use of 3-D modeling and CAD to increase productivity. Members will have complete online access to all repair/service reports, work order history, and equipment logs. System commissioning, preventive maintenance, and repair services were offered. Sun Mechanical Contracting, Inc. has an aggregate bonding capacity of $125 Million and holds a current B-1 and CR-39 Arizona Registrar of Contractors license.
- McCarthy Building Companies, Inc. was the number three ranking offer for Division 23 Heating, Ventilation and Air Conditioning job order contracting services. They provide complete mechanical projects, by conducting a "Pre-project Planning and Performance" meeting to identify goals, develop the schedule to meet the quality requirements and customer expectations. McCarthy Building Companies, Inc. is a national company that employ 796 local craft workers and can leverage additional support from four regional offices within a half a day of travel. McCarthy Building Companies, Inc. has an aggregate bonding capacity of $6 Billion and holds a current A, B, B-1 and CR-39 Arizona Registrar of Contractors license.
- Pueblo Mechanical and Controls, Inc. was the number four ranking offer for Division 23 Heating, Ventilation and Air Conditioning job order contracting services. They can provide complete heating, ventilation and air conditioning projects from their offices in Phoenix and Tucson. This allows for quick response to customer emergencies. Pueblo Mechanical and Controls, Inc. can competitively access virtually all makes and models of equipment. System commissioning, preventive maintenance, and repair services were offered. Pueblo Mechanical Contracting, Inc. has an aggregate bonding capacity of $45 Million and holds a current B-1 and CR-39 Arizona Registrar of Contractors license.
- HACI, Inc. was the fifth ranking offer for Division 23 Heating, Ventilation and Air Conditioning job order contracting services. They offered the ability to develop the most cost-effective HVAC systems through use of the design build / design assist process. They have fully automated fabrication facility and ample storage capabilities to provide "on-time" material deliveries. Repair services and maintenance service agreements were also offered. HACI, Inc. has an aggregate bonding capacity of $80 Million and holds a current B-1 and CR-39 Arizona Registrar of Contractors license.

JOC RFP 19F-0808 Award Recommendation

Electrical Division 26 Heisman Ranking	Mike Nentwig	Michael Carter	Nancy Colbaugh	Jeff Bohnenkamp	Phil Allred	Average Rank
Rosendin Electric	1	1	1	1	1	**1.00**

Details for the recommended awards are as follows for Divisions 26 Electrical:

- Rosendin Electric was the number one ranking offer for Division 26 Electrical job order contracting services. They provided complete services for electrical projects including an engineering department with Arizona registered professional engineers. As a value add, Rosendin Electric capabilities include Building Information Modeling (BIM) that can electronically model a building to identify potential interferences between a building's utility and structural elements. Rosendin Electric has an aggregate bonding capacity of $1.35 Billion and holds a current A, B-1, and C-11 Arizona Registrar of Contractors license.

The evaluation committee determined a single award is not advantageous to Mohave's members. The solicitation authorized multiple awards to meet the needs of Mohave's large number of various types of members located throughout Arizona. This is a statewide contract aimed at providing sources for job order contracting construction services for general contracting, plumbing, heating, ventilation and air conditioning and electrical. No single offer demonstrated the ability to effectively, and efficiently meet all our members' needs for new construction, renovation, remodel, remediation, installation of new equipment or systems, replacement, repair or equipment maintenance services.

Award is recommended to the least number of offerors determined necessary to meet the members' requirements. The decision was based upon considerations for the large number of members, diverse types of members, location of members throughout Arizona and members' past usage of similar contracts.

The criteria for selecting offerors for multiple contracts shall be based upon considerations for members' experience with existing general contracting, plumbing, heating, ventilation and air conditioning, and electrical services that include construction, renovation, design, emergency services, brand continuity for system replacement and future expansion. Awarded contract vendor's ability to provide for our large, diverse membership, geographic area(s) served, Mohave's past experience with contracts for similar product/services, and/or other relevant criteria.

None of the offerors recommended for award are on the United States General Services Administration's Excluded Parties List, or on the Arizona Department of Administration Excluded Parties List.

The current contracts under JOC RFP 14G-0808 expire on September 3, 2019. It is recommended the awards under JOC RFP 19F-0808 take effect on September 4, 2019.

It is the recommendation of the evaluation committee that contracts be awarded to Caliente Construction, Inc., GCON, Inc., HACI, Inc., McCarthy Building Companies, Inc., Midstate Mechanical, Inc., Pueblo Mechanical and Controls LLC., Rosendin Electric, SD Crane Builders, Inc., SDB, Inc., and Sun Mechanical Contracting, Inc. for Job Order Contracting for Various Trades.

Not acceptable for further consideration after initial evaluation

BWC Enterprises Inc. dba Woodruff Construction - The bonding capacity letter required by *Special Term and Condition 1.2. Bonding Capacity* was not included in the offer.

Not recommended for award

United Technologies Inc. dba UNI-TECH - The proposal received a lower score and a substantially higher coefficient than the three statewide offers recommended for award. The Division 22 Plumbing services included in the offer are provided by the higher scoring offerors recommended for award. There were no apparent price or additional services offered to substantiate award of this lower scoring proposal.

JOC RFP 19F-0808 Award Recommendation

Approval of the #19F-0808 award as recommended:

Signature: _____ Date: August 30, 2019

Nancy Colbaugh, CPPB
Contracts Manager

Signature: _____ Date: August 30, 2019

Anita S. McLemore, C.P.M.
Executive Director

DISCLAIMER

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DETAILS FOR

PUEBLO MECHANICAL AND CONTROLS LLC

LICENSE NUMBER ROC 173953

THURSDAY AUGUST 29, 2019 03:08:42 PM

CONTRACTOR

NAME / ADDRESS / PHONE

Pueblo Mechanical and Controls LLC
6771 E Outlook Dr
Tucson, AZ 85756-9409
Phone: (520) 545-1044

STATUS / ACTION

Active

LICENSE

CLASS & DESCRIPTION

General Commercial B-1 General Commercial Contractor

ENTITY TYPE

LLC

ISSUED / RENEWAL

First Issued: 2002-03-28
Renewed Through: 2020-03-31

QUALIFYING PARTY & PERSONNEL

The Qualifying Party listed below is associated with this license. All other persons named, if any, are associated with the company. They are not all necessarily associated with this license.

Name: Steven Joseph Barry
Position: Qualifying Party
Other Positions: EMPLOYEE
Other Licenses:
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo

Name: Susanne Andrews
Position: Other
Other Positions: Executive Administrative Assistant
Other Licenses:
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?

Name: Daniel Theodore Bueschel
Position: Manager
Other Licenses:
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)

Mechanical and Controls LLC)
324363 (/contractor-search?Id=a0Yt00000081HCnEAM)
(Pueblo Mechanical and Controls LLC)

Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)
324363 (/contractor-search?Id=a0Yt00000081HCnEAM)
(Pueblo Mechanical and Controls LLC)

324363 (/contractor-search?Id=a0Yt00000081HCnEAM)
(Pueblo Mechanical and Controls LLC)

Name: Danielle Marie Lalli
Position: Member
Other Licenses:
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP)
(Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP)
(Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)
324363 (/contractor-search?Id=a0Yt00000081HCnEAM)
(Pueblo Mechanical and Controls LLC)

Name: Pamelyn Weatherly Tolkoff
Position: Chief Financial Officer
Other Licenses:
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP)
(Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP)
(Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)
324363 (/contractor-search?Id=a0Yt00000081HCnEAM)
(Pueblo Mechanical and Controls LLC)

Name: John Paul Beckham
Position: FORMER Treasurer
Other Positions: Historical Officer
Other Licenses:
171635 (/contractor-search?Id=a0Yt000000ACIEmEAP)
(Positive Plus Systems Inc)
Disassociation Date: 2019-01-08

Name: Arlene Adair Bleakney
Position: FORMER Officer
Disassociation Date: 2019-01-08

Name: Robert Dennis DiFusco
Position: FORMER Vice President
Other Positions: Historical Officer
Other Licenses:
077052 (/contractor-search?Id=a0Yt000000ACW0FEAX)
(Pueblo Heating and Cooling Inc)
079382 (/contractor-search?Id=a0Yt000000ACauoEAD) (Pueblo Heating and Cooling Inc)
275879 (/contractor-search?Id=a0Yt000000ACHkUEAX)
(Robert's Heating & Cooling LLC)
275880 (/contractor-search?Id=a0Yt000000ACMF7EAP)
(Robert's Heating & Cooling LLC)
Disassociation Date: 2019-01-08

Name: Craig Kenneth Lostutter
Position: FORMER Secretary
Other Positions: Historical Officer
Other Licenses:
171635 (/contractor-search?Id=a0Yt000000ACIEmEAP)
(Positive Plus Systems Inc)
253141 (/contractor-search?Id=a0Yt000000ACZ8XEAX)
(Beckham's Electric LLC)
Disassociation Date: 2019-01-08

Name: Huron Capital Partners LLC
Position: Related Entity, Parent Entity

Name: Pueblo Holdings LLC
Position: Related Entity, Parent Entity

COMPLAINT INFORMATION

Complaints against this contractor are listed below. Complaints that were cancelled, resolved or settled without a corrective work order or dismissed are not included. Contact the ***Registrar of Contractors at 602-542-1525 or toll-free statewide at 1-877-My AZROC (1-877-692-9762)*** *to identify the ROC office location you need to visit to view complete complaint documentation.*

	CLOSED CASES	
0	**0**	**0**
Open Cases i	**Disciplined Cases** i	**Resolved / Settled Cases** i

BOND INFORMATION

How to collect from a license bond (https://roc.az.gov/recovery-fund?targetclass=answer-question-collect#question-collect)

Bond Type:	**SURETY**
Bond Number:	**59BSBAJ5579**
Effective Date:	**2010-03-29**
Bond Company:	**HARTFORD ACCIDENT AND INDEMNITY COMPANY**
Amount:	**$ 0.00**
Paid:	**$ 0.00**
Available:	**$ 50000.00**
Status:	**ACTIVE**

DISCLAIMER

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DETAILS FOR

PUEBLO MECHANICAL AND CONTROLS LLC

LICENSE NUMBER ROC 176640

THURSDAY AUGUST 29, 2019 03:08:56 PM

CONTRACTOR

NAME / ADDRESS / PHONE

Pueblo Mechanical and Controls LLC
6771 E Outlook Dr
Tucson, AZ 85756-9409
Phone: (520) 545-1044

STATUS / ACTION

Active

LICENSE

CLASS & DESCRIPTION

Specialty Dual CR-39 Air Conditioning and Refrigeration

ENTITY TYPE

LLC

ISSUED / RENEWAL

First Issued: 2002-07-01
Renewed Through: 2020-07-31

QUALIFYING PARTY & PERSONNEL

The Qualifying Party listed below is associated with this license. All other persons named, if any, are associated with the company. They are not all necessarily associated with this license.

Name: Steven Joseph Barry
Position: Qualifying Party
Other Positions: EMPLOYEE
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)

Name: Susanne Andrews
Position: Other
Other Positions: Executive Administrative Assistant
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo

Name: Daniel Theodore Bueschel
Position: Manager
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)
324363 (/contractor-search?

324363 (/contractor-search?Id=a0Yt00000081HCnEAM) (Pueblo Mechanical and Controls LLC)

Mechanical and Controls LLC)
324363 (/contractor-search?Id=a0Yt00000081HCnEAM) (Pueblo Mechanical and Controls LLC)

Id=a0Yt00000081HCnEAM) (Pueblo Mechanical and Controls LLC)

Name: Danielle Marie Lalli
Position: Member
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)
324363 (/contractor-search?Id=a0Yt00000081HCnEAM) (Pueblo Mechanical and Controls LLC)

Name: Pamelyn Weatherly Tolkoff
Position: Chief Financial Officer
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)
324363 (/contractor-search?Id=a0Yt00000081HCnEAM) (Pueblo Mechanical and Controls LLC)

Name: John Paul Beckham
Position: FORMER Treasurer
Other Positions: Historical Officer
Other Licenses:
171635 (/contractor-search?Id=a0Yt000000ACIEmEAP) (Positive Plus Systems Inc)
Disassociation Date: 2019-01-08

Name: Arlene Adair Bleakney
Position: FORMER Officer
Disassociation Date: 2019-01-08

Name: Robert Dennis DiFusco
Position: FORMER Vice President
Other Positions: Historical Officer
Other Licenses:
077052 (/contractor-search?Id=a0Yt000000ACW0FEAX) (Pueblo Heating and Cooling Inc)
079382 (/contractor-search?Id=a0Yt000000ACauoEAD) (Pueblo Heating and Cooling Inc)
275879 (/contractor-search?Id=a0Yt000000ACHkUEAX) (Robert's Heating & Cooling LLC)
275880 (/contractor-search?Id=a0Yt000000ACMF7EAP) (Robert's Heating & Cooling LLC)
Disassociation Date: 2019-01-08

Name: Craig Kenneth Lostutter
Position: FORMER Secretary
Other Positions: Historical Officer
Other Licenses:
171635 (/contractor-search?Id=a0Yt000000ACIEmEAP) (Positive Plus Systems Inc)
253141 (/contractor-search?Id=a0Yt000000ACZ8XEAX) (Beckham's Electric LLC)
Disassociation Date: 2019-01-08

Name: Huron Capital Partners LLC
Position: Related Entity, Parent Entity

Name: Pueblo Holdings LLC
Position: Related Entity, Parent Entity

COMPLAINT INFORMATION

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	CLOSED CASES	
0	**0**	**0**
Open Cases i	**Disciplined Cases** i	**Resolved / Settled Cases** i

BOND INFORMATION

How to collect from a license bond (https://roc.az.gov/recovery-fund?targetclass=answer-question-collect#question-collect)

Bond Type:	**SURETY**
Bond Number:	**59BSBAJ5581**
Effective Date:	**2014-07-07**
Bond Company:	**HARTFORD FIRE INSURANCE COMPANY**
Amount:	**$ 0.00**
Paid:	**$ 0.00**
Available:	**$ 54250.00**
Status:	**ACTIVE**

DISCLAIMER

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DETAILS FOR

PUEBLO MECHANICAL AND CONTROLS LLC

LICENSE NUMBER ROC 260462

THURSDAY AUGUST 29, 2019 03:08:05 PM

CONTRACTOR

NAME / ADDRESS / PHONE

Pueblo Mechanical and Controls LLC
6771 E Outlook Dr
Tucson, AZ 85756-9409
Phone: (520) 545-1044

STATUS / ACTION

Active

LICENSE

CLASS & DESCRIPTION

Specialty Dual CR-74 Boilers, Steamfitting & Process Piping, Including Solar

ENTITY TYPE

LLC

ISSUED / RENEWAL

First Issued: 2009-12-01
Renewed Through: 2019-12-31

QUALIFYING PARTY & PERSONNEL

The Qualifying Party listed below is associated with this license. All other persons named, if any, are associated with the company. They are not all necessarily associated with this license.

Name: Steven Joseph Barry
Position: Qualifying Party
Other Positions: EMPLOYEE
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)

Name: Susanne Andrews
Position: Other
Other Positions: Executive Administrative Assistant
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo

Name: Daniel Theodore Bueschel
Position: Manager
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)
324363 (/contractor-search?

324363 (/contractor-search?Id=a0Yt00000081HCnEAM) (Pueblo Mechanical and Controls LLC)

Mechanical and Controls LLC)
324363 (/contractor-search?Id=a0Yt00000081HCnEAM) (Pueblo Mechanical and Controls LLC)

Id=a0Yt00000081HCnEAM) (Pueblo Mechanical and Controls LLC)

Name: Danielle Marie Lalli
Position: Member
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)
324363 (/contractor-search?Id=a0Yt00000081HCnEAM) (Pueblo Mechanical and Controls LLC)

Name: Pamelyn Weatherly Tolkoff
Position: Chief Financial Officer
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)
324363 (/contractor-search?Id=a0Yt00000081HCnEAM) (Pueblo Mechanical and Controls LLC)

Name: John Paul Beckham
Position: FORMER Treasurer
Other Positions: Historical Officer
Other Licenses:
171635 (/contractor-search?Id=a0Yt000000ACIEmEAP) (Positive Plus Systems Inc)
Disassociation Date: 2019-01-08

Name: Arlene Adair Bleakney
Position: FORMER Officer
Disassociation Date: 2019-01-08

Name: Robert Dennis DiFusco
Position: FORMER Vice President
Other Positions: Historical Officer
Other Licenses:
077052 (/contractor-search?Id=a0Yt000000ACW0FEAX) (Pueblo Heating and Cooling Inc)
079382 (/contractor-search?Id=a0Yt000000ACauoEAD) (Pueblo Heating and Cooling Inc)
275879 (/contractor-search?Id=a0Yt000000ACHkUEAX) (Robert's Heating & Cooling LLC)
275880 (/contractor-search?Id=a0Yt000000ACMF7EAP) (Robert's Heating & Cooling LLC)
Disassociation Date: 2019-01-08

Name: Craig Kenneth Lostutter
Position: FORMER Secretary
Other Positions: Historical Officer
Other Licenses:
171635 (/contractor-search?Id=a0Yt000000ACIEmEAP) (Positive Plus Systems Inc)
253141 (/contractor-search?Id=a0Yt000000ACZ8XEAX) (Beckham's Electric LLC)
Disassociation Date: 2019-01-08

Name: Huron Capital Partners LLC
Position: Related Entity, Parent Entity

Name: Pueblo Holdings LLC
Position: Related Entity, Parent Entity

COMPLAINT INFORMATION

*Complaints against this contractor are listed below. Complaints that were cancelled, resolved or settled without a corrective work order or dismissed are not included. Contact the **Registrar of Contractors at 602-542-1525 or toll-free statewide at 1-877-My AZROC (1-877-692-9762)** to identify the ROC office location you need to visit to view complete complaint documentation.*

	CLOSED CASES	
0	**0**	**0**
Open Cases i	**Disciplined Cases** i	**Resolved / Settled Cases** i

BOND INFORMATION

How to collect from a license bond (https://roc.az.gov/recovery-fund?targetclass=answer-question-collect#question-collect)

Bond Type:	**SURETY**
Bond Number:	**59BSBAJ5578**
Effective Date:	**2009-12-01**
Bond Company:	**HARTFORD FIRE INSURANCE COMPAN**
Amount:	**$ 0.00**
Paid:	**$ 0.00**
Available:	**$ 57500.00**
Status:	**ACTIVE**

DISCLAIMER

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DETAILS FOR

PUEBLO MECHANICAL AND CONTROLS LLC

LICENSE NUMBER ROC 324363

THURSDAY AUGUST 29, 2019 03:08:19 PM

CONTRACTOR

NAME / ADDRESS / PHONE

Pueblo Mechanical and Controls LLC
6771 E Outlook Dr
Tucson, AZ 85756-9409
Phone: (800) 840-9170

STATUS / ACTION

Active

LICENSE

CLASS & DESCRIPTION

Specialty Commercial C-11 Electrical

ENTITY TYPE

LLC

ISSUED / RENEWAL

First Issued: 2019-04-28
Renewed Through: 2021-04-30

QUALIFYING PARTY & PERSONNEL

The Qualifying Party listed below is associated with this license. All other persons named, if any, are associated with the company. They are not all necessarily associated with this license.

Name: Steven Joseph Barry
Position: Qualifying Party
Other Positions: EMPLOYEE
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls LLC)

Name: David John Fortuna
Position: Qualifying Party
Other Licenses:
281606 (/contractor-search?Id=a0Yt000000ACNOmEAP) (Dave Fortuna Inc)
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP)

Name: Susanne Andrews
Position: Other
Other Positions: Executive Administrative Assistant
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls

323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)

(Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)

LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)

Name: Daniel Theodore Bueschel
Position: Manager
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)

Name: Danielle Marie Lalli
Position: Member
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)

Name: Pamelyn Weatherly Tolkoff
Position: Chief Financial Officer
Other Licenses:
173953 (/contractor-search?Id=a0Yt000000ACRJsEAP) (Pueblo Mechanical and Controls LLC)
176640 (/contractor-search?Id=a0Yt000000ACZHeEAP) (Pueblo Mechanical and Controls LLC)
260462 (/contractor-search?Id=a0Yt000000ACNAwEAP) (Pueblo Mechanical and Controls LLC)
323201 (/contractor-search?Id=a0Yt000000B65LPEAZ) (Pueblo Mechanical and Controls LLC)

Name: John Paul Beckham
Position: FORMER Treasurer
Other Positions: Historical Officer
Other Licenses:
171635 (/contractor-search?Id=a0Yt000000ACIEmEAP) (Positive Plus Systems Inc)
Disassociation Date: 2019-01-08

Name: Arlene Adair Bleakney
Position: FORMER Officer
Disassociation Date: 2019-01-08

Name: Robert Dennis DiFusco
Position: FORMER Vice President
Other Positions: Historical Officer
Other Licenses:
077052 (/contractor-search?Id=a0Yt000000ACW0FEAX) (Pueblo Heating and Cooling Inc)
079382 (/contractor-search?Id=a0Yt000000ACauoEAD) (Pueblo Heating and Cooling Inc)
275879 (/contractor-search?Id=a0Yt000000ACHkUEAX) (Robert's Heating & Cooling LLC)
275880 (/contractor-search?Id=a0Yt000000ACMF7EAP) (Robert's Heating & Cooling LLC)
Disassociation Date: 2019-01-08

Name: Craig Kenneth Lostutter
Position: FORMER Secretary
Other Positions: Historical Officer
Other Licenses:
171635 (/contractor-search?Id=a0Yt000000ACIEmEAP) (Positive Plus Systems Inc)

Name: Huron Capital Partners LLC
Position: Related Entity, Parent Entity

Name: Pueblo Holdings LLC
Position: Related Entity, Parent Entity

253141 (/contractor-search?id=a0Yt000000ACZ8XEAX)
(Beckham's Electric LLC)
Disassociation Date: 2019-01-08

COMPLAINT INFORMATION

*Complaints against this contractor are listed below. Complaints that were cancelled, resolved or settled without a corrective work order or dismissed are not included. Contact the **Registrar of Contractors at 602-542-1525 or toll-free statewide at 1-877-My AZROC (1-877-692-9762)** to identify the ROC office location you need to visit to view complete complaint documentation.*

	CLOSED CASES	
0 Open Cases i	**0** Disciplined Cases i	**0** Resolved / Settled Cases i

BOND INFORMATION

How to collect from a license bond (https://roc.az.gov/recovery-fund?targetclass=answer-question-collect#question-collect)

Bond Type:	**SURETY**
Bond Number:	**LSM1240324**
Effective Date:	**2019-04-05**
Bond Company:	**RLI INSURANCE COMPANY**
Amount:	**$ 2500.00**
Paid:	**$ 0.00**
Available:	**$ 2500.00**
Status:	**ACTIVE**

RFQ 19F-0605 EVALUATOR AGREEMENT AND CONFLICT OF INTEREST FORM

NAME and TITLE Michael Nentwig Contracts Specialist I EMPLOYER MESC

ADDRESS 625 East Beale St. Kingman AZ 86401 PHONE 928-718-3203

Contract Specialist working with: Delt

Statement of Understanding
(Initial each section to indicate your understanding of the requirement)

MN I agree to evaluate the responses to the solicitation according to its evaluation criteria terms.
The RFQ evaluation criteria is as follows:

Basis of award: In accordance with Arizona Administrative Code, Article 11: School District Procurement R7-2-1111(C), ARS §34-604(F)(2) and §41-2579(F)(2), Mohave shall issue a Request for Proposal to a final list of responsive and responsible vendors determined to be most qualified to perform the specified construction services. To qualify for evaluation, a Statement of Qualifications must have been submitted on time and materially satisfy all mandatory requirements identified in this solicitation.

Responsive Statement of Qualifications: A responsive Statement of Qualifications conforms in all respects to the material requirements of the solicitation. The Statement of Qualifications shall be responsive to receive further consideration. Mohave reserves the right to waive minor informalities.

The Request for Qualifications is the first of a two-step procurement process. Contracts, if any, will be awarded in accordance with the subsequent Request for Proposal. Mohave will issue a Request for Proposal to a final list of responsive and responsible vendors determined to be the most qualified to perform the specified electrical services. The final list shall be at least three, but no more than five offerors.

MN I understand that Mohave will consider my evaluation along with evaluations by other professionals. However, I also agree that Mohave is under no obligation to accept my evaluation, except as advisory. I also understand that Mohave will hold my employer and/or me harmless if any vendor or interested party protests any award or lack of award made by Mohave under the terms of this solicitation.

MN I agree not to discuss my evaluation or any of the evaluation process prior to the announcement of an award, as required by Arizona statute (per ARS § 41-2616, C).

MN I confirm that I have not received gratuities in the form of entertainment, gifts, or otherwise, that have been offered by any of the bidders responding to this solicitation with a view toward securing a contract.

Mohave may publicly thank members of the evaluation committee who are not employed by Mohave on our website. By making your selection below, this will indicate your understanding that we may publicly recognize your help with the evaluation process. Please indicate if wish or do not to be thanked in this manner, by indicating with Yes or No answer below:

MN (Yes) ____ (No)

Please indicate your answer by signing your initials in the appropriate boxes

☐ New Evaluator ☒ Returning Evaluator

The Arizona Revised Statutes (ARS) place some restrictions with which you must comply regarding conflict of interest not only for yourself but also your relatives (Relative means: spouse, child, child's child, parent, grandparent, siblings (full or half-blood) and their spouses, and the parent, sibling or child of a spouse, pursuant to ARS 38-502). You are required to complete the following form to determine that you're in compliance with these provisions. This form must be completed every time you participate in a contract evaluation.

Business Interest

Are you, or any of your relatives, involved in any ownership, employment, public or private affiliations, or special arrangements which may have a substantial (Substantial means: any pecuniary or proprietary interest, either direct or indirect, other than a remote interest) interest in any contract, sale, purchase, or service involving Mohave or any of Mohave's contracts, vendors or members?

☒ No ☐ Yes Please describe below (attach sheet if necessary):

_____

_____

_____

Liability

Violating Arizona's conflict of interest laws have significant consequences which include, but may not be limited to:

1. Intentionally or knowingly violating any provision of sections 38-503 through 38-505 is guilty of a CLASS 6 FELONY.
2. Recklessly or negligently violating any provision of sections 38-503 through 38-505 is guilty of a CLASS 1 MISDEMEANOR.

MN I understand that I may be held personally liable for costs associated with violating Arizona's conflict of interest laws.

I also acknowledge that I am responsible for knowing and understanding Arizona's conflict of interest laws available in A.R.S. 38-501 through 38-510.

Signature _____ **Date** 6/7/19

Signature by Mohave: Anita L Mizuno

Mohave Educational Services Cooperative, Inc., 625 E. Beale St. Kingman AZ, 86401

RFQ 19F-0605 EVALUATOR AGREEMENT AND CONFLICT OF INTEREST FORM

NAME and TITLE JEFF BOHNENKAMP - SR PROJECT MGR EMPLOYER ESB DESIGN + BUILD

ADDRESS 11280 W 9 BONITA ROAD, MARANA, AZ 85658 PHONE 520-682-9634

Contract Specialist working with: _____

Statement of Understanding

(Initial each section to indicate your understanding of the requirement)

JB I agree to evaluate the responses to the solicitation according to its evaluation criteria terms.

The RFQ evaluation criteria is as follows:

Basis of award: In accordance with Arizona Administrative Code, Article 11: School District Procurement R7-2-1111(C), ARS §34-604(F)(2) and §41-2579(F)(2), Mohave shall issue a Request for Proposal to a final list of responsive and responsible vendors determined to be most qualified to perform the specified construction services. To qualify for evaluation, a Statement of Qualifications must have been submitted on time, and materially satisfy all mandatory requirements identified in this solicitation.

Responsive Statement of Qualifications: A responsive Statement of Qualifications conforms in all respects to the material requirements of the solicitation. The Statement of Qualifications shall be responsive to receive further consideration. Mohave reserves the right to waive minor informalities.

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JB (Yes) _____ (No)

Please indicate your answer by signing your initials to the appropriate boxes

☑ New Evaluator ☐ Returning Evaluator

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☐ No ☑ Yes Please describe below (attach sheet if necessary):

ESB has a MOHAVE CONTRACT FOR MODULAR BUILDINGS

Liability

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I also acknowledge that I am responsible for knowing and understanding Arizona's conflict of interest laws available in A.R.S. 38-501 through 38-510.

Signature _____ Date 6/20/19

Signature by Mohave: _____

RFQ 19F-0605 EVALUATOR AGREEMENT AND CONFLICT OF INTEREST FORM

NAME and TITLE Phil Alfred, Asst. City Engineer EMPLOYER City of Kingman

ADDRESS 310 N 4th Street PHONE (928) 753-8124

Contract Specialist working with: Mike Northrup

Statement of Understanding

(Initial each section to indicate your understanding of the requirement)

PA I agree to evaluate the responses to the solicitation according to its evaluation criteria terms.

The RFQ evaluation criteria is as follows:

Basis of award: In accordance with Arizona Administrative Code, Article 11: School District Procurement R7-2-1111(C), ARS §34-604(F)(2) and §41-2579(F)(2), Mohave shall issue a Request for Proposal to a final list of responsive and responsible vendors determined to be most qualified to perform the specified construction services. To qualify for evaluation, a Statement of Qualifications must have been submitted on time, and materially satisfy all mandatory requirements identified in this solicitation.

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X (Yes) ____ (No)

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PA New Evaluator ☐ Returning Evaluator

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PA No ☐ Yes Please describe below (attach sheet if necessary):

_____

_____

_____

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I also acknowledge that I am responsible for knowing and understanding Arizona's conflict of interest laws available in A.R.S. 38-501 through 38-510.

Signature _____ **Date** 6/10/18

Signature by Mohave: _____

RFQ 19F-0605 EVALUATOR AGREEMENT AND CONFLICT OF INTEREST FORM

NAME and TITLE Nancy Colbaugh Contracts Manager EMPLOYER MESC, Inc

ADDRESS 625 E. Beale Street PHONE 928-753-6945

Contract Specialist working with: Mike Nantuag, CPPB

Statement of Understanding

(Initial each section to indicate your understanding of the requirement)

NC I agree to evaluate the responses to the solicitation according to its evaluation criteria terms.
The RFQ evaluation criteria is as follows:

Basis of award: In accordance with Arizona Administrative Code, Article 11: School District Procurement R7-2-1111(C), ARS §34-604(F)(2) and §41-2579(F)(2), Mohave shall issue a Request for Proposal to a final list of responsive and responsible vendors determined to be most qualified to perform the specified construction services. To qualify for evaluation, a Statement of Qualifications must have been submitted on time, and materially satisfy all mandatory requirements identified in this solicitation.

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N/A (Yes) ____ (No)

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I also acknowledge that I am responsible for knowing and understanding Arizona's conflict of interest laws available in A.R.S. 38-501 through 38-515.

Signature Nancy Colbaugh **Date** 6/6/19

Signature by Mohave Anita S Mizuno

RFQ 19F-0605 EVALUATOR AGREEMENT AND CONFLICT OF INTEREST FORM

NAME and TITLE Michael S. Carter EMPLOYER Mohave Educational

ADDRESS 625 E. Beale St. Kingman AZ PHONE 928-753-6945

Contract Specialist working with: Mike Newberg

Statement of Understanding

(Initial each section to indicate your understanding of the requirement)

MC I agree to evaluate the responses to the solicitation according to its evaluation criteria terms.

The RFQ evaluation criteria is as follows:

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MC No ☐ Yes Please describe below (attach sheet if necessary):

_____

_____

_____

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MC I understand that I may be held personally liable for costs associated with violating Arizona's conflict of interest laws.

I also acknowledge that I am responsible for knowing and understanding Arizona's conflict of interest laws available in A.R.S. 38-501 through 38-510.

Signature Michael S. Carter **Date** 6/11/19

Signature by Mohave: Anita L. Mineer

SAM Search Results
List of records matching your search for :

Search Term : Pueblo Mechanical & Controls, LLC*
Record Status: Active

ENTITY Pueblo Mechanical and Controls, LLC Status: Active

DUNS: 105451186 +4: CAGE Code: 3N3A9 DoDAAC:

Expiration Date: 02/22/2020 Has Active Exclusion?: No Debt Subject to Offset?: No

Address: 6771 E Outlook Dr
City: Tucson State/Province: ARIZONA
ZIP Code: 85756-9409 Country: UNITED STATES

State Agencies
State Services
Visit OpenBooks
Ombudsman-Citizens Aide
AZ.Gov

ARIZONA
DEPARTMENT OF ADMINISTRATION
PROCUREMENT (/)

The online home of the Arizona State Procurement Office

Search

Suspended and Debarred Firms

Procurement Resource Library (/administration-policy/state-procurement-resource)
Procurement Regulations (/administration-policy/state-procurement-resource/procurement-regulations)
Standard Procedures (/administration-policy/state-procurement-resource/standard-procedures)
Forms and Documents (/administration-policy/state-procurement-resource/standard-forms-and-documents)
Suspended and Debarred Firms (/administration-policy/state-procurement-resource/suspended-debarred-firms)

SUSPENDED AND DEBARRED FIRMS

SPO is responsible for maintaining a list of firms that are suspended or debarred from doing business with the State of Arizona.

THERE ARE NO SUSPENDED OR DEBARRED FIRMS AT THIS TIME.



Contact Us (/contact-us)

State Procurement Office, ADOA Building

100 N. 15th Ave., Suite 402

Phoenix, AZ 85007

Find in Google Maps
(https://www.google.com/maps/place/100+N+15th+Ave+%23201/@33.4490935,-112.0926353,17z)

STATEWIDE POLICIES (HTTP://AZ.GOV/POLICIES) SITE MAP (/SITEMAP)

MOHAVE
COOPERATIVE

The Due Diligence Tutorial may be downloaded using the following link:

Click here to view and download the Due Diligence Tutorial for Mohave Contracts.

Pricing for this contract may be found at the following link:

Click here to go to the Mohave Pricing

For further assistance contact the Contract Specialist for this contract:

Michael Carter Specialist, CPPB
Phone: 928-718-3221
Email: **michael@mesc.org**

4/5/18 EH

Price Proposal – Primary Vendor Information
(Place in a clearly marked, separate sealed envelope)

IF YOUR FIRM WAS SHORTLISTED FOR DIVISION 22 PLUMBING, DIVISION 23 HEATING, VENTILATION AND AIR CONDITIONING OR DIVISION 26 ELECTRICAL, PROVIDE CO-EFFICIENTS AND PRICING INFORMATION FOR BOTH DIVISIONS OR INDICATE IF THE CO-EFFICIENTS WILL BE IDENTICAL FOR BOTH DIVISIONS.

Price Proposal shall be submitted in a clearly marked, separate sealed envelope. Offeror shall provide a price proposal to include the following information:

1. **Name and Date of the Unit Price Book (UPB):**

2. **Coefficient(s) to be applied to pre-priced items (items listed in the UPB) for work performed during:**
   - Normal business hours (Monday - Friday 7 a.m. - 5 p.m.)
   - Other hours (after hours, weekends, and holidays)
   - Note adjustments to the coefficient(s), if applicable, for work performed in different regions of the state.

3. **Coefficient(s) to be applied to non pre-priced items (items not listed in the UPB) for work performed during:**
   - Normal business hours (Monday - Friday 7 a.m. - 5 p.m.)
   - Other hours (after hours, weekends, and holidays)
   - Note adjustments to the coefficient(s), if applicable, for work performed in different regions of the state.

   Notes: Provide a brief explanation of the rationale for your coefficients. The rationale should indicate how you determined the cost of doing the work and the various elements that made up your coefficients. See Specification 1.2.13, Pricing, for additional information.

4. **Open Book Pricing Workbook:**
   NOTE: ***The workbook contains cells that include formulas to calculate total costs. Do not override the formulas within these cells.***

   If offeror is including the Open Book Pricing methodology in their price proposal, the Open Book Price workbook shall be completed as follows:
   - Provide complete information in the worksheet titled, *"Price Summary"* in the electronic Open Book Price workbook titled, *"19F-0808 Open Book Price Summary.xlsx"* includes yellow highlighted cells for *General and Administrative Cost (G&A)* and *Profit*. Place the percentage value your firm will use to calculate overhead and profit for the Direct Project Costs and General Conditions.
   - The worksheet titled, *"General Conditions"* in the electronic Open Book Price workbook titled, *"19F-0808 Open Book Price Summary.xlsx"*, includes general conditions, services, or costs not identified or included in the subcontractor quotations.
   - Provide the labor and/or service unit price for the yellow highlighted cells in the section titled, *Admin Fee Items: Unit Price.* Additionally, include the unit of measure (e.g. per hour, per day, per week) as applicable in the *Unit Of Measure* column.
   - Provide additional costs as applicable for yellow highlighted cells in the section titled, *Non-Admin Fee Items*. Non-Admin Fee items include costs that are "passed-through" to member at cost to the contract vendor. *Mohave shall not collect administration fees on the above non-admin fee items.*
   - Add line items to the Admin and/or Non-Admin Fee schedules as necessary.
   - **Only services/ costs identified in this price schedule will be allowed under an awarded contract.**
   - This workbook will serve as your quoting template for all open book projects under an awarded contract.

5. **Trade Service Price Guides for items and services not included in the UPB:**
   - The pricing methodology to determine the Mohave price shall be:
     - Discount off list (specify discount).
     - Discount off Column Two (specify discount) when List Price is unavailable.
6. **Professional Services (Provide the applicable hourly rate for each service offered. No coefficient will be applied to these rates.)**
   - Design Services
   - Engineering Services
   - Other Professional Services (specify service and rate)
7. **Maintenance Services and Extended Warranties (Provide the cost for all maintenance services and extended warranties that are available after the warranty period. No coefficient will be applied to these prices.)**
8. **Other Charges (Provide any additional costs~~,~~ or incidental charges. Such charges may include the items listed below. No coefficient will be applied to these charges.)**
   - 100% Performance and Payment Bonds
   - Meals and incidental expenses (M&IE), transportation and lodging
   - Mobilization (Indicate when mobilization charges would apply.)
     NOTE: Mobilization may only be used with projects priced using Trade Service and labor. Mobilization charges shall not be allowed with UPB or Open Book Pricing methodologies.
   - Other
9. Will you offer members a quick pay discount if payment is made within 10 or 20 days? Yes ___ No X
   - If Yes, what is the discount for 10 days? _____ 20 days? _____

Travel Description

If travel rates are applicable, describe how they are calculated, and when they are necessary, (e.g. 50 miles from origin). Include information regarding what the travel rates cover. (See **Pricing: Reimbursement for Transportation, Mileage, Lodging, Meals and Incidental Expenses** in the Special Terms and Conditions.)

Travel rates are applicable when work sites exceed 50-mile radius from our current Tucson and Phoenix office locations. In some cases overnight lodging will not be required if it is more cost effective to travel to the work site daily versus overnight stays.

Meals & Incidentals are only applicable for work involving overnight accommodations.

Bond Methodology Description

Provide detailed information explaining the methodology to be used when bonds are applied to projects. Describe in detail the method your surety company requires you to use (e.g., bonds are applied before sales tax is applied, bonds are applied after sales tax is applied). Mohave will use this information to verify that your firm is consistently charging bonds in the same manner under an awarded contract.

The use of bonds is based on current state legislation and owners' requirements. Projects under $100,000 do not require bonding Unless specifically requested by the owner, all proposals will include this language. Bonding cost is calculated based on the total price obligation.

RFP 19F-0808
Job Order Contracting for Various Construction Trades
Response for Pueblo Mechanical & Controls, LLC

UNIT PRICE BOOK [UPB]
TRA-SER
OPEN BOOK
PRICE PROPOSAL SUMMARY

Proposed pricing is summarized below for the following pricing methodologies:

- **RS Means UPB [primary pricing method]**
- **Open Book**
- **TRA-SER [primarily used for Service related work not contained in UPB]**
- **Miscellaneous Pricing [bonds, shipping, credit cards, etc.]**

Note: In accordance with the contract Special Terms & Conditions a combination of all three pricing methodologies may be used.

Note: RS Means and TRA-SER are not inclusive of applicable tax, therefore all coefficients in this response are inclusive of applicable (if any) AZ Department of Revenue tax.

Note: All coefficients are inclusive of Mohave Fee's.

1. Name/Date of Unit Price Book: **RS Means CostWorks 2019**
[Updated Quarterly]
Titles: Facilities Construction Cost Data, Mechanical Cost Data, Plumbing Cost Data, Facilities Maintenance & Repair Cost Data, Commercial Renovation Cost Data

Service centric projects will utilize additional items in the TRA-SER catalog when not contained in the primary UPB

***Note: Projects requiring Davis-Bacon wage rates receive an additional 15% labor adjustment to comply with statutory federal requirements**

2. Coefficients - Pre-Priced Primary UPB Coefficients [RS Means CostWorks]:

APPLIES TO ALL DIVISIONS

Normal Business Hours [M-F 7am – 5pm]: **.85**

Other Hours [Weekends, holidays, etc.]: **.95**

Adjustments to the coefficient(s), if applicable

for work performed in different regions of the state: **N/A - None**

Professional Services

Design Services [Mechanical/Electrical]: **$116.00/hr.**

Engineering Services: **$120.00/hr.**

Principal Engineering Services: **$142.00/hr.**

Other Professional Services

Drafting [CAD] Design: **$92.00/hr.**

Architect: **$142.00/hr.**

Principal Architect: **$160.00/hr.**

Maintenance and Other Services [based on hourly labor rates]:

Duty Position	**Normal Hours**	**After Hours / Emergency Hours**	**Holidays**
HVAC Chiller Tech [Wetside Applications]	**$104.00/hr.**	**$142.00/hr.**	**$176.00/hr.**
HVAC Unitary Tech [Dryside Applications]	**$99.00/hr.**	**$136.00/hr.**	**$168.00/hr.**
Pipefitter / Steamfitter	**$94.00/hr.**	**$129.00/hr.**	**$159.00/hr.**
Sheet Metal Installation	**$74.00/hr.**	**$101.00/hr.**	**$125.00/hr.**
Plumber	**$98.00/hr.**	**$134.00/hr.**	**$166.00h/hr.**
Water Treatment	**$101.00/hr.**	**N/A**	**N/A**
HVAC Building Automation Tech – Controls/Programing	**$98.00/hr.**	**$134.00/hr.**	**$166.00/hr.**
Project Manager / Quality Control	**$96.00/hr.**	**$131.00/hr.**	**$163.00/hr.**
Electrical [by PMAC]	**$87.00/hr.**	**$119.00/hr.**	**$147.00/hr.**
General Labor	**$50.00/hr.**	**$68.00/hr.**	**$85.00/hr.**

Note: Labor rates above are all inclusive, no other factors or mark-ups are applied

Note: Normal hours are 7:00 am – 5:00 pm Monday – Friday [Excluding holidays]
Other Charges

3. Coefficients - Custom or Special Non-Prepriced Items Not Found in UPB or TRA-SER [Pricing based on three quotes when available; single source or customer mandated items due to specific specifications are available if they comply with contract requirements]

Normal Business Hours [M-F 7am – 5pm]:	**1.20**
Other Hours [Weekends, holidays, etc.]:	**1.20**
Adjustments to the coefficient(s), if applicable	
for work performed in different regions of the state:	**N/A - None**

NOTE: The use of the non-prepriced pricing option will only take place when the equipment/supplies are not listed in primary or secondary costing and include a statement clearly indicating that pricing is not available via other pricing methodologies

Explanation Notes: Established coefficients represent the minimum realistic cost estimate to capture direct/indirect costs, overhead, and a sustainable profit. The coefficients represent project cost averages based on project spanning 15 years of UPB utilization.

4. Open Book Pricing Workbook/Summary:

Name of Pricing Source:	**19F-0808 Open Book Price Summary Excel Spreadsheet – Jul 19**
General & Administrative Cost (G&A)	**10%**
Profit	**5%**
General Conditions	**Derived from Open Book pricing spreadsheet General Conditions Tab**

Duty Position [Direct Company Labor]	**Normal Hours**	**After Hours / Emergency Hours**	**Holidays**
Project General Manager	**$94.00/hr.**	**$129.00/hr.**	**$159.00/hr.**
Project Manager	**$83.00/hr.**	**$114.00/hr.**	**$141.00/hr.**
Estimator	**$77.00/hr.**	**$105.00/hr.**	**$131.00/hr.**
Senior Superintendent	**$77.00/hr.**	**$105.00/hr.**	**$131.00/hr.**
Superintendent	**$72.00/hr.**	**$99.00/hr.**	**$122.00/hr.**
CQC Inspector	**$77.00/hr.**	**$105.00/hr.**	**$131.00/hr.**
Safety Manager	**$83.00/hr.**	**$114.00/hr.**	**$141.00/hr.**

Field Engineer	**$94.00/hr.**	**$129.00/hr.**	**$159.00/hr.**
Administrative Assistant	**$58.00/hr.**	**$79.00/hr.**	**$98.00/hr.**
HVAC Chiller Tech [Wetside Applications]	**$90.00/hr.**	**$123.00/hr.**	**$153.00/hr.**
HVAC Unitary Tech [Dryside Applications]	**$86.00/hr.**	**$118.00/hr.**	**$146.00/hr.**
Pipefitter / Steamfitter	**$82.00/hr.**	**$112.00/hr.**	**$139.00/hr.**
Sheet Metal Installation	**$64.00/hr.**	**$88.00/hr.**	**$108.00/hr.**
Water Treatment	**$88.00/hr.**	**$121.00/hr.**	**$149.00/hr.**
Plumber	**$85.00/hr.**	**$116.00/hr.**	**$144.00/hr.**
Electrical [by PMAC]	**$68.00/hr.**	**$93.00/hr.**	**$115.00/hr.**
HVAC Building Automation Tech – Controls/Programing	**$85.00/hr.**	**$116.00/hr.**	**$144.00/hr.**
General Labor / Driver	**$43.00/hr.**	**$59.00/hr.**	**$73.00/hr.**
In-House Design Services [Mech/Electric]	**$101.00/hr.**	**$138.00/hr.**	**$171.00/hr.**
In-House Drafting [CAD] Design	**$80.00/hr.**	**$110.00/hr.**	**$136.00/hr.**

See detailed Open Book Breakout Below:

5. Trade Service [TRA-SER] Price Guides/Summary:

Name/Date of Pricing Source:	**TradeService eDataFlex**

Note: TRA-SER equipment pricing is also available as a stand-alone pricing option

Normal Business Hours [M-F 7am – 5pm]:	**.90 [List Price Column]**
Other Hours [Weekends, holidays, etc.]:	**.90 [List Price Column]**
Discount off Column Two when List Price not avail.	TBD

Note: Labor rates are listed above in the UPB section; no additional mark-up is applied to these rates

Note: TRA-SER pricing may be combined with UPB pricing to provide a complete turn-key solution

6. Professional Services:

Professional Services	
Design Services [Mechanical/Electrical]:	**$105.00/hr.**
Principal Engineering Services:	**$130.00/hr.**
Other Professional Services	
Drafting [CAD] Design:	**$83.00/hr.**
Architect:	**$130.00/hr.**

7. Maintenance Services and Extended Warranties:

Factory or Misc. Formal Training / Instruction:	**Direct Cost**
Maintenance Services	**Labor/Materials IAW standard JOC pricing [Trade Service/UPB]**
Extended Warranties [if available through manufacturer and/or vendor]	**Direct Cost**

Mohave JOC Open Book Price Summary

Mohave Solicitation Number RFP 19F-0808

Member	
Project Title	
Project Location	

Date	

NOTE: The workbook contains cells that include formulas to calculate total costs. Do not override the formulas within these cells.

This worksheet is for the detailed information and pricing for quotations from subcontractors, and the General and Administrative Cost (G&A) and Profit.

To complete the portion required for your price proposal, place the percentage value your firm will use to calculate overhead and profit for the Direct Project Costs and General Conditions in the yellow highlighted cells.

This workbook will serve as your quoting template for all open book projects under an awarded contract. After completion of this worksheet, you may delete this textbox in your template.

Direct Project Cost

Division/Specialty	#	Quote Summary Subcontractor	Quote Amount	Selected Quote
	1			
	2			
	3			
	1			
	2			
	3			
	1			
	2			
	3			
	1			
	2			
	3			
	1			
	2			
	3			
	1			
	2			
	3			
	1			
	2			
	3			
	1			
	2			
	3			
	1			
	2			
	3			
			Subtotal 1 (Total Direct Project Cost)	**$0.00**
General Conditions (GCs) Adminfeeable				$ -
General Conditions (GCs) Admin Fee				$ -
General Conditions (GCs) Total Without Admin Fee				$ -
			Subtotal 2 (Direct Project Cost + General Conditions)	**$0.00**
General & Administrative Cost (G&A) (Enter applicable G&A Percentage)		10.00%	% of Subtotal 2	$0.00
			Subtotal 3 (Subtotal 2 + G&A)	**$0.00**
Profit (Enter applicable profit percentage)		5.00%	% of Subtotal3	$0.00
			Subtotal 4 (Subtotal 3 + Profit)	**$0.00**
Total Amount Subject to Mohave Admin Fees (based on costs including O&P)				**$0.00** **Total of Adminfeeable Amounts**
				$ - **Total Admin fee due**
General Conditions (GCs) (non-adminfeeable)			$ -	
Tax (Enter applicable tax rate)			$0.00	
Bond, if applicable (Enter applicable unit price)			$0.00	
Total Project Cost			**$0.00**	

*** Provide vendor name & explanation if low quote is not selected.**

Item Number (optional)	Item Description	Quantity	Unit of Measure	Unit Price	Total	Remarks
Admin Fee Items						
	Project General Manager		hr	$ 94.00	$ -	
	Project Manager		hr	$ 83.00	$ -	
	Estimator		hr	$ 77.00	$ -	
	Senior Superintendent		hr	$ 77.00	$ -	
	Superintendent		hr	$ 72.00	$ -	
	CQC Inspector		hr	$ 77.00	$ -	
	Safety Manager		hr	$ 83.00	$ -	
	Field Engineer		hr	$ 94.00	$ -	
	Administrative Assistant		hr	$ 58.00	$ -	
	HVAC Chiller Tech		hr	$ 90.00	$ -	
	HVAC Unitary Tech		hr	$ 86.00	$ -	
	Pipefitter / Steamfitter		hr	$ 82.00	$ -	
	Sheet Metal Installation		hr	$ 64.00	$ -	
	Water Treatment		hr	$ 88.00	$ -	
	Plumber		hr	$ 85.00	$ -	
	Electrical (by PMAC)		hr	$ 68.00	$ -	
	HVAC Building Automation		hr	$ 85.00	$ -	
	General Labor / Driver		hr	$ 43.00	$ -	
	Design Services [Mech/Electrical]		hr	$ 101.00	$ -	
	Drafting [CAD] Design		hr	$ 80.00	$ -	
	Architect		hr	$ 123.00	$ -	
	Principal Architect		hr	$ 130.00	$ -	
	Plans / Specs / Drawings			$ -	$ -	
	Temporary Electric			$ -	$ -	
	Electricity Usage			$ -	$ -	
	Water Usage (incl. bottled water)			$ -	$ -	
	Temporary Toilet Usage			$ -	$ -	
	Cellular / Mobile Service			$ -	$ -	
	Trash Service - Tonnage			$ -	$ -	
	Trash Service - Rental			$ -	$ -	
	Trash Service - Dumps			$ -	$ -	
	Temp. Fences & Barriers			$ -	$ -	
	Project ID Signs			$ -	$ -	
	Trailer Set-up & Remove			$ -	$ -	
	Trailer Rental			$ -	$ -	
	Field Office Expense			$ -	$ -	
	Postage / Messengers / Fedex			$ -	$ -	
	Safety Related -(Labor)			$ -	$ -	
	Safety Related -(Materials)			$ -	$ -	
	Gasoline / Fuel			$ -	$ -	
	Final Clean			$ -	$ -	
				$ -	$ -	
				$ -	$ -	
				$ -	$ -	
				$ -	$ -	
				$ -	$ -	
	Total Adminfeeable Items				$ -	
	Item Description	Quantity	Unit of Measure	Subcontract Unit Price	Total	Remarks
Non-Admin Fee Items						
	Mileage Reimbursement				$ -	
	Licensing & Permits				$ -	
	Travel - Transport - Airfare				$ -	
	Travel - Transport - Car Rental				$ -	
	Travel - Lodging				$ -	
	Travel - Meals				$ -	
	Total Non-Adminfeeable Items				$ -	

NOTE: The workbook contains cells that include formulas to calculate total costs. Do not override the formulas within these cells.

This worksheet is for general conditions, services, or costs not identified or included in the subcontractor quotations. To complete the portion required for your price proposal, provide the information as applicable below:

- Provide the labor and/or service unit price for the yellow highlighted cells in the section titled, Admin Fee Items: Unit Price. Additionally, include the unit of measure (e.g. per hour, per day, per week, etc.) as applicable in the Unit Of Measure column.
- Provide additional costs as applicable for yellow highlighted cells in the section titled, Non-Admin Fee Items. Non-Admin Fee items are costs that is "passed-through" to member at cost to the contract vendor. Mohave shall not collect administration fees on the above non-admin fee items.
- Add line items to the Admin and/or Non-Admin Fee schedules as necessary.
- Only services/costs identified in this price schedule will be allowed under an awarded contract.
- This workbook will serve as your quoting template for all open book projects under an awarded contract.

This workbook will serve as your quoting template for all open book projects under an awarded contract. After completion of this worksheet, you may delete this textbox in your template.

8. Other Charges – Miscellaneous Pricing:

100% Performance/Payment Bonds: **Note:** P/P bonds are calculated based on the <u>total</u> project cost [base price + tax]	**1.50% of project cost**
Meals and Incidental Expenses (M&IE):	**Per AZ State rates**
Transportation and Lodging: **Note:** M&IE, travel, and lodging are only applicable outside 50 mile radius of Tucson & Phoenix offices	**Per AZ State rates**
Expedited Shipping:	**Direct Cost**
Factory or Misc. Formal Training / Instruction:	**Direct Cost**
Credit Card / P Card Fees [when applicable]:	**Direct Cost + 1%**
Mobilization	**No additional charges other than allowed as pre-priced line items in the UPB, Open Book, or TRA-SER**
Maintenance Services	**Labor/Materials IAW standard JOC pricing**
Extended Warranties [if available through manufacturer and/or vendor]	**Direct Cost**
Permits or other direct construction fees:	**Direct Cost**
Additional Print Sets or Extra O&M Manuals	**Direct Cost**
Miscellaneous Admin Fees Not Included Above [E.g. Native American TERO or other tribal fees, etc.]:	**Direct Cost**

9. Quick Pay Discounts:

Will you offer members a quick pay discount if payment is made within 10 or 20 days? Yes _____ No __**X**__

MOHAVE COOPERATIVE

Solicitation as Issued

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RFP 19F-0808
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4/5/18 EH

MOHAVE COOPERATIVE

Request for Qualifications 19F-0605
Job Order Contracting for
Various Construction Trades

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Click section title to be taken directly to that section.

4/5/18 EH

625 East Beale Street, Kingman, AZ 86401 Phone: (928) 753-6945 Fax: (928) 718-3232 mesc.org

REQUEST FOR QUALIFICATIONS 19F-0605

Job Order Contracting for Various Construction Trades

Pursuant to the provisions in the Arizona procurement rules and code, Mohave Educational Services Cooperative, Inc. seeks Statements of Qualifications to establish contract(s) for Job Order Contracting for Various Construction Trades. A copy of this RFQ is available for public inspection at 625 East Beale Street, Kingman, AZ 86401.

Due Date and Time: **Wednesday, June 5, 2019 at 3:00 p.m.** **(local Arizona time)**

Pre-Qualifications Conference: **Wednesday, May 15, 2019 at 10:00 a.m.** **(local Arizona time)**
Meeting Bridge Conference Call – Audio Only
For login information contact Michael Nentwig,
no later than Tuesday, May 14, 2019.

Last Day for Questions: **Wednesday, May 29, 2019 at 5:00 p.m.** **(local Arizona time)**

Request for Qualifications Questions Must Be Directed To:
Michael Nentwig, CPPB, Contract Specialist I
Email: contracts@mesc.org
Telephone: (928) 718-3203

To be considered, Statements of Qualifications shall be delivered to Mohave Educational Services Cooperative, Inc. (Attn: Contracts Dept.), 625 East Beale Street, Kingman, AZ 86401 in a sealed envelope or package with RFQ 19F-0605, offeror's name, mailing address, and Statement of Qualifications due date and time clearly indicated on the envelope or package. Statements of Qualifications must be in the actual possession of Mohave on, or prior to, the exact time and date indicated above. Statements of Qualifications shall be opened immediately following the Statement of Qualifications due date and time, with the name of each offeror publicly read and recorded. Late Statements of Qualifications shall not be considered. Kingman is considered a "rural" area by many express delivery carriers and thus, they do not guarantee priority (next day) delivery by a specific time. Prospective offerors are encouraged to keep this in mind when arranging delivery of their Statement of Qualifications and are advised herein that late Statements of Qualifications shall be handled as specified by Arizona procurement rules and code.

Offerors are strongly encouraged to carefully read the entire contents of this solicitation prior to submitting a Statement of Qualifications. Failure to examine any of the requirements will be at the offeror's risk.

Mohave reserves the right to cancel this solicitation and/or reject all Statements of Qualifications in whole, or in part, if Mohave determines that cancellation and/or rejection is advantageous to Mohave and/or its members.

Anita S McLemore

Anita S. McLemore, C.P.M.
Executive Director
Mohave Educational Services Cooperative, Inc.

Publish Date: May 1, 2019

Template Rev. 19-1

Request for Qualifications 19F-0605
Job Order Contracting for Various Construction Trades

To Mohave Educational Services Cooperative, Inc.:

The undersigned hereby offers a Statement of Qualifications in compliance with all terms and conditions, requirements and amendments in the solicitation and any written exceptions in the offer. Signature also certifies understanding and compliance with the certification requirements in the General Terms and Conditions.

Federal Employer Identification Number _____

Company Name _____

Address _____ City _____ State _____ Zip _____

Telephone Number _____

The *Offer and Signature Form* shall be submitted with a signature of the person authorized to sign the offer. The person signing the offer shall initial erasures, interlineations or other modifications in the Statement of Qualifications. Failure to sign the *Offer and Signature Form*, or to make other notations as indicated, may result in rejection of the Statement of Qualifications.

Authorized Signature _____

Printed Name _____ Title _____

Primary Email _____ Alternate email _____

*Note: The primary email address will be used for all communication from Mohave regarding your response to this solicitation. Provide an alternate email address that will be used **only** if the primary email address is not valid.*

CONFIDENTIAL/PROPRIETARY SUBMITTALS

Confidential/Proprietary Submittals (mark one):

_____ No confidential/proprietary materials have been included with this Statement of Qualifications.

_____ Confidential/proprietary materials have been included with this Statement of Qualifications. Offerors shall identify below any portion of their Statement of Qualifications deemed confidential or proprietary (see General Terms and Conditions 4. Confidential Information).

Note that any documentation marked as confidential or proprietary must be identified below. Any confidential or proprietary information NOT identified as instructed shall be deemed as non-confidential or non-proprietary.

The confidential/proprietary information identified below does not guarantee that disclosure will be prevented but that the item(s) will be subject to review by the offeror and Mohave prior to any public disclosure. Requests to deem the entire offer or pricing as confidential shall not be considered.

Firm

Authorized Signature

Instructions to Offeror and Checklist Form
(Place after Tab 3a)

You have received this solicitation because of information you provided on Mohave's "online prospective bidders sign-up." **Review this document in its entirety to make sure you fully understand the services and products that we are requesting.** Please do not assume a particular form, section, or requirement does not, or should not, apply to you. Contact Mohave at contracts@mesc.org with questions.

We have included this checklist to assist you in preparing your response. Follow each step, placing the required information in your response binder in the proper place. **All of the items listed below are required**. Initial next to each item to indicate completion.

PRICING SHALL NOT BE INCLUDED IN YOUR STATEMENT OF QUALIFICATIONS.

_____**Step ONE:** Read and understand the document. You are responsible for asking any questions regarding the information you are required to include with your response. Do not hesitate to contact the Contract Specialist as shown on page 1 for clarification on any items contained in this solicitation.

_____**Step TWO:** One (1) original and five (5) additional complete copies of your Statement of Qualifications shall be submitted in separate three-ring loose-leaf binders in the format detailed below. Statements of Qualifications shall contain all descriptive literature, submittal requirements, and any other information required by the solicitation. Include two (2) CD, USB, or similar electronic media device containing electronic copies of your submitted documents with each binder.

Statements of Qualifications must be completed in ink, on a computer, or typewritten. No pencil submissions are allowed. Forms may be filled out by hand, but shall be legible.

_____**Step THREE:** Statement of Qualifications shall be organized and presented in the order as required below, with separate tabs and sub-tabs (e.g. 1a, 1b) and dividers.

_____**Step FOUR:** Confirm that the Statement of Qualifications is complete and signed on page 2 by an authorized representative.

_____**Step FIVE:** Keep a complete copy of your Statement of Qualifications for your records.

_____**Step SIX**: Statements of Qualifications shall be submitted to the proper location in a sealed and properly identified envelope or package, as specified on page 1 of this solicitation. Statements of qualifications must be in the actual possession of Mohave on, or prior to, the exact time and date set for Request for Qualifications opening. Pricing is not requested in the Statement of Qualifications and shall not be included in your response**.**

A Request for Qualifications tabulation (a list of respondents) will be posted at www.mesc.org within one week of the RFQ opening.

——————— Tab and Sub-tab Arrangement ———————

- ***Tab 1: Offer and Signature Form, General Terms and Conditions, and Scope of Work***

_____ **Tab 1a** – The signed *Offer and Signature Form* is placed after Tab 1a.

_____ A copy of suspension or debarment letter (if applicable) is placed after Tab 1a.

_____ A copy of the *Confidential/Proprietary Submittal Form* is placed after Tab 1a.

_____ **Tab 1b** – Signed amendments, if any, are placed after Tab 1b.

_____ **Tab 1c** – A complete copy of the General Terms and Conditions is placed after Tab 1c. *(Note: Unless and until the District Court's injunction in Jordahl v. Brnovich is lifted or stayed, the Anti-Israel Boycott Provision (A.R.S.§35-393.01 (A)) is unenforceable and Mohave will take no action to enforce it.)*

_____ A completed copy of the *General Terms and Conditions Acceptance Form* is placed after Tab 1c. Any exceptions to the General Terms and Conditions are noted and explained.

_____ **Tab 1d** – A copy of the Scope of Work is placed after Tab 1d.

- ***Tab 2: Statement of Qualifications***

Tab 2 – A complete response to the Statement of Qualifications pages is placed after Tab 2, with the following sub-tabs as described.

_____ **Tab 2a** – Table of Contents is placed after Tab 2a.

_____ **Tab 2b** – Letter of Introduction is placed after Tab 2b.

_____ **Tab 2c** – Basic Company Information is placed after Tab 2c.

_____ **Tab 2d** – General and/or Specialty Contracting information is placed after Tab 2d.

_____ **Tab 2e** – Form of Ownership is placed after Tab 2e.

_____ **Tab 2f** – Company Personnel Information is placed after Tab 2f.

_____ A completed Standard Form 330 is placed after Tab 2f.

_____ **Tab 2g** – A complete List of Consultants and Subcontractors is placed after Tab 2g

_____ **Tab 2h** – Financial Information is placed after Tab 2h.

_____ **Tab 2i** – A current certificate or certificates of insurance (**see General Term and Condition 10.1 Insurance**) is placed after Tab 2i.

_____ **Tab 2j** – Past Performance information is placed after Tab 2j.

_____ **Tab 2k** – Contract Management Plan is placed after Tab 2k.

_____ **Tab 2l** – Quality Management Plan is placed after Tab 2l.

_____ **Tab 2m** – Subcontractor Management Plan is placed after Tab 2m.

_____ **Tab 2n** – Safety Plan is placed after Tab 2e.

- ***Tab 3: Additional Information***

_____ **Tab 3a** – Completed *Instructions to Offeror and Checklist Form* is placed after Tab 3a.

_____ **Tab 3b** – Descriptive literature, slicks and any other supporting printed data are placed after Tab 3b.

Scope of Work
(Place after Tab 1d)

1. DESCRIPTION

In order to gain economies of scale, Mohave is formally soliciting sources for Job Order Contracting for Various Construction Trades as specified within this Request for Qualifications. These services are requested for Mohave's statewide membership of approximately 450 public agencies. However, other members may be added during the term of an awarded contract(s). A current list of all members can be found on Mohave's website at www.mesc.org.

Mohave may procure, as an entity for its membership, construction and construction service contracts, as applicable, using the following project delivery method: Job Order Contracting, as stated in Arizona Administrative Code, Article 11: School District Procurement R7-2-1102 through R7-2-1115, ARS §34-602(A)(4) and §41-2582(A)(4). Mohave's use of alternative project delivery methods for construction contracts is in accordance with the Arizona Administrative Code, Article 11: School District Procurement R7-2-1106 through R7-2-1115, ARS §34-604 and §41-2579. Services shall be procured in accordance with the Arizona Administrative Code, Article 11: School District Procurement and ARS §34-604 and §41-2579.

This Request for Qualifications is the first of a two-step procurement process. Contracts, if any, will be awarded in accordance with the subsequent Request for Proposal. Mohave will issue a Request for Proposal to a final list of responsive and responsible vendors determined to be the most qualified to perform the specified construction services. The final list shall include a maximum of twenty total persons/firms, consisting of up to five firms for each specialty contracting divisions listed. Mohave is stating that three specialty contracting divisions will be considered beyond general contracting. Of these possible twenty firms no more than five contracts will be awarded per division for multiple contracts for similar job order contracting construction services to separate persons/firms.

Because any work under this contract will be on a job order basis, exact project details are not available. General information on the project site, scope of work, schedule, project design and construction budget, or life cycle budget information shall be provided by members prior to usage of awarded contracts. Specifications will be included in the subsequent Request for Proposal issued to firms whose Statements of Qualifications make the final list. Those specifications will form the basis for any work to be performed. The specifications are intended to indicate the requirements of Mohave's members, which will include generally accepted practices in the construction industry.

For purposes of this Request for Qualifications, specialty contracting divisions requested are Division 22, Plumbing; Division 23 Heating, Ventilation, and Air Conditioning; and Division 26, Electrical.

Mohave has current contracts for related work (e.g., electrical, JOC fencing, flooring, roofing, electronic safety and security, fire suppression, painting, asphalt paving, plumbing). Any contract awarded as a result of this Request for Qualifications will be in addition to those contracts but will not replace them. The Mohave member shall retain the right to determine which contracts are in their best interests.

Mohave desires to contract with a qualified and experienced offeror, or offerors, to provide quality Job Order Contracting (JOC) for various construction trades for Mohave's statewide membership. Various construction trades in the subsequent Request for Proposals may include, but not be limited to: construction, repair, rehabilitation and alteration services.

Under JOC, a master contract is established with standard specifications and pricing based upon a coefficient that is applied to a Unit Price Book (UPB). Pricing may also be established through an Open Book Pricing methodology. Open Book pricing allows the contract vendor to apply subcontractor price quotes and total direct project costs to a predetermined General and Administrative percentage and profit mark-up. Trade Service along with an established labor hourly rate may be used for service and repair projects. When a JOC order is issued, the member and the contract vendor agree on the scope of work, pricing methodology to be used, and the cost is determined by applying the agreed upon pricing methodology to the entire project. **Statements of Qualifications shall not include pricing, coefficients or General and Administrative percentage and profit mark-up information.**

Mohave currently has two active and one expired JOC contracts (14G-0808) for general contracting. Activity under the contracts from 09/03/14 including year to date activity (as of the publication date of this RFQ) is $101,558,666.

Mohave currently has one JOC contract (14G-0808) for Division 23. Activity under this contract from 09/03/14 including year to date activity (as of the publication date of this RFQ) is $84,207,330.

This information is provided as an aid to vendors in preparing Statements of Qualifications only. If awarded a contract under a subsequent RFP, the coefficient(s) and any other pricing shall apply regardless of the dollar volume of orders under the contract. Work shall be performed at various locations statewide.

2. ESTIMATED TIMELINE OF EVENTS

Mohave has developed the following estimated timeline of events related to this formal solicitation. All dates are subject to change as required and at the sole discretion of Mohave.

EVENT	ESTIMATED DATE
Request for Qualifications Issued	May 1, 2019
Pre-qualifications Conference Held	May 15, 2019 at 10:00 a.m. (local AZ time) Pre-qualifications conference will be held using *Meeting Bridge* telephone conferencing. Please contact Mohave for reservation details.
Deadline for Questions	May 29, 2019 at 5:00 p.m. (local AZ time)
Published Request for Qualifications Due Date and Time	June 5, 2019 at 3:00 p.m. (local AZ time) 625 East Beale Street, Kingman, AZ 86401
Public Opening of Request for Qualifications	June 5, 2019 at 3:00 p.m. (local AZ time)
Selection of Final List (*estimated date only*)	June 14, 2019 NOTE: Notification will be sent by email to all selectee(s) and non-selectee(s) for the final list on or before this date.
Request for Proposals Issued (*estimated date only*)	July 1, 2019

3. SUBMISSION OF STATEMENT OF QUALIFICATIONS

3.1. The Statement of Qualifications shall provide straightforward, concise information that satisfies the requirements. Expensive bindings and/or color displays are not necessary. Emphasis should be placed on conformity to the terms and conditions, as well as the completeness and clarity of the submittal content.

3.2. The offeror must submit its Statement of Qualifications following information detailed in the *Instructions to Offeror and Checklist Form*.

3.3. A Statement of Qualifications submitted in response to this solicitation shall be valid and irrevocable for one hundred twenty (120) days after opening date and time.

4. CONTRACT TYPE

No contracts shall be awarded from this Request for Qualifications. However, contracts for an initial one (1) year term and four (4) potential one-year extensions will be awarded in the subsequent Request for Proposal.

5. EVALUATION CRITERIA

The weighted award criteria for this solicitation, in relative order of importance, are as follows:

Criteria	**Points**
Offeror's qualifications and experience	40
Quality of the Statement of Qualifications	20
Offeror's contract management plan	10
Offeror's quality management plan	10
Offeror's subcontractor management plan	5
Offeror's financial capacity	5
Offeror's safety record	5
References, past performance information and other pertinent information	5
Total	**100**

References and definitions used for specifications: (acronyms used in the solicitation are noted in bold font below):

Construction Specifications Institute: www.csiresources.org

General Terms and Conditions
(Place after Tab 1c)

Some General Terms and Conditions specify placement of information in tabs other than Tab 1c as noted in the title above. Pay close attention to placement information (identified in bold text) as indicated in select General Terms and Conditions.

1. AVAILABILITY OF FUNDS

Member funding availability is unknown to Mohave at the time this solicitation was issued. Use of any contract awarded by Mohave will be conditioned upon the availability of member funds.

2. CAPTIONS, HEADINGS AND ILLUSTRATIONS

The captions, illustrations, headings, and subheadings in this solicitation are for convenience and ease of perusal only, and in no way define, limit or describe the scope or intent of the request.

3. CERTIFICATION

By signing the *Offer and Signature Form* (page 2 of the Request for Qualifications), offeror certifies the following:

- Offeror has examined and understands the terms, conditions, scope of work, and other documents in this solicitation.
- The submission of the offer did not involve collusion or other anticompetitive practices. Neither signatory nor any person on his behalf has connived or colluded to produce a deceptive show of competition in the matter of the bidding or award of a contract under this solicitation.
- Offeror has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted offer.
- Neither offeror, nor any officer, director, partner, member or associate of offeror, nor any of its employees directly involved in obtaining contracts with the State of Arizona, Mohave Educational Services Cooperative, Inc., or any subdivision of the state has been convicted of false pretenses, attempted false pretenses, or conspiracy to commit false pretenses, bribery, attempted bribery or conspiracy to bribe under the laws of any state or federal government for acts or omissions after January 1, 1985.
- Offeror agrees to comply fully with any and all provisions of ARS, Title 32, Chapter 10 (Registrar of Contractors) that may regulate offeror's business.
- Offeror shall not discriminate against any employee, or applicant for employment, in violation of federal and state laws (see Federal Executive Order 11246; and ARS, Title 41, Chapter 9, Article 4).
- Offeror is not currently suspended, debarred or otherwise precluded from participating in any public procurement activity with any federal, state or local government entity.
- If awarded a subsequent contract, offeror agrees to promote, offer and sell under Mohave contract only those materials and/or services awarded to contract vendor by Mohave.
- If awarded a subsequent contract, offeror shall provide the equipment, commodities, and/or services to members of Mohave in accordance with the terms, conditions, scope of work, specifications, and other documents of this Request for Qualifications and the subsequent Request for Proposal.
- If awarded a subsequent contract, offeror agrees that all staff and other individuals eligible to receive services shall have equal access to the services regardless of race, religion, color, sex, disability, age or national origin (including language minority individuals).
- Offeror and all proposed subcontractors comply and shall remain in compliance with the Federal Immigration and Nationality Act (FINA), all other current federal immigration laws and regulations, ARS §41-4401, and ARS §23-214, which requires compliance with current federal immigration laws by Arizona employers, Arizona contractors and Arizona subcontractors in accordance with the E-Verify employee eligibility verification program.

- Offeror shall comply with ARS §35-393.01 and certify that they are not currently engaged in and agree that for the duration of the contract to not engage in, a boycott of Israel. **(Note: Unless and until the District Court's injunction in *Jordahl v. Brnovich et at.,* Case No. 3:17-cv-08263 (D. Ariz.) is stayed or lifted, the Anti-Israel Boycott Provision (A.R.S. the Anti-Israel Boycott Provision (A.R.S. 35-393.01 (A)) is unenforceable and will take no action to enforce it. Compliance to this term and condition is not a mandatory part of the offer as long as the injunction remains in place. Offers will not be evaluated based on whether the offeror complied or deviated to this term and condition.)**
- If applicable to the products and services offered under this contract, Offeror shall comply with current applicable requirements of Health Insurance Portability and Accountability Act of 1996 (HIPPA), and accompanying regulations. Contract vendor agrees to work with the member in the course of performance so that the member and contract vendor are in compliance with HIPPA.

4. CONFIDENTIAL INFORMATION

4.1. Confidential information request: If offeror believes that its Statement of Qualifications contains confidential trade secrets or other proprietary data not to be disclosed, a statement advising Mohave of this fact shall accompany the Statement of Qualifications, and the information shall be so identified wherever it appears. Mohave shall review the statement and shall notify the offeror of their determination in writing whether the information shall be withheld or disclosed. Requests to deem the entire offer as confidential will not be considered.

4.2. Public record: All Statements of Qualifications submitted in response to this solicitation shall become the property of Mohave. They will become a matter of public record available for review, subsequent to award notification, with the exception of information deemed confidential by Mohave.

5. CONFIRMATION

If an apparent mistake in a Statement of Qualifications, relevant to the award determination is discovered after opening and before award, Mohave shall contact the offeror for written confirmation of the Statement of Qualifications. If offeror fails to act, the offeror shall be considered non-responsive.

Mohave may contact an offeror to confirm our understanding of the Statement of Qualifications. Such contact shall be prior to award. Mohave shall obtain written confirmation from the offeror and shall retain the confirmation in the procurement file. Correction of mistakes in a Statement of Qualifications shall only be allowed as described in Arizona procurement rules and code.

6. CONSTRUCTION

6.1. Construction services: Construction, and one or more related services, such as maintenance services, operations services, design services and preconstruction services are services authorized in the definition of JOC.

6.2. Subcontractor: A person who contracts to perform work or render service to a contractor or to another subcontractor as a part of a contract with Mohave.

7. CONTRACT MANAGEMENT

7.1. Applicable law: The contract shall be governed by the laws of the State of Arizona, and suits pertaining to the contract may be brought only in courts in the State of Arizona.

7.2. Application of law: The Arizona Procurement Code, the Arizona State Board of Education School District Procurement Rules, and the Uniform Commercial Code (UCC) as adopted by the State of Arizona, are part of this document as if fully set forth herein. Any provision or clause required by law, rule or regulation to be included in the contract will be read and enforced as if in the contract.

7.3. Contract claims or controversies: The requirements of the Arizona procurement rules and code shall govern any contract awarded as a result of the subsequent RFP, as well as any subsequent RFP claims or controversies associated with it. Formal contract claims and controversies between a member and contract vendor shall be resolved in accordance with R7-2-1155 through R7-2-1159, or ARS, Title 41, Chapter 23, Article 9, as applicable. The member's authorized representative shall serve as the district representative for resolution of such claims and controversies. ARS, Title 41, Chapter 23, Article 9 and the rules promulgated under it, or R7-2-1155 through R7-2-1159, as applicable, provide the exclusive procedure for asserting a cause against the member under the contract.

7.4. Severability: The provisions of any subsequent contract are severable to the extent that any provision or application held to be invalid shall not affect any other provision or application of the contract which may remain in effect without the invalid provision or application.

8. COOPERATIVE PURCHASING

8.1. Cooperative purchasing: Any subsequent awarded contract is based on the need for Mohave to provide the economic benefits of volume purchasing and reduction in administrative costs through cooperative purchasing to members. Any offer that prohibits sales to specific types of members (e.g., state agencies or local government units) may not be considered. Sales without restriction to any members are preferred.

8.2. Cooperative purchasing agreements: Cooperative Purchasing Agreements between Mohave and its members have been established under Arizona procurement rules and code for use of contracts.

8.3. Eligible agencies: Any subsequent contract awarded from this solicitation process shall be available to all members. Members shall have a current signed Mohave Cooperative Purchase Agreement. Member is defined as a local or public procurement unit, or a governmental public entity that is a political subdivision for purposes of federal income tax, or a nonprofit educational or public health institution that is a political subdivision for purposes of federal income tax or meets the requirements of Section 115 of the Internal Revenue Code. Mohave has over 450 members including public school districts, community colleges, city and county governments and political subdivisions throughout Arizona. A list of members may be found on Mohave's website, www.mesc.org. Actual use of any contract shall be at the sole discretion of Mohave's members.

8.4. Most favored customer relationship: Nothing in this solicitation is intended to establish a most favored customer relationship between Mohave and contract vendor. Contract vendor may respond to any solicitation without regard to this contract. Offeror agrees all prices, terms, warranties, and benefits granted by offeror to members through any subsequent awarded contract are comparable to or better than the equivalent terms offered by offeror to any present customer meeting the same qualifications or requirements. If contract vendor offers lower prices to any of its other customers, it may lower its prices to Mohave at the same time by written notice.

9. EVALUATION and AWARD

9.1. Basis of award: In accordance with Arizona Administrative Code, Article 11: School District Procurement R7-2-1111(C), ARS §34-604(F)(2) and §41-2579(F)(2), Mohave shall issue a Request for Proposal to a final list of responsive and responsible vendors determined to be most qualified to perform the specified construction services. To qualify for evaluation, a Statement of Qualifications must have been submitted on time, and materially satisfy all mandatory requirements identified in this solicitation.

9.2. Exceptions/deviations to requirements: All requested exceptions/deviations must be clearly explained. Unacceptable exceptions/deviations shall remove your Statement of Qualifications from further consideration. Mohave shall be the sole judge on the acceptance of exceptions/deviations and Mohave's decision shall be final.

9.3. Formation of contract: No contracts shall be awarded from the Request for Qualifications.

9.4. Interviews: Mohave shall not hold interviews during the evaluation of this Request for Qualifications.

9.5. Maximum JOC order: The maximum dollar amount of an individual JOC order shall be one million dollars or such higher or lower amount prescribed by the purchasing agency in an action noticed pursuant to ARS, Title 38, Chapter 3, Article 3.1 or a rule adopted by the purchasing agency as the maximum amount of an individual JOC order. Requirements shall not be artificially divided or fragmented in order to constitute a JOC order that satisfies this requirement.

9.6. Method of evaluation: Mohave shall select a committee of not more than seven (7) members to evaluate the Statements of Qualifications. Composition of the committee shall be in compliance with Arizona Administrative Code, Article 11: School District Procurement R7-2-1107, ARS §34-604(C)(3) and §41-2579(C)(3).

9.7. Multiple award: To assure that our contracts meet the requirements of all members, Mohave may award up to five contracts to individual firms receiving the highest number of points, for similar job-order-contracting construction services within a specialty division (e.g. Division 23 HVAC) or within all divisions. Each of the multiple contracts will be awarded to a separate person/firm. Offeror should consider this fact in preparing their response. The decision to award multiple contracts, award a single contract, or make no award rests solely with Mohave. A multiple award shall be made only if the procurement officer determines in writing that a multiple award is necessary and is advantageous to Mohave members.

A multiple award shall be limited to the least number of contracts necessary to meet the requirements of the using agencies. Mohave shall make the sole determination of the least number of contracts required to meet the need. Mohave's basis for determining whether to award multiple contracts shall be based upon considerations for the large number of members, diverse types of members, location of members throughout Arizona and members' past usage of similar contracts.

Criteria for selecting vendors for multiple contracts shall be based upon considerations for members' experience with existing products and systems, brand continuity for parts replacement and future expansion, contract vendor's ability to provide for our large, diverse membership, Mohave's past experience with contracts for similar product/services, and/or other relevant criteria.

9.8. Past performance information: Past Performance Information (PPI) is relevant information regarding a contract vendor's actions under previously awarded contracts to public agencies. It includes contract vendor's record of performance under such contracts including, but not limited to: conformance to the terms, conditions, specifications and scope of work of the contracts, responsiveness to, and correction of, contract claims and controversies, and satisfaction of the contracting entities. PPI shall be a factor in evaluation and award.

9.9. Request for Proposal: The evaluation committee shall determine a final list of offerors to receive a subsequent Request for Proposal for general contracting and/or specialty contracting.

9.10. Responsive Statement of Qualifications: A responsive Statement of Qualifications conforms in all respects to the material requirements of the solicitation. The Statement of Qualifications shall be responsive to receive further consideration. Mohave reserves the right to waive minor informalities.

10. INSURANCE

10.1. Certificate: Evidence of the required insurance shall be provided with your Statement of Qualifications by means of a current certificate of insurance with the coverage's as stated within the requirements below. Before any orders are processed under an awarded contract, contract vendor shall provide a certificate that names Mohave Educational Services Cooperative, Inc. as the certificate holder.

Certificate (or certificates if using multiple carriers) shall include, at a minimum, coverage for:

- General Liability
- Automobile liability
- Umbrella or Excess Liability
- Workers' Compensation

In addition, contract vendor must be willing to provide, upon request, identical certificate of insurance to any member using this contract. Contract vendor must also be willing, upon request, to add any member as an additional insured entity. Any costs for adding a member as an additionally insured entity shall be clearly identified in submitted contract pricing. If no pricing is identified, adding a member as an additionally insured entity shall be provided at no additional cost.

Provide evidence of current insurance coverage after Tab 2i.

10.2. Deductibles: Contract vendor shall pay the deductibles required by the insurance provided under this contract.

10.3. Liability insurance: Prior to commencing services under this contract, contract vendor shall procure and maintain during the life of this agreement, comprehensive general liability insurance, to include automobile liability, providing limits of an aggregate amount of not less than $2,000,000.

10.4. Scope of Insurance: Contract vendor's insurance shall provide adequate protection for contract vendor against damage claims which may arise from operations under this contract, whether such operations are by the insured or by anyone directly or indirectly employed by the insured. All insurance must be written by companies incorporated within the United States (exclusive of Territories or Possessions) and licensed or authorized to do business in Arizona.

10.5. Subcontractor insurance: Prior to commencing any work, any subcontractor shall procure and maintain at its own expense until final acceptance of the work, insurance coverage in a form and from insurers acceptable to the prime contractor. All subcontractors will provide workers' compensation insurance, which waives all subrogation rights against the prime contractor, member and Mohave.

10.6. Workers' compensation insurance: Contract vendor shall also procure and maintain during the life of this agreement, workers' compensation insurance for all of contract vendor's employees engaged in work under the contract. All workers' compensation insurance will be in compliance with Arizona state statute and evidenced by a certificate of insurance.

11. LICENSES

A contract vendor for JOC construction services shall be licensed to perform construction pursuant to ARS, Title 32, Chapter 10. The contract vendor shall maintain in current status all federal, state and local licenses, bonds and permits required for the operation of the business conducted by contractor. The contract vendor shall remain fully informed of and in compliance with all current ordinances and regulations pertaining to the lawful provision of services under the contract. Mohave reserves the right to stop work and/or cancel the contract of any contractor whose license(s) expire, are suspended or terminated. Contact vendor shall immediately notify Mohave of any expiration, lapse, suspension or termination of license(s).

12. OFFEROR QUALIFICATIONS

It is preferred that the offeror has extensive knowledge and at least three (3) years experience with the provision, installation and maintenance of the equipment, and job order contracting services offered. Mohave reserves the right to accept or reject newly-formed companies based solely on information provided in the subsequent proposal and/or its own investigation of the company.

13. PREPARATION OF THE STATEMENT OF QUALIFICATIONS and STATEMENT OF QUALIFICATIONS FORMAT

13.1. Modification of Statement of Qualifications: An offeror may modify a Statement of Qualifications in writing at any time before Request for Qualifications opening if the modification is received before the Request for Qualifications due date and time at the location designated in the Request for Qualifications for receipt of Statement of Qualifications.

13.2. Compliance with instructions: Offeror's ability to follow Statement of Qualifications preparation instructions in this solicitation will be considered an indicator of offeror's ability to follow instructions should it receive an award as a result of the subsequent RFP. The quality of organization and writing reflected in the Statement of Qualifications will be considered to be an indication of the quality of organization and writing which would be prevalent for any contract that may be awarded. As a result, the Statement of Qualifications will be evaluated as a sample of data submission. Subjective judgment on the part of Mohave's evaluators is implicit in this process.

13.3. Cost of Statement of Qualifications preparation: Mohave will not reimburse the cost of developing, presenting, or providing any response to this solicitation.

13.4. Offeror responsibility: Offeror shall examine the entire solicitation, seek clarification of any item or requirement that may not be clear, and check all responses for accuracy before submitting Statements of Qualifications. Failure to examine any requirements shall be at offeror's risk. Negligence in preparing an offer confers no right of withdrawal after due date and time.

13.5. Statement of Qualifications forms: The forms and format contained in the solicitation shall be used. Offerors may reproduce the forms and retype the information, but all of the required information must be presented in the tab order requested. Electronic or faxed Statements of Qualifications shall not be considered.

14. PRICING

14.1. Basis for pricing: Contract pricing under the subsequent request for proposal awards shall be based upon: Coefficient applied to a UPB; and/or Open Book pricing; and/or discount applied to Trade Service price guide.

14.2. Pricing requirements: Pricing is not requested in the Request for Qualifications and shall not be included in your response**.**

15. PROSPECTIVE BIDDERS REGISTRATION

Any offeror submitting a perfunctory Statement of Qualifications with no serious intent of being accepted may be removed from Mohave's prospective bidders list. Any vendor not responding to two (2) consecutive Requests for Qualifications or solicitations for similar procurements may be removed from the prospective bidders list. A "no bid" response or request to remain on the list is sufficient to keep a vendor on the Prospective Bidders Registration.

16. PROTESTS

Protests shall be filed with Anita McLemore, C.P.M., the Executive Director (the District Representative), and shall be resolved in accordance with Arizona procurement rules and code, ARS, Title 41, Chapter 23, Article 9 (https://www.azleg.gov/arstitle) and State Board Rules R7-2-1001 through R7-2-1196 (https://azsos.gov/rules/arizona-administrative-code). *A protest must be in writing and must be filed with the Executive Director at 625 E. Beale Street, Kingman, Arizona, 86401.* Protests based upon alleged improprieties in a solicitation shall be filed before the due date and time for responses to the solicitation. The interested party shall file the protest within ten (10) days after Mohave makes the procurement file available for public inspection. A protest filed on the tenth day must be received by 5:00 p.m., local Arizona time. The interested party may file a written request for an extension. The written request shall be filed before the time limit specified above and shall set forth good cause as to the specific action or inaction of Mohave that resulted in the interested party being unable to file the protest before the time limit specified above.

A protest shall be in writing and shall include the following information:

- The name, address and telephone number of the interested party;
- The signature of the interested party or the interested party's representative;
- Identification of the solicitation by contract number;
- A detailed statement of the legal and factual grounds of protest including copies of any relevant documents;
- The form of relief requested.

Should Mohave prevail in an appeal of a decision issued by the Executive Director, appellant waives any objection to the hearing officer awarding Mohave its reasonable attorney's fees and costs along with the costs for the hearing.

17. STATEMENT OF QUALIFICATIONS ACCEPTANCE PERIOD/WITHDRAWAL

17.1. Late Statement of Qualifications: Except as authorized by Arizona procurement rules and code, late Statements of Qualifications shall not be considered.

17.2. Withdrawal of Statement of Qualifications: An offeror may withdraw a Statement of Qualifications in writing at any time before Request for Qualifications opening if the withdrawal is received before the Request for Qualifications due date and time at the location designated in the Request for Qualifications for receipt of Statement of Qualifications. After the opening time and date, Statement of Qualifications may not be withdrawn, except as allowed by Arizona procurement rules and code.

18. STATEMENT OF QUALIFICATIONS OPENING

Statements of qualifications shall be opened immediately following the Request for Qualifications due date and time. The name of each offeror shall be publicly read and recorded in the presence of witnesses. All information in the Statement of Qualifications shall remain confidential until after award of subsequent contracts, with the exception of review by Mohave staff and selected evaluators.

19. SUSPENSION OR DEBARMENT STATUS

Offeror shall include a letter in its Statement of Qualifications notifying Mohave of any debarment, suspension or other lawful action taken by any federal, state or local government within the last five years that precludes offeror or its employees from participating in any public procurement activity. Such letter shall provide name and address of the public procurement unit, effective date, duration, and relevant circumstances of the suspension or debarment. Failure to supply such letter or not disclose all pertinent information shall result in cancellation of any subsequent contract. **Letter shall be placed after Tab 1a.**

20. TERM OF CONTRACT AND EXTENSION

20.1. Contract period: It is Mohave's intent to award a multi-term contract for the specified product, material, process, or services from the subsequent Request for Proposal awards. The initial contract term shall be for one (1) calendar year from the effective date of contract award. By mutual written agreement between Mohave and contract vendor, the contract may be extended for up to four (4) consecutive additional 12-month periods, beginning immediately after expiration of the prior term. However, no contract extension (contract modification) exists unless and until contract vendor is so notified by Mohave.

20.2. Contract extension (contract modification): Conditions for contract extension (contract modification) may include, but are not limited to: contract usage, satisfactory performance of services during the preceding contract term, ability to continue to provide satisfactory services, continued adherence to the contract requirements, and continued competitive prices for the materials and services provided under the contract. Mohave shall prepare a performance report for all contracts prior to issuing any extension (contract modification). This performance report shall use past performance information gathered by your assigned Contract Specialist. Past performance information shall be used when determining whether a contract receives an extension (contract modification).

21. TIME (DEFINITION OF)

Periods of time, stated as a number of days, shall be in calendar days, not business days.

General Terms and Conditions Acceptance Form
(Place after Tab 1c)

Signature on Page 2 certifies complete acceptance of the General Terms and Conditions in this solicitation, except as noted below (additional pages may be attached, if necessary).

Check one of the following responses to the General Terms and Conditions:

☐ **We take no exceptions/deviations to the general terms and conditions.**

(*Note: If nothing is listed below, it is understood that no exceptions/deviations are taken.)*

☐ **We take the following exceptions/deviations to the General Terms and Conditions. All exceptions/deviations shall be clearly explained. Reference the corresponding General Terms and Conditions that you are taking exceptions/deviations to. Clearly state if you are adding additional terms and conditions to the General Terms and Conditions. Provide details on your exceptions/deviations below:**

(*Note: All requested exceptions/deviations must be clearly explained. Reference the specific terms and conditions that you are taking exceptions/deviations to, detail any proposed substitute terms and conditions, and clearly explain how the exceptions/deviations meet or exceed the requirements. Unacceptable exceptions/deviations shall remove your Statement of Qualifications from consideration for award. Mohave shall be the sole judge on the acceptance of exceptions/deviations and Mohave's decision shall be final.)*

Statement of Qualifications Submittal
(Place after Tab 2)

Statement of Qualifications (Prepare a Statement of Qualifications as outlined below):

a. Table of Contents
- Provide a table of contents for your Statement of Qualifications.
- Place each major section after an indexed tab (e.g. 2a, 2b) and dividers.

b. Letter of Introduction
- Provide a brief introduction of your firm and its interest in this procurement.

c. Basic Company Information
- Company Name
- Address
- Telephone Number
- Fax Number
- Name of Primary Contact
- Email Address of Primary Contact
- Number of Years in Business
- License(s) held by the firm: License(s) shall include the current Arizona Contractors license number applicable to perform the scope of work. A copy of your current license shall be included in your response.
- If the firm has more than one office, provide specific information about the parent company and administering office, and other branch offices.

d. General Contracting and/or Specialty Contracting
- Indicate whether your firm is submitting a Statement of Qualifications for general or specialty contracting.
- If your firm is submitting as a specialty contractor, include a list of the divisions, (as defined by the Construction Specifications Institute), for the work you will perform.
    - *If your firm is submitting as a specialty contractor and does not hold a contractor's license for that specialty, explain in detail how you will perform the services requiring these licenses.*

e. Form of Ownership
- Indicate the type of ownership (corporation, joint venture, limited liability company, sole proprietorship, etc.)
- If responding as a joint venture with fewer than two relevant projects, submit qualifications for each firm.

f. Company Personnel
- Provide information about the firm's personnel resources (average size of workforce, position classifications, experience, training, location(s) of personnel).
- Include information about support staff (e.g., office workers, project administrators).
- Provide detailed information describing education, training and qualifications for key personnel (e.g., general management, project management, estimator, engineer, construction superintendent, FAA project experience and training).
- Describe your plan for personnel recruitment.
- Provide an organization chart for your firm.
- Complete and enclose a Standard Form 330, to the extent applicable to your firm. Notes on Standard Form 330 as follows:

GENERAL SERVICES ADMINISTRATION STANDARD FORM 330:

While the title of this form is "Architect-Engineer Qualifications", the intent is to have the firm responding to this Request for Qualifications fill out the form. We are not looking for you to obtain the services of an architect and/or engineering firm to fill out this form. The form is to be used to review your qualifications, as applicable under our Request for Qualifications.
Pages 1 - 8 of Standard Form 330 are instructions to assist you in filling out the form. Standard Form 330 Pages 1 - 5 (marked as Part I – Contract - Specific Qualifications) should be filled out and returned with your Statement of Qualifications. Page 6 of Standard Form 330 (marked as Part II - General Qualifications) will only need to be used if you have more than one branch office that would be seeking work under an awarded contract.

Section C "Proposed Team" (page 1 of Instructions) asks for information about your key subcontractors. You may skip this portion of the form, as this information is required in section g, "Consultants and Subcontractors", below.

g. Consultants and Subcontractors

- Provide the names and locations of consultants and subcontractors you plan to use, if any.
- List or describe the services to be provided by each.
- Provide a statement of your subcontractors' experience providing the services, particularly in a JOC setting.

h. Financial Information

- Provide a current letter from your financial institution indicating the range of credit available to your firm, (e.g. "credit in the low nine figures" or "credit line exceeding five figures"), or your firm's latest annual financial report.
- Provide a current letter from your financial institution and/or officers of major suppliers, indicating confidence in your firm's stability and payment history.
- Current audited annual financial reports in lieu of letters from financial institutions may be submitted. However, the annual financial reports must provide essentially the same information as requested from the letters. Offerors are encouraged to highlight the requested information in any audit annual financial report submitted in response to this Request for Qualifications.
- All financial information will be kept confidential. These letters will only be used to evaluate qualifications and will not be made available to the public.
- Provide a letter from your bonding company indicating the ability to bond JOC orders under the contract, and your current bonding capacity.
- Provide any judgments or liens against your firm within the last three years.
- Provide any current unresolved bond claims against your firm.
- Provide any filing under the United States Bankruptcy Code, assignments for the benefit of creditors, or other measures taken for protection against creditors during the last three years.

i. Insurance

- Provide a certificate of insurance indicating that your firm possesses the required insurance coverage as specified in the General Terms and Conditions. The Acord 25 form is the preferred certificate, but not the required form of certificate.
- A sample certificate may be provided. However, before any orders are processed the successful contractor under the sequential awarded Request for Proposal shall provide a certificate that names Mohave as a certificate holder.

j. Past Performance

- Provide a statement of your experience providing general contracting or specialty contracting, particularly in a JOC setting. Indicate if you were the primary or subcontractor for the project.
- Provide a list of your JOC contracts, if any. Include date of contract, contracting agency, agency contact information, and value of contract for each contract in the list.
- If your firm has no JOC experience, provide a description of your understanding and experience partnering as a member of a team consisting of the owner, owner's customers and clients, design team, and the contractor. Provide other relative JOC experience.
- Describe your experience in pricing projects using a UPB and a coefficient, an Open Book pricing methodology, and/or Trade Service.
- If your firm has no experience pricing projects using a UPB, Open Book, and/or Trade Service, provide a description of your understanding on pricing projects using a UPB, Open Book pricing methodology, and/or Trade Service.
- Provide a description of your experience working on school district or governmental projects, working on multiple projects simultaneously, and working throughout the state. Include any specialized projects, such as airports, that require proven experience, training, knowledge, and/or certifications.
- Provide a statement of your history for submitting claims and change orders. Provide specific information (e.g. type of claim, date, reason, amount, and outcome).
- Provide any deficiency orders issued against your firm by the Arizona Registrar of Contractors within the last three years.

k. Contract Management Plan

- Provide a statement of your plan for performing and managing the work.
- What personnel will be used?
- Does your firm currently use RS Means Online, CostWorks CDs, 4Clicks, Trade Service, or any other estimating software based on UPBs? If not, how will you prepare JOC cost quotations and invoices?
- How do you plan to ensure prompt responses to JOC requests?
- What is your plan for responding to and performing multiple JOC orders at the same time?
- What limitations will you have geographically or in the number of simultaneous JOC orders?
- Provide other pertinent information that will help Mohave evaluate your firm and its capabilities.

l. Quality Management Plan

- How do you set goals and monitor the performance of your company?
- How do you inspect the work to ensure quality?
- How do you stay on schedule?
- What is your complaint and dispute resolution procedure?
- Provide other pertinent information that will help Mohave evaluate your firm and its capabilities.

m. Subcontractor Management Plan

- Provide a statement of your plan for managing subcontractors.
- Provide a statement acknowledging your intent to not use price as the sole determining factor when selecting subcontractors under any awarded contract.
- How will you recruit subcontractors, particularly in the local communities where work will be performed?
- For subcontractors performing specialized work, such as airports, include information as to how you will ensure subcontractor has the experience, training, knowledge, and/or certifications required to perform the work.

- How will you ensure acceptable quality for work performed by subcontractors?

- How will you address controversies and claims related to work performed by subcontractors?
- Provide other pertinent information that will help Mohave evaluate your subcontractor management capabilities.
- For firms who self-perform and do not subcontract work, provide your confirmation that any future subcontracts shall follow the requirements specified in the subcontractor management plan as outlined above. Mohave may request a copy of your plan prior to allowing subcontracting under an awarded contract.

n. Safety

- Provide a copy of your firm's safety management plan.
- Provide a copy of your firm's safety training program.
- Provide a letter from your firm's insurance company stating the Workers' Compensation Experience Modification Rate (EMR) for the past three (3) years. The letter shall be on the insurance company's letterhead and shall be signed by an appropriate individual employed by the insurance company.

MOHAVE
COOPERATIVE

Request for Proposal 19F-0808
Job Order Contracting
for Various Construction Trades

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RFP 19F-0808 Standard Terms and Conditions for Construction 87

RFP 19F-0808 Attachment 1: Specifications for the Work 94

Click section title to be taken directly to that section.

4/5/18 EH

625 East Beale Street, Kingman, AZ 86401 Phone: (928) 753-6945 Fax: (928) 718-3232 mesc.org

REQUEST FOR PROPOSAL 19F-0808

Job Order Contracting for Various Construction Trades

Pursuant to the provisions in the Arizona procurement rules and code, Mohave Educational Services Cooperative, Inc. seeks proposals to establish contract(s) for Job Order Contracting for General Contracting, Plumbing, Electrical and Heating, Ventilation and Air Conditioning Services. A copy of this RFP is available for public inspection at 625 East Beale Street, Kingman, AZ 86401.

Due Date and Time: Thursday, August 8, 2019 at 3:00 p.m. (local Arizona time)

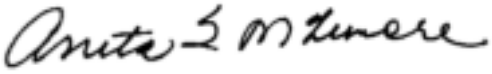
Last Day For Questions: Thursday, August 1, 2019 at 5:00 p.m. (local Arizona time)

RFP Questions Must Be Directed To: Michael Nentwig, CPPB, Contract Specialist I
Email: contracts@mesc.org
Telephone: (928) 718-3203

To be considered, proposals shall be delivered to Mohave Educational Services Cooperative, Inc. (Attn: Contracts Dept.), 625 East Beale Street, Kingman, AZ 86401 in a sealed envelope or package with RFP 19F-0808, offeror's name, mailing address, proposal due date and time clearly indicated on the envelope or package. Proposals must be in the actual possession of Mohave on, or prior to, the exact time and date indicated above. Proposals shall be opened immediately following the proposal due date and time, with the name of each offeror publicly read and recorded. Late proposals shall not be considered. Kingman is considered a "rural" area by many express delivery carriers and thus, they do not guarantee priority (next day) delivery by a specific time. Prospective offerors are encouraged to keep this in mind when arranging delivery of their proposals and are advised herein that late proposals shall be handled as specified by Arizona procurement rules and code.

Offerors are strongly encouraged to carefully read the entire contents of this solicitation prior to submitting a proposal. Failure to examine any of the requirements will be at the offeror's risk.

Mohave reserves the right to cancel this solicitation and/or reject all proposals in whole, or in part, if Mohave determines that cancellation and/or rejection is advantageous to Mohave and/or its members.



Anita S. McLemore, C.P.M.
Executive Director
Mohave Educational Services Cooperative, Inc.

Publish Date: July 8, 2019

Template Rev. 19-3

Technical Proposal – Offer and Acceptance Form
(Place after Tab 1a)

RFP 19F-0808
Job Order Contracting for Various Construction Trades

To Mohave Educational Services Cooperative, Inc.:

The undersigned hereby certifies understanding and compliance with the requirements in all terms, conditions, specifications and amendments. Offeror further agrees to furnish materials and/or services in compliance with all terms, conditions, specifications and amendments in the solicitation and any written exceptions in the offer.

Federal Employer Identification Number _____

Company Name _____

Address _____ City _____ State _____ Zip _____

Telephone Number _____

The *Offer and Acceptance Form* should be submitted with a signature of the person authorized to sign the proposal. The person signing the proposal shall initial erasures, interlineations, or other modifications in proposal. Failure to sign the *Offer and Acceptance Form*, or to make other notations as indicated, may result in rejection of proposal.

Authorized Signature _____

Printed Name _____ Title _____

Primary Email _____ Alternate email _____

*Note: The primary email address will be used for all communication from Mohave regarding your response to this solicitation. Provide an alternate email address that will be used **only** if the primary email address is not valid.*

The contract vendor shall not commence any billable work or provide any material or service under this contract unless and until contract vendor receives a purchase order with Mohave's review noted.

Acceptance of Offer and Contract Award (Mohave Only)

Your Proposal is Hereby Accepted:
As an awarded contract vendor, you are now bound to sell the materials and/or services offered to and accepted by Mohave in accordance with the solicitation, including all terms, conditions, specifications, amendments and any accepted written exceptions.
This contract shall be referred to as Contract Number _____

Awarded this _____ day of _____ 2019.

This contract shall be effective the _____ day of _____ 2019.

_____
Anita S. McLemore, C.P.M., Executive Director
Mohave Educational Services Cooperative, Inc.

CONFIDENTIAL/PROPRIETARY SUBMITTALS

Confidential/Proprietary Submittals (mark one):

_____ No confidential/proprietary materials have been included with this offer.

_____ Confidential/proprietary materials have been included with this offer. Offerors shall identify below any portion of their offer deemed confidential or proprietary (see General Terms and Conditions 6. Confidential Information).

> *Note that any documentation marked as confidential or proprietary must be identified below. Any confidential or proprietary information NOT identified as instructed shall be deemed as non-confidential or non-proprietary.*

The confidential/proprietary information identified below does not guarantee that disclosure will be prevented but that the item(s) will be subject to review by the offeror and Mohave prior to any public disclosure. Requests to deem the entire offer or pricing as confidential shall not be considered.

Firm

Authorized Signature

Technical Proposal – Instructions to Offeror and Checklist Form (Place after Tab 5a)

From evaluation of responses to RFQ 19F-0605 and in accordance with Arizona Administrative Code, Article 11: School District Procurement R7-2-1111(C), ARS §34-604 (F)(2) and §41-2579(F)(2), your firm has received this Request for Proposal. **Review this document in its entirety to make sure you fully understand the products and services that we are requesting.** Please do not assume a particular form, section, specification or requirement does not, or should not, apply to you. Contact Mohave at contracts@mesc.org with questions.

We have included this checklist to assist you in preparing your response. Follow each step, placing the required information in your response binder in the proper place. **All of the items listed below are required**. Initial next to each item to indicate completion.

_____**Step ONE:** Read and understand the document. Your firm is responsible for asking any questions regarding the information you are required to include with your response. Do not hesitate to contact the Contract Specialist as shown on page 1 for clarification on any items contained in this solicitation.

_____**Step TWO:** One (1) original and four (4) additional complete copies of your technical proposal shall be submitted in separate three-ring loose-leaf binders in the format detailed below. The technical proposal shall contain all specifications, and any other information required by the solicitation.

All proposals must be completed in ink, on a computer, or typewritten. No pencil submissions are allowed. Forms may be filled out by hand but shall be legible.

_____**Step THREE:** The technical proposal shall be organized and presented in the order as required below, with separate tabs and sub-tabs (e.g. 1a, 1b) and dividers.

_____**Step FIVE:** Confirm that the proposal is complete and signed on page 2 by an authorized representative.

_____**Step SIX:** Keep a complete copy of your proposal for your records.

_____**Step SEVEN**: Proposal shall be submitted to the proper location in a sealed and properly identified envelope or package, as specified on page 1 of this solicitation. Proposals must be in the actual possession of Mohave on, or prior to, the exact time and date set for proposal opening.

Tab and Sub-tab Arrangement:

- ***Tab 1: Offer and Acceptance, Terms and Conditions, Scope of Work and Specifications Documents, Anti-Lobbying Certificate, USDA Form AD-1048***

_____ **Tab 1a** – The signed *Offer and Acceptance Form* is placed after Tab 1a.

_____ A copy of suspension or debarment letter (if applicable) is placed after Tab 1a.

_____ A copy of the *Confidential/Proprietary Submittal Form* is placed after Tab 1a.

_____ **Tab 1b** – Signed amendments, if any, are placed after Tab 1b.

_____ **Tab 1c** – A complete copy of the General Terms and Conditions and Standard Terms and Conditions for Construction is placed after Tab 1c. *(Note: Unless and until the District Court's injunction in Jordahl v. Brnovich et al., is lifted or stayed, the Anti-Israel Boycott Provision (A.R.S.§35-393.01 (A)) is unenforceable and Mohave will take no action to enforce it.)*

_____ A completed copy of the *General Terms and Conditions and Standard Terms and Conditions for Construction Acceptance Form* is placed after Tab 1c. Any exceptions to the General Terms and Conditions and Standard Terms and Conditions for Construction are noted and explained.

_____ **Tab 1d** – A complete copy of the Special Terms and Conditions is placed after Tab 1d.

_____ A completed copy of the *Special Terms and Conditions Acceptance Form* is placed after Tab 1d. Any exceptions to the Special Terms and Conditions are noted and explained.

_____ **Tab 1e** – A complete copy of the Scope of Work is placed after Tab 1e.

Technical Proposal – Instructions to Offeror and Checklist Form (Place after Tab 5a)

_____ A complete copy of the Specifications with compliance, deviation, or no bid noted for each item is placed after Tab 1e.

_____ A completed copy of the *Scope of Work and Specifications Acceptance Form* is placed after Tab 1e. Any exceptions to the Scope of Work and Specifications are noted and explained.

_____ **Tab 1f** – The original bid bond/alternate bid security (as detailed in the Special Terms and Conditions) in the amount of $100,000 is placed after Tab 1f.

_____ Your current single job and aggregate bonding capacity information (**see Special Terms and Conditions 1.2 Bonding Capacity**) as required is placed after Tab 1f.

_____ **Tab 1g** – A completed copy of the *Anti-Lobbying Certificate Form* is placed after Tab 1g.

_____ A copy of OMB standard form LLL, *Disclosure of Lobbying Activities* (if applicable) is placed after Tab 1g.

_____ **Tab 1h** – A completed copy of *U.S. Department of Agriculture Form AD-1048* is placed after Tab 1h.

_____ Explanation from any prospective lower tier participant that is unable to certify to any of the statements in the certification is placed after (in Tab 1h).

Failure to complete and submit the Anti-Lobbying Certificate (Tab 1g) and USDA Form AD-1048 (Tab 1h) shall render your proposal nonresponsive.

- ***Tab 2: Primary Vendor Information***

_____ **Tab 2a** – A complete response to the Method of Approach pages is placed after Tab 2a.

_____ **Tab 2b** – A complete response to the Qualification and Experience pages is placed after Tab 2b.

_____ Evidence of current Arizona contractor's license(s) is placed after Tab 2b.

_____ **Tab 2c** – A completed Past Performance and Management Plans are placed after Tab 2c.

_____ **Tab 2d** – A current certificate or certificates of insurance (**see Special Terms and Conditions 5.1 Insurance**) is placed after Tab 2d.

_____ **Tab 2e** – Financial information (statement from financial institution or letter of credit) is placed after Tab 2e.

- ***Tab 3: (Reserved for Price Proposals after contract award)***
- ***Tab 4: Supporting Contract Documents***

_____ **Tab 4a** – Completed Firm Information, Order Processing, Individual Contact Information, and Customer Support Information for warranty and maintenance services is placed after Tab 4a.

_____ **Tab 4b** – Sample Supplemental or End-User Agreement(s) (if applicable) are placed after Tab 4b.

_____ **Tab 4c** – Extended warranty or maintenance service plan information (if applicable) is placed after Tab 4c.

- ***Tab 5: Additional Information***

_____ **Tab 5a** – Completed *Instructions to Offeror and Checklist Form* is placed after Tab 5a.

_____ **Tab 5b** – Descriptive literature, slicks and any other supporting printed data are placed after Tab 5b.

- ***Tab 6: (Reserved for your Request for Qualifications response after contract award)***

Technical Proposal – Instructions to Offeror and Checklist Form
(Place after Tab 5a)

_____ **Step FOUR:** Submit one (1) copy of your Price Proposal. Price proposal shall be completed and submitted as indicated below:

_____ **Price proposal shall be submitted in a clearly marked, separate sealed envelope. Your sealed price proposal shall be included with your sealed response to RFP 19F-0808.**

_____ A paper copy of your price proposal **shall** be included in your separate sealed envelope or package. Electronic copies of the entire price proposal, your price schedules, and any additional requested price information **shall** be included in your separate sealed envelope or package. Two electronic copies **shall** be provided on separate CD, DVD or USB devices. **All price proposal information shall be submitted in a clearly marked, separate sealed envelope.**

1. DESCRIPTION

In order to gain economies of scale, Mohave is formally soliciting sources for Job Order Contracting construction services for General Contracting, Plumbing, Electrical and Heat, Ventilation and Air Conditioning as specified within this Request for Proposal. These services are requested for Mohave's statewide membership of approximately 450 public agencies. However, other members may be added during the term of an awarded contract(s). A current list of all members can be found on Mohave's website at www.mesc.org. Contracts, in whole or in part, shall be awarded to offeror, or offerors, for an initial one (1) year term and four (4) potential one-year extensions (contract modification).

Because any work under this contract will be on a Job Order basis, exact project details are not available. Information on the project site, scope of work, schedule, project design and construction budget, or life cycle budget information shall be provided by members prior to usage of awarded contracts.

Mohave may procure, as an entity for its membership, construction and construction services, as applicable, using the following project delivery method: Job Order Contracting, as stated in Arizona Administrative Code 7 - Article 11, Arizona Revised Statute § 34 and Arizona Revised Statute § 41.

Job Order Contracting services in this Request for Proposal may include, but not be limited to: general contracting services for construction, installation, repair, and upgrades. Specialty projects such as, plumbing, electrical and heating, ventilation and air conditioning are requested.

Under Job Order Contracting (JOC), a master contract is established with standard specifications and pricing based upon a coefficient that is applied to a Unit Price Book (UPB). Pricing may also be established through an Open Book Pricing methodology. Open Book Pricing allows the contract vendor to apply a predetermined General and Administrative (G&A) percentage and profit mark-up to subcontractor price quotes or total direct project costs. *Trade Service* along with an established labor hourly rate may be used for service and repair projects. When a specific project or job order is issued, the member and the contractor agree on the scope of work, pricing methodology to be used, and the cost is determined by applying the agreed upon pricing methodology for the entire project.

Mohave has current contracts for related work (e.g., plumbing, electrical and heating, ventilation and air conditioning). Any contract(s) awarded under this RFP are in addition to but will not replace these contracts. The Mohave member shall retain the right to determine which contracts are in their best interests.

Each firm may only respond to the division or divisions authorized by Mohave in your 19F-0605 notification of advancement letter.

General Contractors Divisions 1-49: Construction services for contract vendors in the Request for Proposal may include, but not be limited to: installation, repair, and upgrades for facilities and sites for a wide variety of educational, governmental and not for profit agencies.

Plumbing Division 22: Construction services in the Request for Proposals may include, but not be limited to: installation, repair, and upgrades of plumbing equipment.

Heating, Ventilation and Air Conditioning Division 23: Construction services in the Request for Proposals may include, but not be limited to: installation, repair, and upgrades of heating, ventilation and air conditioning equipment.

Electrical Division 26: Construction services in the Request for Proposals may include, but not be limited to: installation, repair, and upgrades of electrical equipment.

If a contract vendor is eligible to respond to multiple divisions, only one response shall be submitted for this RFP. However, the contract vendor shall provide information relating to each division, combined or separate for the following: specifications, qualifications in the technical proposal, pricing co-efficient and pricing information.

Mohave currently has two JOC contracts (14G-0808) for general contracting. Activity under the contracts from 9/3/14 including year to date activity is $13,290,710.

Mohave currently has one JOC contract (14G-0808) for Division 23. Activity under the contracts from 9/3/14 including year to date activity is $87,796,050.

Mohave currently has one non-JOC contract (14T-1205) for plumbing services. Activity under the contracts from 1/15/15 including year to date activity is $1,127,440.

Mohave currently has one non-JOC contract (18P-0130) for electrical services. Activity under the contracts from 2/13/19 including year to date activity is $0. Pervious contracts (13V-0124) activity from 3/7/14 to 3/7/19 was $1,376,101.

2. ESTIMATED TIMELINE OF EVENTS

Mohave has developed the following estimated timeline of events related to this formal solicitation. All dates are subject to change as required and at the sole discretion of Mohave.

EVENT	ESTIMATED DATE
Request for Proposals Issued	July 8, 2019
Deadline for Questions	August 1, 2019 at 5:00 p.m. (local AZ time)
RFP Due Date and Time	August 8, 2019 at 3:00 p.m. (local AZ time) 625 East Beale Street, Kingman, AZ 86401
Public Opening of Proposals	August 8, 2019 at 3:00 p.m. (local AZ time)
Notice of Intent to Award (*estimated date only*)	September 1, 2019 NOTE: Notification will be sent by email to all awardee(s) and non awardee(s) on or before this date.
Execution of Contract(s) (*estimated date only*)	September 4, 2019

3. SUBMISSION OF PROPOSALS

3.1. Proposals should provide straightforward, concise information that satisfies the requirements. Expensive bindings and/or color displays are not necessary. Emphasis should be placed on conformity to the specifications and terms and conditions, as well as the completeness and clarity of the submittal content.

3.2. The offeror must submit a proposal following information detailed in the *Instructions to Offeror and Checklist Form.*

3.3. A proposal submitted in response to this solicitation shall be valid and irrevocable for one hundred twenty (120) days after specified due date and time.

4. CONTRACT TYPE

The term contract shall be a coefficient applied to a Unit Price Book (UPB), methodology as outlined in Open Book Pricing, and/or time for labor and/or a discount applied to *Trade Service* for products.

5. AWARD CRITERIA

The weighted award criteria for this solicitation are as follows:

Award(s) shall be made to the responsive and responsible offeror(s) whose proposal(s) are determined in writing to be most advantageous to Mohave for its members.

Responsive and responsible offeror(s) shall provide the following requirements:

Criteria	Points
Technical Proposal Evaluation	
Offeror's qualifications and experience	40
Quality of the technical proposal	20
Offeror's contract management plan	10
Offeror's quality management plan	10
Offeror's subcontractor management plan	5
Offeror's safety plan and record	5
Offeror's financial capacity	5
References, past performance information and other pertinent information	5
Technical Proposal Total	**100**
Price Proposal Evaluation	
Cost (Coefficients, and Open Book Rates, *Trade Service* if offered)	65
Other project costs, e.g. travel, meals and incidental expenses (M&IE), transportation costs, energy costs, ownership costs, life cycle costs	10
Price Proposal Total	**75**
Grand Total	**175**

References and definitions used for specifications:

National Electrical Contractors Association (NECA): www.neca-neis.org

SPECIFICATIONS

Purpose of specifications: Specifications are designed to enable offeror to satisfy a requirement for a product, material, process, or service. A specification may be expressed as a standard, part of a standard, or independent of a standard. No specification is intended to limit competition by eliminating items capable of satisfactorily meeting the requirements of the procurement. If offeror believes a specification is unnecessarily restrictive, offeror must notify Mohave prior to specified proposal due date and time.

Brand names: Brand names that appear without the trademark or service mark remain the property of their respective owners.

Minimum specifications: The standard of quality and performance indicated in the specifications and scope of work or services shall be understood as the minimum requirements only. Unless otherwise indicated in the specifications or drawings, all work shall be done in accordance with the specifications and recommendations of the manufacturer of the product to be installed.

Compliance with specifications: Offerors shall offer products, materials, processes, or services they believe come closest to meeting specifications. The fact that a manufacturer, supplier or offeror chooses not to produce or provide product, material, process, or services to meet the specifications will not be considered sufficient cause to adjudge the specifications as restrictive.

Deviations from specifications: Offerors will respond to each numbered specification by checking the appropriate "Comply" or "Deviate" box. "No Bid" items shall be marked as such in the appropriate "Deviate" box. Your exceptions/deviations must be clearly explained. Reference the specification that you are taking exceptions/deviations to, detail any proposed substitute language, and clearly explain how the exceptions/deviations meet or exceed specifications. Unacceptable exceptions/deviations shall remove your proposal from consideration for award. Mohave shall be the sole judge on the acceptance of exceptions and Mohave's decision shall be final. Details for exceptions/deviations shall be listed by specification number on the *Scope of Work and Specifications Acceptance Form*.

	Specifications		Comply	Deviate*
1.1	**Job Order Contracting - General Specifications**			
1.1.01	Contract vendor shall provide all labor, materials, equipment, services and all required bonds necessary to complete each project according to the scope of work developed with the member.			
1.1.02	All work shall be accomplished in accordance with the material and equipment manufacturer's instructions. Contract vendor shall supervise all work, use qualified personnel, and require personnel to be familiar with safety procedures, equipment operation, and manufacturer's installation requirements.			
1.1.03	If contract vendor prepares drawings, the member shall approve drawings prior to contract vendor starting any work.			
1.1.04	Contract vendor's work responsibility shall include all planning, programming, administration, and management necessary to provide all services, and related construction services as applicable, as specified in the job order. Contract vendor shall perform the work in strict accordance with the contract and all current applicable federal, state and local laws, and codes.			
1.1.05	Contract vendor shall provide related services such as preparing and submitting required reports, performing administrative work, and submitting necessary information as specified under this contract and within individual job orders.			
1.1.06	Contract vendor shall ensure that all work meets or exceeds critical reliability rates or tolerances specified or included in applicable documents.			
1.1.07	Contract vendor shall ensure all work areas that may pose a hazard are adequately identified and secured at all times.			

1.1.08	Equipment and materials shall be produced by manufacturers and fabricators regularly engaged in the manufacture of similar items and with a history of successful production.			
1.1.09	All new materials furnished under the contract shall be of the latest design, from known manufacturers of the materials, free from defects, and in compliance with the specifications and scope of work.			
1.1.10	All materials and equipment furnished under the contract shall be of brands and models acceptable to the member.			
1.1.11	During progress of any job order that includes drawings, contract vendor shall keep a record at jobsite of all changes and corrections to the layouts shown in the drawings. Contract vendor shall enter all such changes and corrections on record drawings. Each sheet of the corrected set shall be stamped with "RECORD DRAWINGS AS-BUILT," or a similar notation.			
1.1.12	Record drawings shall include the actual location of all sub-surface utility lines and any overhead obstructions, as applicable.			
1.1.13	When requested or required by member, contract vendor shall provide reproducible, professional drafting quality drawings. The supplied drawings shall be a reproducible design with final record drawings, or drawings from which the contract vendor can develop detailed working drawings. The drawings provided shall be in accordance with current applicable federal, state and local laws and codes.			
1.1.14	The contract vendor shall promptly notify the member in writing if any discrepancies in, or omissions from, any plans, drawings, specifications, and any other document for the project are discovered. The contract vendor shall not proceed with the project without written direction from the member.			
1.1.15	Contract vendor's personnel may be permitted to use toilet facilities on the premises subject to approval from the member. In the event none are available, contract vendor shall, at the contract vendor's expense, provide portable facilities.			
1.1.16	The member may require occupying the area where work is to be performed during the construction period. Contract vendor shall coordinate with member to have access to that portion of the area within which work is to be performed.			
1.1.17	Contract vendor shall not build upon or conceal defective work.			
1.1.18	Materials classified by the member as salvageable or repairable shall remain the property of the member.			
1.1.19	Materials not classified by the member as salvageable or repairable shall be disposed of in accordance with current applicable federal, state and local laws and codes.			
1.1.20	The contract vendor shall immediately notify the member if asbestos is identified in the work area. The member will provide further instructions to the contract vendor. Removal of asbestos materials shall be accomplished by a contractor licensed in asbestos abatement, and following all current local, state and federal laws for the handling and disposal of asbestos.			
1.1.21	Contract vendor shall conduct a pre-final inspection prior to requesting a final inspection. Any discrepancies shall be corrected prior to final inspection.			

1.1.22	Prior to final inspection, contract vendor shall submit any available manufacturers' original operation and maintenance manuals to the member for all installed equipment and materials. Contract vendor shall conduct a training session to brief member personnel on the operation and maintenance procedures of installed equipment and materials.			
1.1.23	Prior to final inspection, contract vendor shall submit and have the member approve all submittals, as-built drawings.			
1.1.24	The member shall perform the final inspection with contract vendor. Any discrepancies will be noted and corrected within the time agreed upon with the member prior to payment.			
1.2	**Pricing – Unit Price Book Requirements (UPB)**			
1.2.01	Upon member acceptance of unit price book pricing (UPB) methodology to be used under the job order, project pricing shall be based upon a coefficient to be applied to an approved UPB.			
1.2.02	**Scope of work within Divisions 1-49 of the Construction Specifications Institute:** The UPB for contract vendors providing work in Divisions 1-49 shall be the current edition of RS Means Online or Costworks CDs using the Facilities Construction Cost Data module.			
1.2.03	**Scope of work within Divisions 1-49 of the Construction Specifications Institute:** RS Means Online or Costworks CDs: Building Construction Cost Data, Maintenance and Repair Cost Data, Electrical Cost Data, Mechanical Cost Data, Heavy Construction Cost Data, Plumbing Cost Data, Interior Cost Data, Site Work & Landscape Cost Data, Concrete & Masonry Cost Data is allowable if the appropriate line item is not found in the RS Means Online or Costworks CDs Facilities Construction Cost Data.			
1.2.04	**Scope of work within Division 22 of the Construction Specifications Institute:** The UPB for Division 22 Plumbing shall be the current edition of the RS Means Online or Costworks CD Plumbing Cost Data. Contract vendor may perform related services, such as unit repairs, services, and installations for equipment and processes within Divisions 2 (Demolition), 11 (Equipment), and 13 (Special Construction).			
1.2.05	**Scope of work within Division 22 of the Construction Specifications Institute:** To complete a plumbing project using other ancillary services from other divisions, use of current editions of RS Means Online or Costworks CDs: Building Construction Cost Data, Interior Cost Data, Electrical Cost Data, Mechanical Cost Data, Repair and Remodeling Cost Data, Site Work Cost Data, is allowable if the appropriate line item is not found in the Facilities Construction Cost Data. (A brief descriptive narrative shall be required for all jobs that use ancillary services. Mohave shall randomly review and verify the validity of these ancillary services. Any work deemed excessive or not necessary to complete a plumbing job shall not be allowed under this contract).			
1.2.06	**Scope of work within Division 23 of the Construction Specifications Institute:** The UPB for Division 23 Heating Ventilation and Air Conditioning (HVAC) shall be the current edition of the RS Means Online or Costworks CDs Mechanical Cost Data. Contract vendor may perform plumbing and electrical related services, such as unit repairs, services, and installations for equipment and processes within Divisions 2 (Demolition), 11 (Equipment), and 13 (Special Construction: Controls and Instrumentation).			

1.2.07	**Scope of work within Division 23 of the Construction Specifications Institute:** To complete a HVAC project using other ancillary services from other divisions, use of current editions of RS Means Online or Costworks CDs: Building Construction Cost Data, Interior Cost Data, Electrical Cost Data, Mechanical Cost Data, Plumbing Cost Data, Repair and Remodeling Cost Data, Site Work Cost Data, is allowable if the appropriate line item is not found in the Facilities Construction Cost Data. (A brief descriptive narrative shall be required for all jobs that use ancillary services. Mohave shall randomly review and verify the validity of these ancillary services. Any work deemed excessive or not necessary to complete a HVAC job shall not be allowed under this contract).			
1.2.08	**Scope of work within Division 26 of the Construction Specifications Institute:** The UPB for Division 26 Electrical shall be the current edition of the RS Means Online or Costworks CDs Electrical Cost Data. Contract vendor may perform plumbing and electrical related services, such as unit repairs, services, and installations for equipment and processes within Divisions 2 (Demolition), 11 (Equipment), and 13 (Special Construction: Controls and Instrumentation).			
1.2.09	**Scope of work within Division 26 of the Construction Specifications Institute:** To complete an electrical project using other ancillary services from other divisions, use of current editions of RS Means Online or Costworks CDs: Building Construction Cost Data, Interior Cost Data, Electrical Cost Data, Mechanical Cost Data, Plumbing Cost Data, Repair and Remodeling Cost Data, Site Work Cost Data, is allowable if the appropriate line item is not found in the Facilities Construction Cost Data. (A brief descriptive narrative shall be required for all jobs that use ancillary services. Mohave shall randomly review and verify the validity of these ancillary services. Any work deemed excessive or not necessary to complete a electrical job shall not be allowed under this contract).			
1.2.10	The Weighted City Cost Index (CCI) shall be applied to each division for the city closest to project location and the prices in "Total, include O & P" column in the applicable UPB will be used for project costing.			
1.2.11	The total value of applicable line items and quantities shall be multiplied by the appropriate CCI and the specified coefficient to determine the lump sum cost of each job order.			
1.2.12	Contract vendor shall provide the member with an itemized project cost prior to starting any job order. At a minimum, the project cost shall include: Date of Quote — Item Number — Applicable CCI: Item Description — Number of Units — (Year and Quarter) Total Line Cost — Line Items Subtotal — Unit Price Coefficient — Unit Price Book used — Grand Total			
1.2.13	Items that cannot be found in the UPB or other approved RS Means cost data index are considered "non pre-priced" items. If the UPB or other approved cost data index contain an item that is basically the same in form, fit and function, it may be used to price a non-pre-priced item. If such pricing is used, substantiating rationale and documentation shall be included in the line item cost sheet.			

1.2.14	If like items cannot be found in the UPB, contract vendor shall obtain three written quotes for a non-pre-priced item and submit the quotes to Mohave. Mohave shall determine the most appropriate quote to use for adding the item to the approved contract pricing. If three quotes cannot reasonably be obtained for a non-pre-priced item, contract vendor shall explain why they were unable to obtain additional price quotes.			
1.2.15	Upon approval from Mohave, the non-pre-priced item shall become part of the contract pricing and available for any job order. Contract vendor shall not provide a new item unless and until Mohave approves it.			
1.2.16	A coefficient to be applied to the cost of non-pre-priced items shall be provided.			
1.2.17	Coefficients shall be provided for normal business hours (Monday – Friday, 7 a.m. – 5 p.m.) and "other" hours (after hours, weekends, and holidays). "Other" hours shall only be worked with prior approval from the member.			
1.2.18	Coefficients shall be extended no more than two decimal places.			
1.2.19	Coefficients shall include all costs associated with performing the work contained in the UPB. Such costs include, but are not limited to: the direct cost of doing the work; labor; overhead; general and administrative; profit; project office expenses; mobilization; close-out costs; insurance; compliance with current applicable federal, state and local laws and codes; protective clothing and equipment; traffic and work site barriers; computer systems and software; vehicles, maintenance and fuel; incidental costs and all contingencies connected to performing the work. ***No additional payment will be allowed for these items.***			
1.2.20	Offeror shall specify in the proposal what additional types of costs are included in the coefficients.			
1.2.21	UPB Division 1 sections before 54, Construction Aids, are excluded from the contract except as specified below. Such items shall be included in coefficients. Member may approve specific exceptions caused by unusual and unforeseen circumstances.			
1.2.22	The following UPB Division 1 items are allowed, when the specified work is required or authorized by the member: 01 21 53.50-0010 through 1750 01 45 23.50-0010 through 9000 01 51 13.80-0010 through 0700			
1.2.23	Labor, equipment and material prices shall be adjusted in accordance with the prices in each new edition of the UPB. Adjustments will be to the UPB only. No adjustment will be applied to cost items comprising the coefficient. No upward adjustment shall apply to job orders awarded prior to effective date of the adjustment, regardless of the date of commencement of work.			
1.2.24	All prices in the UPB are for completed-in-place construction unless explicitly described otherwise. Waste or excess material quantities are incidental costs, which are included within the coefficient unless explicitly stated otherwise. Quantities used on individual job order proposals shall be taken from field measurements or design plans, as appropriate, without allowance for waste.			

1.3	**Pricing – Open Book Pricing Requirements**			
1.3.01	Upon member acceptance of the Open Book Pricing methodology to be used under the job order, the project's direct job cost shall be based upon firm price quotes from contractors in the contract's approved subcontractor list. To the extent practicable, contract vendor shall obtain firm price quotes from three contractors for each discipline applicable to the project. If three quotes cannot reasonably be obtained for a discipline, contract vendor shall explain why they were unable to obtain additional price quotes.			
1.3.02	Upon request, contract vendor shall provide member with copies of subcontractor quotes and the basis for selection of each subcontractor. Contract vendor shall provide member explanation for any rejected low quote.			
1.3.03	All costs shall be identified in the Open Book Pricing workbook and included in your price proposal.			
1.3.04	If the member objects to a selected subcontractor, member shall make the objection and the reasons for the objection known to the contract vendor. Contract vendor shall then present an acceptable subcontractor for the applicable discipline. Member shall not unreasonably object to or withhold approval of a subcontractor.			
1.3.05	General conditions are requirements directly related to the work, but not included in direct construction cost. General conditions shall include, but are not limited to: project management, estimating, quality control, and administrative labor; field office equipment, materials and supplies; travel and subsistence; temporary field office rental and utilities; submittals and operations and maintenance manuals; small tools, face and clothing protection; project scheduling; compliance with current applicable environmental laws; marketing; and Mohave's 1% administrative fee.			
1.3.06	General and administrative costs include but are not limited to: home office general and administrative expense; excess liability and auto insurance; business licenses; and home office manager labor. General and administrative cost shall be assessed as a fixed multiplier applied to direct project cost and general conditions cost for the project.			
1.3.07	Profit shall be assessed as a fixed multiplier applied to direct project cost, general conditions cost, and general and administrative costs for the project. The amount of the profit multiplier shall be identified in the Open Book Pricing workbook and included in your price proposal.			
1.3.08	Each job order using Open Book Pricing shall include a completed copy of the worksheets named Price Summary and General Conditions provided in "JOC RFP 19F-0808 Open Book Price Summary.xlsx". All costs shall be identified in the Open Book Pricing workbook and included in your price proposal. Substantially similar documents may be used with Mohave's approval.			
1.4	**Pricing – Trade Service Requirements**			
1.4.01	As an alternative pricing methodology for service, repair, and maintenance projects, *Trade Service* price guide may be offered for product pricing. *Trade Service* price guide shall be for division(s) being offered.			
1.4.02	The *Trade Service* price guide shall be based on the most recent release of *Trade Service eData Flex Pricing Service.*			

1.4.03	Quarterly archived electrical price guide (*Trade Service: eData Flex Pricing Service*) shall be required under an awarded contract. Archived pricing shall be made available upon the release of quarterly updates from *Trade Service*. Mohave shall set the schedule for allowable quarterly and yearly updates.			
1.4.04	Contract vendor shall supply discounts, multipliers, and/or any references used to determine Mohave pricing for the *Trade Service* price guide.			
1.4.05	Installation/maintenance services using *Trade Service eData Flex Pricing Service* pricing for products shall include all costs for installation on member quotations.			
1.4.06	Contract vendor shall provide the member with an itemized project cost prior to starting any job order. At a minimum, the project cost shall include: Date of Quote — Number of Units Item Number — Item Description Item/Unit Cost — Labor Rate Labor Hours — Total Line Cost Line Items Subtotal — Grand Total			
1.4.07	Contract vendor may offer product only sales to members. Unit costs shall be based on *Trade Service* price guide.			
1.5	**Specifications for the Work**			
1.5.01	All work shall be performed in accordance with the attached specifications, as applicable to the awarded divisions.			
1.5.02	Contract vendor may recommend alternate specifications or additional specifications for work to be performed under a job order. Any alternate specification offered shall comply with all current applicable federal, state and local laws, and codes.			
1.5.03	Contract vendor shall obtain written approval from member prior to using any alternate specification for any work to be performed under the contract.			
1.5.04	Prior to starting any work, contract vendor shall notify member of any specification that is in conflict with current applicable federal, state and local laws and codes, and offer an alternate solution that is in compliance.			
1.5.05	When any aspect of a project is not covered by a specification or building code, the minimum standard for good and workmanlike construction shall be performed in accordance with the current National Electrical Contractors Association's standards for Good Workmanship in Electrical Construction.			
1.5.06	No products that contain asbestos fibers shall be used.			
1.5.07	Where practicable, all work shall be accomplished in a manner to match existing work in the same area or on the same elevation. Contract vendor shall not make adjustments to or alter in any manner member's existing facilities without prior written approval from member.			
1.5.08	Upon completion of the work, worksite shall be clean and free from debris.			
1.6	**Services**			
1.6.01	Upon request from member, contract vendor shall obtain the permits required for a job order. Contract vendor shall only be allowed to invoice for the actual cost of the permit. No amount for overhead and profit shall be allowed on permit costs.			

1.6.02	Upon request from member, and if included in the awarded contract, contract vendor shall provide design services related to the job order. Such services are only allowable as part of an executed Job Order Contracting purchase order.			
1.6.03	Design services shall be provided in accordance with current applicable federal, state and local laws and codes.			
1.6.04	Upon request from member, and if included in the awarded contract, contract vendor shall provide engineering services related to the job order. Such services are only allowable as part of an executed Job Order Contracting purchase order.			
1.6.05	Engineering services shall be provided in accordance with current applicable federal, state and local laws, and codes.			
1.6.06	Upon request from member, and if included in the awarded contract, contract vendor shall provide maintenance services related to the job order. Such services are only allowable as part of an executed Job Order Contracting purchase order.			
1.6.07	Maintenance services shall be provided in accordance with current applicable federal, state and local laws and codes.			
1.6.08	There shall be no charge for repair services prior to expiration of the warranty period.			

***Exceptions/deviations must be listed on the *Scope of Work and Specifications Acceptance Form*. List the specification number for each exception/deviation.**

Technical Proposal - Scope of Work and Specifications Acceptance Form
(Place after Tab 1e)

Signature on page 2 certifies complete acceptance of the Scope of Work and Specifications in this solicitation, except as noted below (additional pages may be attached, if necessary).

Check one of the following responses to the Scope of Work and Specifications:

☐ **We take no exceptions/deviations to the Scope of Work and Specifications.**

(*Note: If nothing is listed below, it is understood that no exceptions/deviations are taken.)*

☐ **We take the following exceptions/deviations to the Scope of Work and Specifications. All exceptions/deviations shall be clearly explained. Reference the corresponding Scope of Work or Specifications that you are taking exceptions/deviations to. Provide details on your exceptions/deviations below:**

(*Note: All requested exceptions/deviations must be clearly explained. Reference the specific language that you are taking exceptions/deviations to, detail any proposed substitute language, and clearly explain how the exceptions/deviations meet or exceed Scope of Work and Specifications. Unacceptable exceptions/deviations shall remove your proposal from consideration for award. Mohave shall be the sole judge on the acceptance of exceptions/deviations and Mohave's decision shall be final.)*

Anti-Lobbying Certification Form
(Place after Tab 1g)

ANTI-LOBBYING CERTIFICATION

Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions

In accordance with the Byrd Anti-Lobbying Amendment 31 U.S. Code § *1352, CFR* § *200.450 and Federal Acquisition Regulation 52.203-11:*

(a) The definitions and prohibitions contained in the clause, at FAR 52.203-12, Limitation on Payments to Influence Certain Federal Transactions, included in this solicitation, are hereby incorporated by reference in paragraph (b) of this certification.

(b) The offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with the awarding of this contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement;

(2) If any funds other than Federal appropriated funds have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the offeror shall complete and submit, with its offer, OMB standard form LLL, Disclosure of Lobbying Activities, to the Contracting Officer in accordance with its instructions; and

(3) The undersigned shall require that the language of this certification be included in the award documents for all subcontract awards at all tiers and require that all recipients of subcontract awards in excess of $100,000 shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by 31 U.S. Code § 1352. Any person who makes expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision shall be subject to a civil penalty of not less than $10,000, and not more than $100,000, for each such failure.

_____
(Firm Name)

_____
(Signature)

_____
(Print Name)

_____
(Print Title)

_____
(Date Certified)

U.S. Department of Agriculture Form AD-1048
(Place after Tab 1h)

UNITED STATES DEPARTMENT OF AGRICULTURE

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion Lower Tier Covered Transactions

The following statement is made in accordance with the Privacy Act of 1974 (5 U.S.C. § 552(a), as amended). This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, and 2 C.F.R. §§ 180.300, 180.355, Participants' responsibilities. The regulations were amended and published on August 31, 2005, in 70 Fed. Reg. 51865-51880. Copies of the regulations may be obtained by contacting the Department of Agriculture agency offering the proposed covered transaction.

According to the Paperwork Reduction Act of 1995 an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0505-0027. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The provisions of appropriate criminal and civil fraud privacy, and other statutes may be applicable to the information provided.

(Read Instructions On Page Two (RFP Page 21) Before Completing Certification)

A. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency;
B. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Organization Name PR/Award Number or Project Name

Name(s) and Title(s) of Authorized Representative(s)

Signature(s) Date

The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs). Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Assistant Secretary for Civil Rights, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, S.W., Stop 9410, Washington, DC 20250-9410, or call toll-free at (866) 632-9992 (English) or (800) 877-8339 (TDD) or (866) 377-8642 (English Federal-relay) or (800) 845-6136 (Spanish Federal-relay). USDA is an equal opportunity provider and employer.

Instructions for Certification (for Form AD-1048)

1. By signing and submitting this form, the prospective lower tier participant is providing the certification set out on 1 (RFP page 20) in accordance with these instructions.

2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension or debarment.

3. The prospective lower tier participant shall provide immediate written notice to the person(s) to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549, at 2 C.F.R. Parts 180 and 417. You may contact the department or agency to which this proposal is being submitted for assistance in obtaining a copy of those regulations.

5. The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

6. The prospective lower tier participant further agrees by submitting this form that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the System for Award Management (SAM) database.

8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under paragraph (5) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Technical Proposal – Primary Vendor Information
Method of Approach
(Place after Tab 2a)

Offeror shall respond to each item below. The information will be used to assist Mohave in evaluating the method of approach that an offeror would take regarding specific issues under an awarded contract. Do not use "boilerplate" answers. Respond to each item by specifically addressing the Mohave request. Failure to complete all questions may result in your proposal being considered nonresponsive.

1. Offeror shall provide a project plan that describes how the offeror intends to implement the plan. This plan shall include, but not be limited to:

    a. Account team structure (for a Mohave contract) and role which includes, but is not limited to description of sales contact process, account team support, and periodic account review processes;
    b. Communication process with Mohave and its members;
    c. Specific value-added services that may benefit members;
    d. Indicate how you will ensure your sales staff does not sell products or services that are not on contract; and
    e. Are there any limitations to the types of members that you will provide services to? If so, indicate what those limitations are.

2. Mohave is established to offer a cooperative purchasing program, which can be accomplished more efficiently and economically as a multi-entity operation.

    Efficiency and economy can be established through reduced bidding effort for members and vendors, management of a single contract, fewer price schedules to maintain, fewer contact persons, and using Mohave as an extension of members' purchasing departments. Additionally, it is Mohave's assertion that a statewide contract available to approximately 450 public agencies results in economies of scale and lower prices than those received by bidding individual contracts, especially, but not limited to small member agencies.

    Will a contract based upon your proposal result in the efficiencies and economies described above?

    Yes ___ *No* _____

    If no, what efficiencies and economies would members receive from a contract based on your proposal?

3. In previous JOC contracts, Mohave has had isolated issues with members using design work (estimates, drawings, etc.) to shop our contracts against each other, or against other non-Mohave contracts. How would you prevent such issues from occurring under an awarded contract?

4. Indicate if your proposal is regional or statewide: Regional _____ Statewide _____

   If you are providing a regional or county specific offer, that offer shall cover all members within that region or county.

   Regardless if your firm is providing statewide or regional/county services, complete the chart below to include the following:

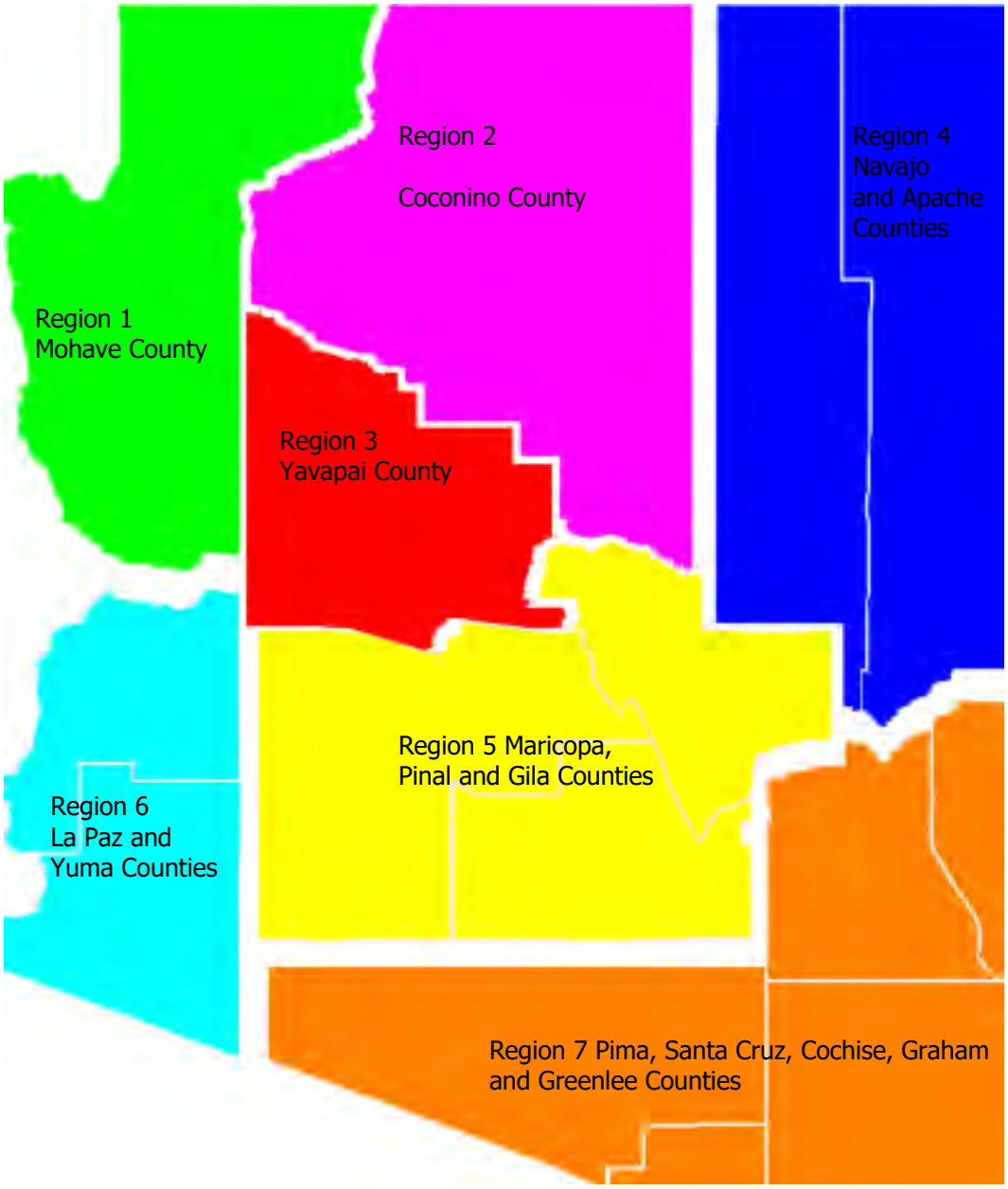
   a. In the past three years, what percent of your Arizona business do you estimate was in each geographical area identified below?

   b. Based upon the regional map on Page 18, indicate which regions, or specific cities/counties within a region, that you will provide services under an awarded contract.

   c. If you are awarded a contract with Mohave, which area(s) of the state will your sales force target?

Region	Counties	a: Percentage of Business	b: Regions You Will Provide Services In	c: Regions Sales Force Will Target
1	**Mohave**			
2	**Coconino**			
3	**Yavapai**			
4	**Navajo and Apache**			
5	**Maricopa, Pinal and Gila**			
6	**La Paz, Yuma**			
7	**Pima, Santa Cruz, Cochise, Graham and Greenlee**			

Below is a map, detailing the regions, and the counties that fall within each region.



Technical Proposal – Primary Vendor Information
Qualifications and Experience
(Place after Tab 2b and 2e)

Offeror shall respond to each item below. The information will be used to assist Mohave in evaluating the qualifications and experience of the offeror. Do not use "boilerplate" answers. Respond to each item by specifically addressing the Mohave request. Failure to complete all questions may result in your proposal being considered nonresponsive.

1. **Place after Tab 2b:** Prepare a summary of your firm, explaining the qualifications and experience necessary to provide the services in this solicitation as follows:
   - A short narrative description of what you are offering for this contract.
   - A *brief* history of your company that includes length of time in business, how long your company has provided the products/services you are proposing, and your firm's philosophy of doing business.
   - Provide written verification if offeror has recently purchased an established business or has proof of prior success in this business or a closely related business.
2. **Place after Tab 2b:** Identify any past or pending litigation or mediation involving products or services your firm has provided within the last five (5) years.
3. **Place after Tab 2b:** Indicate if your firm would qualify as a small or minority owned business. To qualify for ownership as a minority owned business, at least 51% of the firm's ownership must be held by a person, or persons, of a particular group (e.g., Woman owned, Hispanic owned, Native American owned). Proof of ownership is evidenced by the transaction privilege tax license or business privilege license for sole proprietorship; business privilege license **and** written partnership agreement for partnerships; or the Articles of Incorporation, Corporate By-laws **and** stock certificates for corporations.

   NOTE: Businesses have equal opportunity to sign up as a prospective bidder on Mohave's website. If small or minority owned businesses were signed up for a category selected for this solicitation, then they are included in the solicitation notification email list. The information on small and minority owned business are for informational purposes only and shall not be a factor in the evaluation. Mohave cannot ensure that affirmative steps have been used to assure small and minority owned businesses are awarded contracts, as funding sources of our members vary.
4. **Place after Tab 2b:** An online survey has been created to allow for the collection of reference information from Arizona public agencies where work and services have been successfully accomplished in the past five (5) years, for specific products/services similar to this solicitation. Provide the following link to Arizona public agencies who can provide reference information for your firm: **https://www.surveymonkey.com/r/QHMZTKL**

   The above survey is now active and will remain active until the due date and time for this solicitation. It is recommended that you send this link to as many Arizona public agencies as you determine to be appropriate, in order to ensure that Mohave receives a minimum of three (3) completed surveys.

   If you cannot provide the link to three (3) Arizona public agencies, provide the link to other public agencies not located in Arizona. If you cannot provide the link to public agencies, do so with private business entities.
5. **Place after Tab 2b:** Provide copy of current of all Arizona contractor's licenses held by your company.
6. **Place after Tab 2e:** Provide a current letter from your financial institution indicating the range of credit available to your firm, (e.g., "credit in the low nine figures" or "credit line exceeding five figures"). Provide a current letter from your financial institution and/or officers of major suppliers, indicating confidence in your firm's stability and payment history. *These letters will only be used to evaluate proposals and will not be made available to the public.*

   Offerors may submit current audited annual financial reports in lieu of letters from financial institutions. However, the annual financial reports must provide essentially the same information as requested from the letters. Offerors are encouraged to highlight the requested information in any audited annual financial report submitted in response to this solicitation. All financial information will be kept confidential.

Technical Proposal – Primary Vendor Information
Past Performance and Management Plans
(Place after Tab 2c)

1) Provide a list of your firm's job order contracts for the last three years.
    a. *Include date, contracting agency, contract amount, and contact information for each.*
    b. *If your firm has no Job Order Contracting experience, provide the required information for your major construction projects.*
2) If your firm has no Job Order Contracting experience, provide a description of your philosophy and experience partnering as a member of a team consisting of the owner, owner's customers, and the contractor.
3) Provide a description of your experience working on school district or other governmental projects, working on multiple projects simultaneously, and working throughout the state. Include any specialized projects, such as airports, that require proven experience, training, knowledge, and/or certifications.
4) Provide a statement of your history for submitting claims and change orders.
    a. *Provide specific information, e.g., type of claim, date, reason, amount, and outcome.*
5) Indicate if you are offering design, engineering, maintenance, and/or operations services.
    a. *Describe the services you are offering.*
    b. *Indicate if in-house staff will provide the services.*
    c. *Indicate the portions of a project that may be subcontracted to other firms.*
    d. *Provide a statement of your experience or the subcontractor's experience providing the services, particularly in a job order contract setting.*
6) Provide a Contract Management Plan.
    a. *Provide a statement of your plan for performing and managing the work.*
    b. *What personnel will be used?*
    c. *How many employees are located in Arizona?*
    d. *How do you plan to ensure prompt responses to job order requests?*
    e. *How do you plan to ensure an adequate workforce is maintained?*
    f. *What is your plan for responding to and performing multiple job orders at the same time?*
    g. *What limitations will you have geographically or in the number of simultaneous job orders?*
    h. *Provide other pertinent information that will help Mohave evaluate your firm and its capabilities.*
    i. *Describe your experience in pricing projects using a UPB and a coefficient, an Open Book pricing methodology, and Trade Service (if applicable).*
    j. *Specifications 1.2.01 - 1.2.24 contain comprehensive requirements regarding the use of RS Means Online or Costworks CDs as the basis for the UPB for an awarded contract. If you are utilizing a different software product to prepare your quotations, proposals and invoices, provide detailed examples and information showing how you intend to comply with the specification requirements regarding RS Means Online or Costworks CDs as the basis for the UPB.*

7) Describe your Quality Management Plan.
    a. *How do you set goals and monitor the performance of your company?*
    b. *How do you inspect the work to ensure quality?*
    c. *How do you stay on schedule?*
    d. *What is your complaint and dispute resolution procedure?*
    e. *Provide other pertinent information that will help Mohave evaluate your firm and its capabilities.*
8) Describe your Subcontractor Management Plan.
    a. *Provide a statement of your plan for managing subcontractors.*
    b. *Provide a statement acknowledging your intent to not use price as the sole determining factor when selecting subcontractors under any awarded contract. (See Special Term and Condition 12.6.)*
    c. *How will you recruit subcontractors, particularly in the local communities where work will be performed?*
    d. *Describe how you would use local subcontractors to accomplish the work.*
    e. *How will you ensure acceptable quality for work performed by subcontractors?*
    f. *How will you address controversies and claims related to work performed by subcontractors?*
    g. *Provide other pertinent information that will help Mohave evaluate your subcontractor management capabilities.*
    h. *Provide a list, including firm name, location, and current license number, for subcontractors your firm currently uses.*
    i. *For firms who self-perform and do not subcontract work, provide your confirmation that any future subcontracts shall follow the requirements* specified in the *subcontractor management plan noted above. Mohave may request a copy of your plan prior to allowing subcontracting under an awarded contract.*
9) Describe your Safety Plan.
    a. *Provide a current letter from your firm's insurance company stating the Workers' Compensation Experience Modification Rate (EMR) for the past three (3) years. The letter shall be on the insurance company's letterhead and signed by an appropriate individual employed by the insurance company.*
    b. *If your EMR is greater than 1, what actions will you take to lower it?*
    c. *Describe your firm's safety oversight. Do you have a safety manager?*
    d. *Describe the safety training used by your firm and provide a copy of your firm's safety training program.*

Price Proposal – Primary Vendor Information
(Place in a clearly marked, separate sealed envelope)

IF YOUR FIRM WAS SHORTLISTED FOR DIVISION 22 PLUMBING, DIVISION 23 HEATING, VENTILATION AND AIR CONDITIONING OR DIVISION 26 ELECTRICAL, PROVIDE CO-EFFICIENTS AND PRICING INFORMATION FOR BOTH DIVISIONS OR INDICATE IF THE CO-EFFICIENTS WILL BE IDENTICAL FOR BOTH DIVISIONS.

Price Proposal <u>shall</u> be submitted in a clearly marked, separate sealed envelope. Offeror shall provide a price proposal to include the following information:

1. **Name and Date of the Unit Price Book (UPB):**

2. **Coefficient(s) to be applied to pre-priced items (items listed in the UPB) for work performed during:**
   - Normal business hours (Monday - Friday 7 a.m. - 5 p.m.)
   - Other hours (after hours, weekends, and holidays)
   - Note adjustments to the coefficient(s), if applicable, for work performed in different regions of the state.

3. **Coefficient(s) to be applied to non pre-priced items (items not listed in the UPB) for work performed during:**
   - Normal business hours (Monday - Friday 7 a.m. - 5 p.m.)
   - Other hours (after hours, weekends, and holidays)
   - Note adjustments to the coefficient(s), if applicable, for work performed in different regions of the state.

   Notes: Provide a brief explanation of the rationale for your coefficients. The rationale should indicate how you determined the cost of doing the work and the various elements that made up your coefficients. See Specification 1.2.13, Pricing, for additional information.

4. **Open Book Pricing Workbook:**
   NOTE: *The workbook contains cells that include formulas to calculate total costs. Do not override the formulas within these cells.*

   If offeror is including the Open Book Pricing methodology in their price proposal, the Open Book Price workbook shall be completed as follows:
   - Provide complete information in the worksheet titled, *"Price Summary"* in the electronic Open Book Price workbook titled, *"19F-0808 Open Book Price Summary.xlsx"* includes yellow highlighted cells for *General and Administrative Cost (G&A)* and *Profit*. Place the percentage value your firm will use to calculate overhead and profit for the Direct Project Costs and General Conditions.
   - The worksheet titled, *"General Conditions"* in the electronic Open Book Price workbook titled, *"19F-0808 Open Book Price Summary.xlsx"*, includes general conditions, services, or costs not identified or included in the subcontractor quotations.
   - Provide the labor and/or service unit price for the yellow highlighted cells in the section titled, *Admin Fee Items: Unit Price.* Additionally, include the unit of measure (e.g. per hour, per day, per week) as applicable in the *Unit Of Measure* column.
   - Provide additional costs as applicable for yellow highlighted cells in the section titled, *Non-Admin Fee Items*. Non-Admin Fee items include costs that are "passed-through" to member at cost to the contract vendor. *Mohave shall not collect administration fees on the above non-admin fee items.*
   - Add line items to the Admin and/or Non-Admin Fee schedules as necessary.
   - **Only services/costs identified in this price schedule will be allowed under an awarded contract.**
   - This workbook will serve as your quoting template for all open book projects under an awarded contract.

5. **Trade Service Price Guides for items and services not included in the UPB:**
   - The pricing methodology to determine the Mohave price shall be:
     - Discount off list (specify discount).
     - Discount off Column Two (specify discount) when List Price is unavailable.
6. **Professional Services (Provide the applicable hourly rate for each service offered. No coefficient will be applied to these rates.)**
   - Design Services
   - Engineering Services
   - Other Professional Services (specify service and rate)
7. **Maintenance Services and Extended Warranties (Provide the cost for all maintenance services and extended warranties that are available after the warranty period. No coefficient will be applied to these prices.)**
8. **Other Charges (Provide any additional costs~~,~~ or incidental charges. Such charges may include the items listed below. No coefficient will be applied to these charges.)**
   - 100% Performance and Payment Bonds
   - Meals and incidental expenses (M&IE), transportation and lodging
   - Mobilization (Indicate when mobilization charges would apply.)
     NOTE: Mobilization may only be used with projects priced using Trade Service and labor. Mobilization charges shall not be allowed with UPB or Open Book Pricing methodologies.
   - Other
9. Will you offer members a quick pay discount if payment is made within 10 or 20 days? Yes __ No __
   - If Yes, what is the discount for 10 days? _____ 20 days? _____

Travel Description

If travel rates are applicable, describe how they are calculated, and when they are necessary, (e.g. 50 miles from origin). Include information regarding what the travel rates cover. (See **Pricing: Reimbursement for Transportation, Mileage, Lodging, Meals and Incidental Expenses** in the Special Terms and Conditions.)

Bond Methodology Description

Provide detailed information explaining the methodology to be used when bonds are applied to projects. Describe in detail the method your surety company requires you to use (e.g., bonds are applied before sales tax is applied, bonds are applied after sales tax is applied). Mohave will use this information to verify that your firm is consistently charging bonds in the same manner under an awarded contract.

Technical Proposal – Supporting Contract Documents – Firm Information, Order Processing, Individual Contact, and Customer Support Information (Place after Tab 4a)

1. Contact information for firm's headquarters:

   Physical Address _____

   Mail Address, if different _____

   Main Phone Number _____

   Website _____

2. Contact information for firm's Arizona branch office:

   Physical Address _____

   Mail Address, if different _____

   Main Phone Number _____

   Website, if different _____

   Add additional contact information if firm has more than one Arizona branch office.

3. Contact information for purchase orders:

   Physical Address _____

   Email Address _____

   Attention of _____

4. Payment remittance address _____

   Attn: _____

   City _____ State _____ Zip _____

   Telephone (invoice questions) _____

5. Provide Arizona Transaction Privilege (sales) Tax License Number: _____

   Do you collect city, county and/or other local sales tax in Arizona? *Yes* ___ *No* ___

   If yes, please check one:

   ☐ Our combined state, city, county and/or other local sales tax rate is ___% (local rate).

   ☐ The sales tax rate varies by the location (e.g. ship to rate). Provide additional information below:

   _____

   _____

6. Acceptance of Pcards for Payment:

   Will you accept Pcards as a method of payment? Yes _____ No _____

Technical Proposal – Supporting Contract Documents – Firm Information, Order Processing, Individual Contact, and Customer Support Information (Place after Tab 4a)

7. Contacts for Mohave:

Main Mohave representative contact: _____
(*Shall be the main point of contact for members and be responsible for member information requests.)*

Title _____ Email address _____

Phone number _____ Fax _____

Contract Administrator contact: _____
(*Shall be the main point of contact for contract information requests.)*

Title _____ Email address _____

Phone number _____ Fax _____

Accounting contact: _____
(*Shall be the main point of contact for accounting issues.)*

Title _____ Email address _____

Phone number _____ Fax _____

Open Order/Status Report contact: _____
(*Shall be the main point of contact regarding open orders and status reports.)*

Title _____ Email address _____

Phone number _____ Fax _____

Audit contact: _____
(*Shall be the main point of contact for audit requests and clarifications.)*

Title _____ Email address _____

Phone number _____ Fax _____

Reconciliation contact: _____
(*Shall be the main point of contact for reconciliation report requests and/or clarifications and payment of administration fees.)*

Title _____ Email address _____

Phone number _____ Fax _____

Escalation contact: _____
(*Shall be the main point of contact when an issue needs to be escalated above the main contact and/or contract administrator for the RFP/contract.* ***This contact shall be a different individual than those named for the contacts listed above.*** *)*

Title _____ Email address _____

Phone number _____ Fax _____

Marketing contact: _____
(*Shall be the main point of contact for providing marketing information for Mohave's website.)*

Title _____ Email address _____

Phone number _____ Fax _____

Technical Proposal – Supporting Contract Documents – Firm Information, Order Processing, Individual Contact, and Customer Support Information (Place after Tab 4a)

Provide the requested customer support information for warranty and maintenance service offered by your firm, as applicable.

Do you provide warranty and maintenance for the items in the proposal?

☐ **Yes,** the following is applicable to our offer. (If yes, please provide the information below.)

☐ **No,** the following is not applicable to our offer.

Describe the steps a member should take to activate a warranty and how they obtain warranty and maintenance service.

_____

_____

_____

_____

Provide the name and address of the facility that will provide warranty and maintenance service, under an awarded contract. Additionally, provide a contact person and phone number for warranty and maintenance service. If there is more than one facility, provide the names and addresses for all facilities. Attach a list if necessary.

_____

_____

_____

_____

Do you provide technical assistance via phone? ☐ Yes ☐ No If yes, provide a phone number and contact.

_____

What is your service response time for metropolitan areas (e.g., Phoenix, Tucson) and rural areas?

_____

Technical Proposal – Supporting Contract Documents
Sample Supplemental or End User Agreement(s)
(Place after Tab 4b)

Will members be required to sign supplemental or end-user agreements (sales, maintenance)? (See **3.1 Contract vendor documents** in the Special Terms and Conditions)

☐Yes ☐No

If yes, review/revise your agreement(s) for terms that conflict with the Mohave terms and conditions. In addition, review for the following common issues:

Acceptable agreements **shall** include:

- Non-appropriations clause;
- Contract or agreement must be governed by the laws of the State of Arizona;
- Net payment is thirty (30) days.

Agreements **shall not** include:

- Terms beyond one year;
- Waiver of right for a jury trial;
- Requirement of upfront payment by member when purchase order is placed;
- Entire agreement language;
- Auto-renewal language.

Attach your reviewed/revised agreement(s). **Unacceptable agreement(s) may render your proposal nonresponsive.**

Technical Proposal – Supporting Contract Documents
Extended Warranty and Maintenance Plan Information
(Place after Tab 4c)

Do you offer extended warranty or maintenance service plans? ☐ Yes ☐ No

If yes, provide a summary of the plans here and/or copies of the plans after this page. Include pricing for extended warranty or maintenance service plans in your price schedule after **Tab 3a.** Place any supplemental end-user agreement forms, which include terms and conditions and/or member signature after **Tab 4b.**

Technical Proposal – Bid Bond
(Place after Tab 1f)

KNOW ALL MEN BY THESE PRESENTS:

THAT, _____

(hereinafter called Principal), as Principal, and _____

a corporation organized and existing under the laws of the State of _____, with its principal office in the city of _____, (hereinafter called the Surety), as Surety, are held and firmly bound unto Mohave Educational Services Cooperative, Inc. in the State of Arizona, (hereinafter called the Obligee) in the amount of $100,000 for payment whereof the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for Job Order Contracting for Job Order Contracting for Various Construction Trades.

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or contract documents with good and sufficient surety for the faithful performance of such contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter into such contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

The prevailing party in a suit on this bond shall recover as part of his judgment such reasonable attorney fees as may be fixed by a judge of the court.

Witness our hands this _____ day of _____, 20__.

_____
PRINCIPAL SEAL

_____
BY

_____
SURETY SEAL

_____
BY

_____
AGENCY OF RECORD

Technical Proposal – Special Terms and Conditions (Place after Tab 1d)

Some Special Terms and Conditions specify placement of information in tabs other than Tab 1d as noted in the title above. Pay close attention to placement information (identified in bold text) as indicated in select Special Terms and Conditions.

1. BID BONDS AND BONDING CAPACITY

1.1. Bid Bond: Offeror shall provide an original bid bond or alternate bid security in the amount of **$100,000.** ***Place after Tab 1f***. Note: Bid security as a percentage of the bid value (e.g. – 10% of contract award) is not acceptable.

1.2. Bonding Capacity: The required minimum single job bonding capacity for this contract shall be $1,000,000. Bidder shall provide a letter from your bonding agency describing your current bonding capacity, as follows:

- Your single job bonding capacity.
- Your aggregate bonding capacity.
- An agent of your licensed bonding agency shall sign the letter.

If the original letter is not signed and/or has conflicting information, it shall render your technical proposal nonresponsive. ***Place letter from bonding agency after Tab 1f.***

2. DELIVERY

2.1. Default in one installment to constitute total breach: Contract vendor shall deliver conforming materials in each installment or lot under this contract and may not substitute nonconforming materials. Mohave reserves the right to declare a breach of contract if contract vendor delivers nonconforming materials to any member under this contract.

2.2. Defective goods: Contract vendor agrees to arrange and pay for return shipment of goods that arrive in a defective or non-operable condition.

2.3. Delivery time: Failure to deliver any order within the time frame specified on the purchase order may result in cancellation of that purchase order.

2.4. Improper delivery: If the goods or tender of delivery fail in any respect to conform to this contract, member may reject the whole, accept the whole, or accept any commercial unit or units and reject the rest.

2.5. Restocking fees: A restocking fee may only be charged on products ordered and delivered to member's site. Restocking fees in excess of fifteen percent (15%) shall not be allowed. Contract vendor may waive restocking fees. Restocking and return shipping charges shall be identified in the price workbook.

3. FORM OF CONTRACT

3.1. Contract vendor contract documents: If a firm submitting an offer requires member to sign an additional agreement, a copy of the proposed agreement shall be included with the proposal.

If awarded a contract, any additional contract vendor's documents shall not become part of Mohave's contract unless, and until, an authorized representative of Mohave reviews and approves them.

Contract vendor agrees to provide Mohave a copy of any agreements that are revised during the term of an awarded contract, prior to having the member sign the agreement.

3.2. Design and engineering services: This is not a contract for design or engineering services. Upon request from member, and if included in the awarded contract, contract vendor shall provide design services related to the job order. Such services are only allowable as part of an executed JOC purchase order, for performing services within the specifications and scope of work.

3.3. Form of contract: The form of contract for this solicitation shall be the Request For Proposal, the awarded proposal(s), the Request for Qualifications (RFQ), and properly issued member purchase orders referencing the requirements of the Request For Proposal.

3.4. Parol evidence: The contract represents the final written expression of agreement. All agreements are contained herein and no other agreements or representations that materially alter it are acceptable.

4. INSTALLATION

Installation shall be scheduled directly with member and be done in a reasonable amount of time. Installation shall be in accordance with the manufacturer's instructions and shall be accomplished by skilled and properly licensed individuals.

5. INSURANCE

5.1. Certificate: Evidence of the required insurance shall be provided with your technical proposal by means of a current certificate of insurance with the coverage's as stated within the requirements below. Before any orders are processed under an awarded contract, contract vendor shall provide a certificate that names Mohave Educational Services Cooperative, Inc. as the certificate holder.

Certificate (or certificates if using multiple carriers) shall include, at a minimum, coverage for:

- General Liability
- Automobile liability
- Umbrella or Excess Liability
- Workers' Compensation

In addition, contract vendor must be willing to provide, upon request, identical certificate of insurance to any member using this contract. Contract vendor must also be willing, upon request, to add any member as an additional insured entity. Any costs for adding a member as an additionally insured entity shall be clearly identified in submitted contract pricing. If no pricing is identified, adding a member as an additionally insured entity shall be provided at no additional cost.

Provide evidence of current insurance coverage after Tab 2d.

5.2. Deductibles: Contract vendor shall pay the deductibles required by the insurance provided under this contract.

5.3. Liability insurance: Prior to commencing services under this contract, contract vendor shall procure and maintain during the life of this agreement, comprehensive general liability insurance, to include automobile liability, providing limits of an aggregate amount of not less than $2,000,000.

5.4. Scope of Insurance: Contract vendor's insurance shall provide adequate protection for contract vendor against damage claims which may arise from operations under this contract, whether such operations are by the insured or by anyone directly or indirectly employed by the insured. All insurance must be written by companies incorporated within the United States (exclusive of Territories or Possessions) and licensed or authorized to do business in Arizona.

5.5. Subcontractor insurance: Prior to commencing any work, any subcontractor shall procure and maintain at its own expense until final acceptance of the work, insurance coverage in a form and from insurers acceptable to the prime contractor. All subcontractors will provide workers' compensation insurance, which waives all subrogation rights against the prime contractor, member and Mohave.

5.6. Workers' compensation insurance: Contract vendor shall also procure and maintain during the life of this agreement, workers' compensation insurance for all of contract vendor's employees engaged in work under the contract. All workers' compensation insurance will be in compliance with Arizona state statute and evidenced by a certificate of insurance.

6. MAINTENANCE FACILITIES AND SUPPORT

It is preferred that each contract vendor should have maintenance facilities and a maintenance support system available for servicing products throughout Arizona, or the regions specified in their offer. Maintenance facilities shall have sufficient parts inventory to provide quality service on products sold to members. Trained and qualified technicians shall be available to cover all parts of the state, or specific regions within the state for regional offers. It is preferred that maintenance services are available within 24 hours. If a third party is used to provide maintenance or warranty work, offeror shall include details of any such arrangement in the proposal.

7. MANUFACTURER SUPPORT

Offerors submitting proposals as a manufacturer's representative must be able, if requested by Mohave, to supplement the proposal with a letter from the manufacturer certifying that offeror is a bona fide dealer for the equipment offered, and that offeror is authorized to submit a proposal on such equipment.

8. MEMBER AGREEMENTS

Some members may request the addition of specific requirements that would apply to products and services purchased under an awarded contract. These additional requirements shall be addressed through the use of an additional member agreement. In any agreement between the contract vendor and a member based on this contract, the terms and conditions of this contract shall prevail. Contract vendor and member must agree to all provisions in any additional agreements. If agreement requirements result in additional costs to the contract vendor, the contract vendor shall be entitled to direct reimbursement for these costs, in addition and separately to approved contract pricing. A copy of the additional member agreement shall accompany the member's purchase order.

9. OFFEROR QUALIFICATIONS

It is preferred that the offeror has extensive knowledge and at least three (3) years experience with the provision, installation and maintenance of the equipment and Job Order Contracting services offered. Mohave reserves the right to accept or reject newly-formed companies based solely on information provided in the proposal and/or its own investigation of the company.

10. PRICING

10.1. Administration fee: Mohave's 1% administration fee shall be included in offeror's contract price. Contract vendor shall not add the administration fee to approved contract prices. The value of trade-ins or rebates shall not affect the amount of administration fee paid to Mohave.

10.2. Application of pricing: In Mohave's purchase order review process, the date of a valid contract vendor's quote or the date Mohave receives a member purchase order will generally be used to determine the contract pricing that is in effect for that order. The date Mohave receives a member purchase order will only be used to determine the contract pricing that is in effect for an order when a contract vendor's quote does not exist or is invalid. However, other factors may apply.

10.3. Basis for pricing: Contract pricing under this RFP shall be based upon:

1. Coefficient applied to a UPB; or
2. Open Book Pricing; or
3. Discount applied to *Trade Service* price guides; or
4. A combination of the above.

10.4. Coefficients: A coefficient will be applied to the UPB. The coefficient is the multiplier (e.g., .95) that is applied to all UPB prices to determine the member's contract price. Several coefficients may apply to the UPB. Coefficients shall be extended no more than two (2) decimal places.

10.5. Coefficients, quarterly updates: Quarterly updates to the CCI shall be required under an awarded contract. Mohave shall set the schedule for allowable quarterly CCI updates.

10.6. Decimal places: Pricing shall use a maximum of two (2) decimal places.

10.7. New price lists: New price lists, and workbooks shall only be submitted for review at the renewal anniversary of the contract. Contract vendor shall be bound to the pricing methodologies submitted in the price proposal. Contract vendor shall not be allowed to add new pricing methodologies to their price proposal. Contract vendor will be allowed to remove pricing methodologies. Mohave will review new price lists, and/or workbooks to determine if the new prices or an alternative option is in the members' best interests. New price lists, and/or workbooks shall apply to the contract only upon approval from Mohave. New price lists, and/or workbooks found to be non-competitive at any time during the contract shall be grounds for terminating the contract.

10.8. Open Book Pricing: In addition to UPB-based pricing, Open Book Pricing may be used as an optional pricing method. Member shall select the pricing method for a job order prior to requesting a price quote. Once selected, the pricing method for the job order may not be changed. Open Book Pricing shall consist of direct job cost, project-specific general conditions, a fixed general and administrative cost multiplier, and a fixed profit multiplier. Bond cost and transaction privilege tax (sales tax) will be added to Open Book Pricing for total job order cost. The factors used in Open Book Pricing shall be consistent with the factors used in determining the UPB coefficient originally awarded in the contract.

Projects that include preconstruction services shall use the UPB pricing methodology as the basis for that pricing. For projects using these preconstruction services, both UPB and Open Book Pricing methodology may be used: UPB for the preconstruction portion, and Open Book for the rest of the project.

10.9. Price reduction and adjustment: Price reduction may be offered at any time during a contract and shall become effective upon notice of acceptance from Mohave. Special time-limited reductions are permissible under the following conditions: 1) reduction is available to all members equally; 2) reduction is for a specific time period, normally not less than thirty (30) days; 3) original price is not exceeded after the time-limit; and 4) Mohave has approved the new prices prior to any offer of the prices to a member. Mohave shall be the sole judge on the acceptance of price reductions under an awarded contract.

10.10. Preferred order of pricing methodologies: The preferred order of pricing for UPB and *Trade Service* pricing may be as follows:

a. Coefficient applied to a UPB
b. Coefficient applied to UPB labor and equipment. *Trade Service* product pricing for materials
c. Coefficient applied to UPB labor, equipment, and non pre-priced item
d. *Trade Service* product pricing and labor rate

10.11. Reimbursement for transportation, mileage, lodging, meals and incidental expenses (M&IE): Contract vendor may charge for transportation, mileage, lodging and M&IE costs for employees that are required to travel to perform services at member site under this contract. An overnight stay is required for lodging reimbursement. Mileage reimbursement shall be at a specified rate. Transportation charges are separate from mileage, and may include airfare, car rental, etc.

Reimbursements under this section shall not exceed the rates listed in approved pricing, and shall not exceed the actual charge. To be eligible for reimbursement, estimated charges must be on the quote and approved by the member. Receipts for such reimbursements must be provided upon request from the member.

10.12. Promotional pricing offers: Promotional pricing offers (e.g., quantity discounts, time sensitive offers, bundles) must apply to all Mohave orders of similar size and scope. Promotional pricing limited to a single member is not acceptable. Mohave must approve promotional pricing before it is offered to any member.

10.13. Trade Service The successful contract vendor shall reimburse Mohave the current subscription rate for a *Trade Service eDataFlex* pricing to facilitate eligible procurement agencies in placing orders. Contract vendor agrees to maintain their own subscriptions to *Trade Service eDataFlex* pricing to quote products under an awarded contract. The data contained in the *Trade Service eDataFlex* will be used to archive historical pricing information for Mohave staff to confirm pricing and perform audits under an awarded contract. Mohave will attempt to spread the costs for the *Trade Service eDataFlex* pricing between all contract vendors awarded a contract. Mohave shall invoice the contract vendor accordingly based on the number of awarded contracts using *Trade Service*. Travel/drive rates and/or mobilization may only be used with projects priced using *Trade Service* and labor. Mobilization charges shall not be allowed with UPB or Open Book Pricing methodologies.

10.14. Unit price book: Offeror shall provide the name and date of the unit price book to which the coefficient will be applied. Submission of outdated unit price books may result in rejection of the proposal.

10.15. Unit price book copies: The successful contract vendor shall be responsible for providing UPB pricing for Mohave's use. Mohave may require multiple copies of the UPB. Mohave will attempt to spread the costs for the UPB pricing between all contract vendors awarded a contract by purchasing the required pricing and invoicing the vendor, based on the modules used by each vendor.

11. SITE REQUIREMENTS

11.1. Cleanup: Contract vendor shall clean up and remove all debris resulting from their work as required or directed by member. Upon completion of the work, the premises shall be left in good repair and unobstructed condition.

11.2. Contract vendor employee fingerprinting: Contract vendor and its employees or subcontractors working under an awarded contract who are required to provide services on a regular basis at an individual school, shall obtain and present a valid Department of Public Safety fingerprint clearance card in accordance with ARS §15-512(H). The fingerprint card shall be issued pursuant to Title 41, Chapter 12, Article 3.1. Charges for such fingerprint checks will be the responsibility of the contract vendor, subcontractor or individual employee as determined by the member.

An exception to this requirement may be authorized in member's Governing Board policy, for persons who, "*as part of the normal job duties of the persons, are not likely to have independent access to or unsupervised contact with pupils*."

Contract vendor and its employees or subcontractors shall not provide services on school district property until so authorized by the school district. Additionally, contract vendor shall comply with applicable governing board fingerprinting policy(ies) at the school district where services are provided.

11.3. Onsite Contract Vendor Responsibilities: The contract vendor is responsible for ensuring that all onsite work performed under this contract meets or exceeds the current OSHA standards, and is responsible for ensuring safe work performance of employees and subcontract vendors.

Contract vendor and its employees or subcontractors shall report accidents and incidents immediately to the member's responsible staff or its administration. The contract vendor is responsible for providing and obtaining appropriate medical and emergency assistance and notifying fire and law enforcement agencies, when necessary. Except for rescue and emergency measures, the scene of the accident or incident shall not be disturbed, and the operation shall not resume until authorized by the member's responsible staff or administration. The contract vendor must assist and cooperate fully with the investigation of the accident/incident and ensure availability of all information, personnel and data pertinent to the investigation.

For preemptive purposes, contract vendor and its employees or subcontractors shall immediately report to the member's responsible staff or administration all areas of concern that could potentially lead to accident or injury.

11.4. Preparation: Contract vendor shall not begin a project for which member has not prepared the site. Site preparation includes, but is not limited to: moving furniture, installing wiring for networks or power, and similar pre-installation requirements.

11.5. Registered sex offender restrictions: For work to be performed at an Arizona school, contract vendor agrees that no employee or employee of a subcontractor who has been adjudicated to be a registered sex offender will perform work at any time when students are or are reasonably expected to be present. Contract vendor agrees that a violation of this condition shall be considered a material breach and may result in the cancellation of the purchase order at the member's discretion.

11.6. Safety measures: Contract vendor shall take all reasonable precautions for safety on the worksite, and shall erect and properly maintain all necessary safeguards for protection of workers and the public. Contract vendor shall post warning signs against all hazards created by its operation and work in progress. Proper precautions shall be taken pursuant to current Arizona law and standard practices to protect workers, general public, and existing structures from injury or damage.

11.7. Smoking: Persons working under the contract shall adhere to current local smoking policies.

11.8. Stored materials: Upon prior written agreement between the contract vendor and member, payment may be made for materials not incorporated in the work but delivered and suitably stored at the site or some other location, for installation at a later date. An inventory of the stored materials shall be provided to member prior to payment. Such materials shall be stored and protected in a secure location, and be insured for their full value by the contract vendor against loss and damage. Contract vendor agrees to provide proof of coverage and/or addition of member as an additional insured upon member's request. Additionally, if stored offsite, the materials shall also be clearly identified as property of member and be separated from other materials. Member shall be allowed reasonable opportunity to inspect and take inventory of stored materials, on or offsite, as necessary.

Payment for stored materials shall not constitute final acceptance of such materials. The contract vendor shall be responsible for the protection of all material and equipment, whether stored on or off site. Title for all work, materials and equipment shall pass to the member only upon final inspection and payment of remaining job costs.

12. SUBCONTRACTORS

12.1. Awarding subcontracts: Offeror agrees that any subcontract competitively solicited by contract vendor will not be awarded solely upon membership or non-membership in a union or professional association.

12.2. Entering subcontracts: Subcontracts shall incorporate by reference the terms and conditions of the Mohave contract.

12.3. Prime contractor: Contract vendor will be considered a prime contractor and not a subcontractor. Neither Mohave nor the member will establish a contractual relationship with subcontractors.

12.4. Subcontracts: No subcontracts shall be entered into with any unlicensed party. Contract vendor must use subcontractors openly, include such arrangements in the proposal, and certify upon request that such use complies with the current rules of the Arizona Registrar of Contractors and the Arizona procurement rules and code. No subcontracting costs may be hidden in a cost proposal to member.

12.5. Subcontractor payment: Contract vendor agrees to pay subcontractors within seven days after receipt of payment from member, as required in Arizona procurement rules and code. If contract vendor receives any interest monies for delay of payment from member, contract vendor will pay subcontractor the correct proportion of interest received. Complaints by subcontractor may be resolved as described in Arizona procurement rules and code. Failure to pay subcontractor for work faithfully performed and properly invoiced may result in the suspension or cancellation of this contract.

12.6. Selection Process for Subcontractors: Contract vendor shall select subcontractors based on qualifications alone or on a combination of qualifications and price and shall not select subcontractors based on price alone.

12.7. Use of subcontractors: If the contract vendor subcontracts or intends to subcontract part or all of the work under a job order:

The contract vendor has a duty to deliver promptly to each subcontractor invited to bid a coefficient to the contract vendor to do all or part of the work under one or more job orders.

Provide a copy of the descriptions of all standard individual tasks and a copy of the applicable current standard unit prices on which the subcontractor is invited to bid.

13. TERM OF CONTRACT AND EXTENSION

13.1. Contract period: It is Mohave's intent to award a multi-term contract for the specified product, material, process, or services. The initial contract term shall be for one (1) calendar year from the effective date of contract award. By mutual written agreement between Mohave and contract vendor, the contract may be extended for up to four (4) consecutive additional 12-month periods, beginning immediately after expiration of the prior term. However, no contract extension (contract modification) exists unless and until contract vendor is so notified by Mohave.

13.2. Contract extension (contract modification): Conditions for contract extension (contract modification) may include, but are not limited to: contract usage, satisfactory performance of services during the preceding contract term, ability to continue to provide satisfactory services, continued adherence to the contract requirements, and continued competitive prices for the materials and services provided under the contract. Mohave shall prepare a performance report for all contracts prior to issuing any extension (contract modification). This performance report shall use past performance information gathered by your assigned Contract Specialist. Past performance information shall be used when determining whether a contract receives an extension (contract modification).

13.3. Month-to-month extensions (contract modification): Mohave reserves the right to offer month-to-month extensions (contract modification), if that is determined to be in the best interests of members.

14. TRADE-IN EQUIPMENT

Member and contract vendor shall determine values placed on trade-in products. The value of trade-in shall not affect the amount of administration fee paid to Mohave. Trade-in equipment shall be dismantled and removed at contract vendor's expense. The condition of trade-in equipment at the time it is turned over to contract vendor shall be the same as when the original agreement was made, except for normal wear and tear from use between the time of the offer and trade-in.

15. WARRANTY/QUALITY GUARANTEE

15.1. Extended warranties contracts: The contract vendor or a manufacturer may offer extended warranties available at extra cost for members that agree to a maintenance contract. The extended warranty contract shall be offered as a separate line item. Upon request, training must be offered by the contract vendor for the maintenance staff of the member and will be arranged before installation as part of the purchase contract. This training shall be priced per contract pricing.

15.2. Fitness: Contract vendor warrants that any equipment or material supplied to Mohave or its members shall fully conform to all requirements of the contract, all representations of contract vendor, and shall be fit for all purposes and uses required by the contract.

15.3. Inspection: The warranties set forth in this section shall not be affected by inspection or testing of, or payment, for the product or materials to contract vendor by member.

15.4. Quality: Unless otherwise specified, contract vendor warrants that for a period of two (2) years after acceptance of the equipment or materials by member, they shall be:

- Of a quality to pass without objection in the industry or trade normally associated with them;
- Fit for the intended purpose(s) for which they are used;
- Of even kind, quantity and quality within each unit and among all units, within the variations permitted by the contract;
- Adequately contained, packaged and marked as the contract may require; and
- Conform to the written promises or affirmations of fact made by contract vendor.

15.5. Warranty requirements: Contract vendor warrants that all products, materials, processes and services delivered under this contract shall conform to the specifications. Unless stated otherwise, all equipment shall carry a minimum two (2) year warranty that includes parts and labor. Contract vendor agrees to help member reach resolution in a dispute with the manufacturer over warranty terms. Any extended manufacturer's warranty shall be passed on to member without exception. Mohave reserves the right to cancel the contract if contract vendor charges member for a replacement part that the contract vendor received at no cost under a warranty.

15.6. Warranty work: The contract vendor shall perform all warranty work and remain available to the member should continue service be required after warranty obligations are met.

Technical Proposal – Special Terms and Conditions Acceptance Form
(Place after Tab 1d)

Signature on Page 2 certifies complete acceptance of the Special Terms and Conditions in this solicitation, except as noted below (additional pages may be attached, if necessary).

Check one of the following responses to the Special Terms and Conditions:

☐ **We take no exceptions/deviations to the Special Terms and Conditions.**

(*Note: If nothing is listed below, it is understood that no exceptions/deviations are taken.)*

☐ **We take the following exceptions/deviations to the Special Terms and Conditions. All exceptions/deviations shall be clearly explained. Reference the corresponding Special Terms and Conditions that you are taking exceptions/deviations to. Clearly state if you are adding additional terms and conditions to the Special Terms and Conditions. Provide details on your exceptions/deviations below:**

(*Note: All requested exceptions/deviations must be clearly explained. Reference the specific special terms and conditions that you are taking exceptions/deviations to, detail any proposed substitute special terms and conditions, and clearly demonstrate how Mohave and its membership will be better served by the substituted special terms and conditions. Unacceptable exceptions/deviations shall remove your proposal from consideration for award. Mohave shall be the sole judge on the acceptance of exceptions/deviations and Mohave's decision shall be final.)*

Technical Proposal – General Terms and Conditions
(Place after Tab 1c)

Some General Terms and Conditions specify placement of information in tabs other than Tab 1c as noted in the title above. Pay close attention to placement information (identified in bold text) as indicated in select General Terms and Conditions.

1. ADVERTISING

Offeror shall not advertise or publish information concerning this solicitation prior to an award being announced by Mohave. After award, contract vendor(s) may advertise the availability of products, materials, processes and services to members. Any promotional marketing materials using the Mohave logo shall be approved by a Mohave Contract Specialist in advance.

2. AVAILABILITY OF FUNDS

Member fund availability is unknown to Mohave at the time this solicitation was issued. Use of any contract awarded by Mohave will be conditioned upon the availability of member funds.

3. CANCELLATION

3.1. Cancellation Process: The following requirements shall apply to all cancellation notices issued under an awarded contract:

- A written notice of cancellation shall be sent to the contract vendor and the effective date of cancellation shall be the date specified within the written notice of cancellation.
- Upon cancellation, all products, materials, processes and services paid for by the member, along with documents, data and reports prepared by contract vendor under the contract shall become the property of the member.
- Contract vendor shall be entitled to receive just and equitable compensation in accordance with applicable contract pricing for authorized work in progress, authorized work completed and materials accepted before the effective date of the cancellation.
- Cancellation shall have no effect on projects in progress prior to the effective date of the cancellation.
- Contract vendor is obligated to continue submitting monthly reconciliation reports and administrative fee payments until all purchases are complete and closed.

3.2. Cancellation for bankruptcy or acquisition: Mohave reserves the right to cancel, or suspend the use of, any contract if contract vendor files for bankruptcy protection, or if the original contract holder is sold and ownership is transferred to a new party.

3.3. Cancellation for conflict of interest: Mohave may cancel this contract pursuant to ARS §38-511 for conflict of interest. Conflict of interest occurs if any person significantly involved in initiating, negotiating, securing, drafting or creating the contract on behalf of Mohave, is or becomes at any time while the contract or an extension (contract modification) of the contract is in effect, an employee of, or a consultant to, any other party to the contract, with respect to the subject matter of the contract. Members shall incur no penalty or further obligation if the contract is cancelled for conflict of interest.

3.4. Cancellation for convenience: Mohave reserves the right to immediately cancel the contract without penalty or recourse, in whole or in part, when Mohave determines that action to be in the best interests of its members.

3.5. Cancellation for non-performance or contract vendor deficiency: Mohave may terminate any contract if members have not used the contract, or if purchase volume is determined to be "low volume" in any 12-month period. Mohave reserves the right to cancel the whole or any part of this contract due to failure by contract vendor to carry out any obligation, term or condition of the contract. Mohave may issue a written deficiency notice to contract vendor for acting or failing to act in any of the following:

- Failing to comply with the accepted terms and conditions of the contract;
- Providing material that does not meet the specifications of the contract;
- Providing work and/or material that was not awarded under the contract;
- Failing to adequately perform the services set forth in the scope of work and specifications;
- Failing to complete required work or furnish required materials within a reasonable amount of time;
- Failing to make progress in performance of the contract and/or giving Mohave reason to believe that contract vendor will not or cannot perform the requirements of the contract
- Failing to provide required performance bonds;
- Performing work or providing services under the contract prior to receiving a Mohave reviewed member purchase order for such work.

Upon receipt of a written deficiency notice, contract vendor shall have ten (10) days to provide a satisfactory response to Mohave to adequately address all issues of concern. Failure to adequately address all issues of concern may result in contract cancellation. Upon cancellation under this clause, all goods, materials and work paid for by the member, along with documents, data and reports prepared by contract vendor under the contract shall become the property of the member.

3.6. Cancellation for replacement: Mohave reserves the right to cancel a contract awarded under this solicitation, if a new solicitation has been issued and a contract has been awarded to the same contract vendor for similar products, materials, processes and services. Mohave may, at its option, either replace a contract resulting from this solicitation or delay a new award until the existing contract expires. The decision to delay or replace the contract rests solely with Mohave.

3.7. Contract vendor cancellation: Contract vendor may cancel this contract at any time upon thirty (30) days prior written notice to Mohave or at time of annual contract renewal (contract modification). Termination shall have no effect on projects in progress at the time the notice of cancellation is received by Mohave.

3.8. Continuation of performance: Contract vendor shall continue to perform in accordance with the requirements of the contract, up to the date of cancellation and as directed in the cancellation notice.

3.9. Gratuities: Mohave shall cancel this contract if it is found that gratuities in the form of entertainment, gifts or otherwise, were offered or given by contract vendor or any agent or representative of contract vendor, to any employee of Mohave or member with a view toward securing a contract or with respect to the performance of this contract. Officers, employees and agents are prohibited from soliciting or accepting gratuities, favors or anything of monetary value from contractors or parties of subcontractors under an awarded contract. Paying the expenses of normal business meals shall be in accordance with each member's policy regarding gratuities. Samples as requested in the solicitation and provided to Mohave for demonstration or evaluation are not considered gratuities.

4. CAPTIONS, HEADINGS AND ILLUSTRATIONS

The captions, illustrations, headings, and subheadings in this solicitation are for convenience and ease of perusal only, and in no way define, limit or describe the scope or intent of the request.

5. CERTIFICATION

By signing the *Offer and Acceptance Form* (page 2 of the RFP), offeror certifies the following:

- Offeror has examined and understands the terms, conditions, scope of work, specifications and other documents in this solicitation.
- The submission of the proposal did not involve collusion or other anticompetitive practices. Neither signatory nor any person on his behalf has connived or colluded to produce a deceptive show of competition in the matter of the bidding or award of a contract under this solicitation.
- Offeror has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted offer.
- Neither offeror, nor any officer, director, partner, member or associate of offeror, nor any of its employees directly involved in obtaining contracts with the State of Arizona, Mohave Educational Services Cooperative, Inc., or any subdivision of the state has been convicted of false pretenses, attempted false pretenses, or conspiracy to commit false pretenses, bribery, attempted bribery or conspiracy to bribe under the laws of any state or federal government for acts or omissions after January 1, 1985.
- Offeror agrees to comply fully with any and all provisions of ARS Title 32, Chapter 10 (Registrar of Contractors) that may regulate offeror's business.
- Offeror shall not discriminate against any employee, or applicant for employment, in violation of federal and state laws (see Federal Executive Order 11246; and ARS Title 41, Chapter 9, Article 4).
- Offeror is not currently suspended, debarred or otherwise precluded from participating in any public procurement activity with any federal, state or local government entity.
- If awarded a contract, offeror agrees to promote, offer and sell under Mohave contract only those materials and/or services awarded to contract vendor by Mohave.
- If awarded a contract, offeror shall provide the equipment, commodities, and/or services to members of Mohave in accordance with the terms, conditions, scope of work, specifications, and other documents of this Request For Proposal.
- If awarded a contract, offeror agrees that all staff and other individuals eligible to receive services shall have equal access to the services regardless of race, religion, color, sex, disability, age or national origin (including language minority individuals).
- Offeror and all proposed subcontractors comply and shall remain in compliance with the Federal Immigration and Nationality Act (FINA), all other federal immigration laws and regulations, ARS §41-4401, and ARS §23-214, which requires compliance with current federal immigration laws by Arizona employers, Arizona contractors and Arizona subcontractors in accordance with the E-Verify employee eligibility verification program.
- Offeror shall comply with ARS §35-393.01 and certify that they are not currently engaged in, and agree that for the duration of the contract to not engage in, a boycott of Israel. **(Note: Unless and until the District Court's injunction in *Jordahl v. Brnovich et al.,* Case No. 3:17-cv-08263 (D. Ariz.) is stayed or lifted, the Anti-Israel Boycott Provision (A.R.S. the Anti-Israel Boycott Provision (A.R.S. 35-393.01 (A)) is unenforceable and will take no action to enforce it. Compliance to this term and condition is not a mandatory part of the offer as long as the injunction remains in place. Offers will not be evaluated based on whether the offeror complied or deviated to this term and condition.)**
- If applicable to the products and services offered under this contract, Offeror shall comply with current applicable requirements of Health Insurance Portability and Accountability Act of 1996 (HIPPA), and accompanying regulations. Contract vendor agrees to work with the member in the course of performance so that the member and contract vendor are in compliance with HIPPA.

6. CONFIDENTIAL INFORMATION

6.1. Confidential information request: If offeror believes that its proposal contains confidential trade secrets or other proprietary data not to be disclosed, a statement advising Mohave of this fact shall accompany the proposal, and the information shall be so identified wherever it appears. Mohave shall review the statement and notify the offeror of their determination in writing whether the information shall be withheld or disclosed. Requests to deem the entire proposal as confidential will not be considered.

6.2. Pricing: Mohave will not consider pricing to be confidential or proprietary.

6.3. Public record: All proposals submitted in response to this solicitation shall become the property of Mohave. They will become a matter of public record available for review, subsequent to award of all multiple contracts, with the exception of information deemed confidential by Mohave.

7. CONFIRMATION

If an apparent mistake in a proposal, relevant to the award determination is discovered after opening and before award, Mohave shall contact the offeror for written confirmation of the proposal. If offeror fails to act, the offeror shall be considered non-responsive.

Mohave may contact an offeror to confirm our understanding of the proposal. Such contact shall be prior to award. Mohave shall obtain written confirmation from the offeror and shall retain the confirmation in the procurement file. Correction of mistakes in a proposal shall only be allowed as described in Arizona procurement rules and code.

8. CONTRACT MANAGEMENT

8.1. Applicable law: The contract shall be governed by the laws of the State of Arizona, and suits pertaining to the contract may be brought only in courts in the State of Arizona.

8.2. Application of law: The Arizona Procurement Code, the Arizona State Board of Education School District Procurement Rules, and the Uniform Commercial Code (UCC) as adopted by the State of Arizona, are part of this document as if fully set forth herein. Any provision or clause required by law, rule or regulation to be included in the contract will be read and enforced as if in the contract, whether or not physically included. If any such provision is not included, or is not correctly included, contract will be amended in writing to make such inclusion or correction upon application from either party to contract.

8.3. Arbitration: After exhausting applicable administrative review, the parties to this contract may agree to resolve disputes arising out of or relating to this contract through arbitration, to the extent allowed by law.

8.4. Assignment: Contract vendor shall assign no right or interest in this contract without prior written permission from Mohave. No delegation of any duty of contract vendor shall be made without prior written permission from Mohave. Mohave shall not unreasonably withhold approval and shall notify contract vendor of its decision within fifteen (15) days of receipt of written notice from contract vendor.

8.5. Contract claims or controversies: The requirements of the Arizona procurement rules and code shall govern any contract awarded as a result of this solicitation, as well as any contract claims or controversies associated with it.

Formal contract claims and controversies between a member and contract vendor shall be resolved in accordance with R7-2-1155 through R7-2-1159, or ARS, Title 41, Chapter 23, Article 9, as applicable. The member's authorized representative shall serve as the district representative for resolution of such claims and controversies. ARS, Title 41, Chapter 23, Article 9 and the rules promulgated under it, or R7-2-1155 through R7-2-1159, as applicable, provide the exclusive procedure for asserting a cause against the member under the contract.

8.6. Contract placed on hold: Mohave shall have the ability to place a contract on hold, if it is deemed necessary to address ongoing problems with an awarded contract. Details of the decision to place the contract on hold shall be provided in a written deficiency notice. A reasonable amount of time shall be provided to contract vendor to address issues in the written deficiency notice.

8.7. Modification of contract: An awarded contract may be modified for a variety of reasons. Contract modifications will be issued as deemed necessary by Mohave to address contractual issues that may arise.

8.8. Novation: If contract vendor sells or transfers all assets or the entire portion of the assets used to perform this contract, a successor in interest must guarantee to perform all obligations under this contract. Mohave reserves the right to accept or reject any new party. A simple change of name agreement will not change the contractual obligations of contract vendor.

8.9. Order cycle overview:

One, or both, of the following order cycles will apply to an awarded contract. A sample reconciliation report will be provided to contract vendors who have been awarded a contract. Instructions for filling out the purchase order, or Pcard process, will be contained in that sample reconciliation report.

For Procurements made with purchase orders:

1. Member forwards purchase orders to Mohave that lists the contract number, along with a copy of detailed contract vendor quote. Vendor listed on the purchase order is contract vendor.
2. Mohave reviews and emails member order with "*MESC Reviewed*" stamp, to contract vendor and member.
3. Contract vendor provides product/services.
4. Contract vendor invoices member.
5. Member pays contract vendor.
6. Contract vendor sends monthly Reconciliation Report to Mohave.
7. Contract vendor remits administration fee monthly, based on invoices paid.
8. Mohave audits selected invoices.

For Procurements made with Pcards:

1. Member purchases directly from contract vendor using a Pcard and forwards a copy of detailed contract vendor quote to Mohave (if applicable).
2. Mohave reviews and emails contract vendor quote with "*MESC Reviewed*" stamp, to contract vendor and member (if applicable).
3. Contract vendor provides product/services.
4. Contract vendor invoices member (if not previously paid with Pcard).
5. Member pays contract vendor (if not previously paid with Pcard).
6. Contract vendor sends monthly Reconciliation Report and copy of detailed Pcard transaction, invoice or quotation to Mohave.
7. Contract vendor remits administration fee monthly, based on Pcard purchases paid.
8. Mohave audits selected Pcard purchases.

8.10. Overcharges by antitrust violations: Mohave maintains that overcharges resulting from antitrust violations are borne by the purchaser. Therefore, to the extent permitted by law, contract vendor assigns to member any and all claims for such overcharges as to the products, materials, processes or services used to fulfill the contract.

8.11. Relationship of the parties: Vendors receiving contracts under this solicitation are independent contractors. Any party to the contract shall not be deemed to be the employee of another party to the contract.

8.12. Severability: The provisions of this contract are severable to the extent that any provision or application held to be invalid shall not affect any other provision or application of the contract which may remain in effect without the invalid provision or application.

8.13. Successful performance: The sections of the solicitation defining the scope of services, requirements, or qualifications are not to be construed as a complete listing that exempts successful offeror from reasonable services required to ensure successful performance under the contract.

9. COOPERATIVE PURCHASING

9.1. Cooperative purchasing: This contract is based on the need for Mohave to provide the economic benefits of volume purchasing and reduction in administrative costs through cooperative purchasing to members. Any offer that prohibits to specific types of members (e.g., state agencies or local government units) may not be considered. Sales without restriction to any members are preferred.

9.2. Cooperative purchasing agreements: Cooperative Purchasing Agreements between Mohave and its members have been established under Arizona procurement rules and code for use of contracts.

9.3. Most favored customer relationship: Nothing in this solicitation is intended to establish a most favored customer relationship between Mohave and contract vendor. Contract vendor may respond to any solicitation without regard to this contract. Offeror agrees all prices, terms, warranties, and benefits granted by offeror to members through this contract are comparable to or better than the equivalent terms offered by offeror to any present customer meeting the same qualifications or requirements. If contract vendor offers lower prices to any of its other customers, it may lower its prices to Mohave at the same time by written notice.

9.4. Eligible agencies: Any contract awarded from this solicitation shall be available to all Mohave members. Members shall have a current signed Mohave Cooperative Purchase Agreement. Member is defined as a local or public procurement unit, or a governmental public entity that is a political subdivision for purposes of federal income tax, or a nonprofit educational or public health institution that is a political subdivision for purposes of federal income tax or meets the requirements of Section 115 of the Internal Revenue Code. Mohave has approximately 450 members including public school districts, community colleges, city and county governments and political subdivisions throughout Arizona. A list of members may be found on Mohave's website, www.mesc.org. Actual use of any contract shall be at the sole discretion of Mohave's members.

10. ESTIMATED QUANTITIES

Mohave anticipates considerable activity resulting from this solicitation. An estimate of purchases is provided in the Scope of Work (page 8) of the requested materials or services. However, no commitment of any kind is made concerning quantities to be acquired. Mohave does not guarantee usage. Usage depends on the actual needs of members and marketing by contract vendor.

11. EVALUATION and AWARD

11.1. Basis of award: In accordance with Arizona Administrative Code, Article 11: School District Procurement R7-2-1111(J), ARS §34-604(F)(9) and §41-2579(F)(9), award(s) will be made to the responsive and responsible offeror(s) whose proposal(s) receive the highest score(s) under the method of scoring in the RFP. To qualify for evaluation, a proposal must have been submitted on time, and materially satisfy all mandatory requirements identified in this document.

11.2. Competitive range: Mohave reserves the right to establish a competitive range of acceptable proposals as part of the evaluation process. Proposals not in the competitive range are unacceptable and will not receive further award consideration.

11.3. Exceptions/deviations to requirements: All requested exceptions/deviations must be clearly explained. Unacceptable exceptions/deviations shall remove your proposal from consideration for award. Mohave shall be the sole judge on the acceptance of exceptions/deviations and Mohave's decision shall be final.

11.4. Effect of price: No contract shall be awarded solely on the basis of price.

11.5. Evaluation criteria: The evaluation criteria for this solicitation, and the maximum points for each, are as follows:

Criteria	Points
Technical Proposal Evaluation	
Offeror's qualifications and experience	40
Quality of the technical proposal (including all required documents)	20
Offeror's contract management plan	10
Offeror's quality management plan	10
Offeror's subcontractor management plan	5
Offeror's safety plan and record	5
Offeror's financial capacity	5
References, past performance information and other pertinent information	5
Technical Proposal Total	**100**
Price Proposal Evaluation	
Cost (Coefficients, and Open Book Rates, *Trade Service* if offered)	65
Other appropriate evaluations described in R7-2-1046: Travel; meals and incidental expenses (M&IE); transportation costs; energy costs; ownership costs; life cycle costs	10
Price Proposal Total	**75**
Grand Total	**175**

11.6. Evaluation process: Before opening any price proposal, the selection committee shall open and separately evaluate the final technical proposals and score the final technical proposals using the scoring method in this Request for Proposal. No other factors or criteria shall be used in evaluation and scoring. After completion of the evaluation and scoring of all final technical proposals, the selection committee shall open, evaluate and score the price proposals, and complete scoring of the entire proposal using the scoring method in this Request for Proposal. No other factors or criteria shall be used in evaluation and scoring.

Mohave reserves the right to use a ranking system (the Heisman scoring method) for determining the final ranking of proposals. Each evaluator shall calculate their total assigned points for each proposal, applying a ranking of 1 to their highest score, a 2 to their next highest score, and so forth for all proposals. Each proposal shall have a final calculated rank determined by averaging each applied individual evaluator rank. Any final calculated rank ties shall be broken by using the grand total points (total of all evaluator assigned point totals for each proposal) for each of the tied proposals.

11.7. Formation of contract: A response to this solicitation is an offer to contract with Mohave based upon the terms, conditions, scope of work, specifications and amendment(s) contained in this request. A proposal does not become a contract unless and until Mohave accepts it. A contract is formed when a Mohave administrator signs the award document.

11.8. Maximum job order: The maximum dollar amount of an individual job order shall be one million dollars or such higher or lower amount prescribed by the purchasing agency in an action noticed pursuant to Title 38, Chapter 3, Article 3.1 or a rule adopted by the purchasing agency as the maximum amount of an individual job order. Requirements shall not be artificially divided or fragmented in order to constitute a job order that satisfies this requirement.

11.9. Method of evaluation: Mohave shall select a selection committee of not more than seven (7) members to evaluate the statement of qualifications. Composition of the selection committee shall be in compliance with Arizona Administrative Code, Article 11: School District Procurement R7-2-1107, ARS §34-604(C)(3) and §41-2579(C)(3).

11.10. Multiple award: To assure that our contracts meet the requirements of all members, Mohave may award up to five contracts to individual firms receiving the highest number of points, for General Contracting and similar job-order-contracting construction services within specialty Division 22, Plumbing; Division 23, Heating, Ventilation and Air Conditioning; or Division 26, Electrical. Each of the multiple contracts will be awarded to a separate person/firm. Offeror should consider this fact in preparing their response. The decision to award multiple contracts, award a single contract, or make no award rests solely with Mohave.

Mohave is stating that three specialty contracting divisions will be considered beyond general contracting. Of these possible twenty contracts no more than five contracts will be awarded per division for multiple contracts for similar job order contracting construction services to separate persons/firms.

A multiple award shall be made only if the procurement officer determines in writing that a multiple award is necessary and is advantageous to Mohave members. A multiple award shall be limited to the least number of contracts necessary to meet the requirements of the using agencies. Mohave shall make the sole determination of the least number of contracts required to meet the need. Mohave's basis for determining whether to award multiple contracts shall be based upon considerations for the large number of members, diverse types of members, location of members throughout Arizona and members' past usage of similar contracts.

Criteria for selecting vendors for multiple contracts shall be based upon considerations for members' experience with existing products and systems, brand continuity for parts replacement and future expansion, contract vendor's ability to provide for our large, diverse membership, Mohave's past experience with contracts for similar product/services, and/or other relevant criteria.

11.11. Non-exclusive contract: Any contract resulting from this solicitation shall be awarded with the understanding and agreement that it is for the sole convenience of Mohave's members. Mohave and its members reserve the right to obtain like goods and services from other sources.

11.12. Past performance information: Past Performance Information (PPI) is relevant information regarding a contract vendor's actions under previously awarded contracts to public agencies. It includes contract vendor's record of performance under such contracts including, but not limited to: conformance to the terms, conditions, specifications and scope of work of the contracts, responsiveness to, and correction of, contract claims and controversies, and satisfaction of the contracting entities. PPI shall be a factor in evaluation and award.

11.13. Price workbook: All offerors shall submit their price proposal in paper, and in an electronic format. Provide a CD, USB, or similar electronic media device with the completed price proposal in your response. ***Place within your separately submitted price proposal.***

If awarded a contract, all future pricing updates shall be based on the electronic workbook, or similar approved format.

11.14. Pricing extension errors: In case of error in extension of prices in the proposal, unit prices shall govern.

11.15. Reasonably susceptible of being awarded: A proposal is acceptable if it is determined to be reasonably susceptible of being awarded a contract in accordance with the evaluation criteria and a comparison and ranking of original proposals. Proposals to be considered reasonably susceptible of being awarded a contract shall, at a minimum, demonstrate the following:

- Affirmative compliance with mandatory requirements designated in this solicitation.
- An ability to deliver goods or services on terms advantageous to members sufficient to be entitled to continue in the competition.
- That the proposal is technically acceptable as submitted.

11.16. Responsible offeror: A responsible offeror is a firm or person who at the time of contract award has the capability to perform the contract requirements and the integrity and reliability that will assure good faith performance. Mohave shall determine an offeror to be responsible before awarding a contract to offeror.

11.17. Responsive proposals: A responsive proposal conforms in all respects to the material requirements of the solicitation. Proposals must be responsive to receive award consideration. Mohave reserves the right to waive minor informalities.

11.18. Total costs: Total member costs include energy, facilities, repair costs, present values of money, contract vendor charges, personnel costs and all other identifiable member costs. Contract vendor charges include all the costs of contract vendor support, materials, transportation and all other identifiable costs associated with the proposal.

Contract vendor costs means the costs of all hardware, materials, software, transportation, contract vendor support and all other identifiable costs associated with the proposal.

Contract vendor support means services provided by the contract vendor, such as consulting, education, training, management of the system purchased and other integration and maintenance support.

12. FEDERAL and STATE REQUIREMENTS

12.1. Affordable Care Act requirements: Contract vendor understands and agrees that it shall be solely responsible for compliance with the Patient Protection and Affordable Care Act, Public Law 111-148 and the Health Care Education Reconciliation Act, Public Law 111-152 (collectively the Affordable Care Act "ACA"). Contract vendor shall bear sole responsibility for providing health care benefits for its employees who provide services to the member as required by state or federal law.

12.2. Audit rights: In accordance with applicable Arizona law, contract vendor's and subcontractor's books and records related to this contract may be audited at a reasonable time and place, for five years after completion of the contract.

12.3. Clean Air Act, Clean Water Act and Environmental Protection Agency Regulations: Contract vendor and its subcontractors shall comply with all applicable standards, orders or requirements issued under section 306 of the Clean Air Act, section 508 of the Clean Water Act, Executive Order 11738 and Environmental Protection Agency regulations (7 CFR 3016.36 (i) (12)). This shall only apply to federally funded projects subject to the Clean Air Act, Clean Water Act and current applicable EPA regulations.

12.4. Compliance with federal and state requirements: Contract vendor agrees, when working on any federally assisted projects with more than $2,000 in labor costs, to comply with the Contract Work Hours and Safety Standards Act, the Davis-Bacon Act, the Copeland "Anti-Kickback" Act, the Housing and Urban Development Act of 1968, the Equal Opportunity Employment requirements as amended by Executive Order. In such projects, contract vendor agrees to post wage rates at the work site and submit a copy of their payroll to the member for their files.

In addition, to comply with the Copeland Act, contract vendor must submit weekly payroll records to the member. Contract vendor must keep records for three years and allow the federal grantor agency access to these records, upon demand. Contract vendor also agrees to comply with State of Arizona Executive Order 75-5, as amended by Executive Order 99-4.

When working on any projects funded with federal grant monies, contract vendor agrees to comply with the administrative requirements for grants and cooperative agreements to state, local and federally recognized Indian tribal government contract provisions.

The forms listed below are incorporated by reference into this solicitation and any resultant contract.

- HUD-5369, Instructions to Offerors for Contracts, Public and Indian Housing Programs
- HUD-5369-A, Representations, Certifications, and Other Statements of Offerors, Public and Indian Housing Programs
- HUD-5369-B, Instructions to Offerors Non-Construction
- HUD-5369-C, Certifications and Representations of Offerors Non-Construction Contract
- HUD-5370, General Conditions of the Contract for Construction
- HUD-5370-C1, General Conditions for Non-Construction Contracts Section 1 (With or Without Maintenance Work)
- HUD-5370-C2, General Conditions for Non-Construction Contracts Section 1 (With Maintenance Work)

For federally funded projects only, the requirements of an applicable form shall supersede conflicting requirements in this solicitation. The forms may be accessed via HUDClips (http://www.hud.gov).

12.5. Compliance with workforce requirements: Pursuant to ARS §41-4401, contract vendor and subcontractor(s) warrant their compliance with all federal and state immigration laws and regulations that relate to their employees, and compliance with ARS §23-214 subsection A, which states, "*…every employer, after hiring an employee, shall verify the employment eligibility of the employee through the E-Verify program.*" [To register for E-Verify, go to: https://e-verify.uscis.gov/enroll/startpage.aspx.]

Mohave reserves the right to cancel or suspend the use of any contract for violations of immigration laws and regulations. Mohave and its members reserve the right to inspect the papers of any contract vendor or subcontract employee who works under this contract to ensure compliance with the warranty above.

12.6. Contract vendor employee work eligibility: By entering into the contract, contract vendor warrants compliance with ARS §41-4401, ARS §23-214, the Federal Immigration and Nationality Act (FINA), and all other current federal immigration laws and regulations. Mohave and/or Mohave members may request verification of compliance from any contract vendor or subcontractor performing work under this contract. Mohave and its members reserve the right to confirm compliance. Should Mohave or its members suspect or find that the contract vendor or any of its subcontractors are not in compliance, Mohave may pursue any and all remedies allowed by law, including, but not limited to suspension of work, termination of the contract for default, and suspension and/or debarment of the contract vendor. All costs necessary for compliance are the responsibility of the contract vendor.

12.7. Davis-Bacon wage decisions: For federally funded projects subject to the Davis-Bacon Act, the member shall specify the applicable Davis-Bacon wage decision, prior to the contract vendor providing a firm price quotation for the proposed project. The wage decision shall be identified by the WD Number, modification number, and date of the wage decision. Davis-Bacon wage decisions may be accessed via www.wdol.gov or by requesting a copy from the member.

12.8. Energy Policy and Conservation Act: Contract vendor and its subcontractors shall comply with mandatory standards and policies relating to energy efficiency (7 CFR 3016.36 (i) (13)). This shall only apply to federally funded projects subject to current applicable energy policies and the Energy Conservation Act.

12.9. Non-compliance: All federally assisted contracts with members that exceed $10,000 may be terminated by the federal grantee for noncompliance by contract vendor. In projects that are not federally funded, offeror must agree to meet any federal, state or local requirements, as necessary. In addition, if compliance with the federal regulations increases the contract costs beyond the agreed on costs in this solicitation, the additional costs may only apply to the portion of the work paid by the federal grantee.

12.10. Offshore performance of work prohibited: Due to security and identity protection concerns, direct services under this contract shall be performed within the borders of the United States. Any services that are described in the specifications or scope of work that directly serve the State of Arizona or its clients and may involve access to secure or sensitive data or personal client data or development or modification of software for the state shall be performed within the borders of the United States. Unless specifically stated otherwise in the specifications, this definition does not apply to indirect or 'overhead' services, redundant back-up services or services that are incidental to the performance of the contract. This provision applies to work performed by subcontractors at all tiers.

12.11. Procurement of recovered material: Contract vendor and its subcontractors shall comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, as stated in 2 CFR 200.321.

12.12. Rights to inventions: Rights to inventions made under a contract or agreement as specified under Appendix II to 2 CFR shall apply for federally funded projects.

12.13. Subcontracts: Prime Contractor, if subcontracts are to be let, will allow all business to have an equal opportunity to sign up as a prospective bidder for work assigned under this contract.

12.14. Terrorism country divestments: In accordance with ARS §35-392, Mohave and its members are prohibited from purchasing from a company that is in violation of the Export Administration Act. By entering into the contract, contract vendor warrants compliance with the Export Administration Act.

12.15. Compliance to USDA solicitation requirements:

- Offeror certifies that all pricing in their proposal has been arrived at independently, without consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other offeror or with any competitor certification regarding non-collusion.
- Offeror agrees to comply fully with U.S. Department of Agriculture, the Arizona Department of Education, U. S. Accounting Office, or any of their duly authorized representative to allow access to any books, documents, papers, and records of the offeror, which are directly pertinent to the specific contract, for the purpose of audits, examinations, excerpts, and transcriptions. Additionally, the offeror shall provide all documents as necessary for the independent auditor to conduct the school food authority (SFA) single audit (if applicable). In the event of any unresolved audit findings, the records shall be retained beyond the five (5) year period for as long as required for resolution of these issues raised by the audit.
- Offeror agrees to comply with all mandatory standards and policies relating to energy efficiency as cited in the State Energy Conservation Plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).
- Offeror shall comply with Executive Order 11246, entitled Equal Employment Opportunity, as amended by Executive Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations, 41 CFR Part 60 3016.36(i)(3).
- Offeror shall comply with the following civil rights laws as amended: Title VI of the Civil Rights Act of 1964; Title IX of the Education Amendments of 1972; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975; Department of Agriculture regulations on nondiscrimination 7 CFR 210.23 (b); Title 7 CFR parts 15, 15a, and 15b; the Americans with Disabilities Act; and the FNS Instruction 113-6; "Civil Rights Compliance and Enforcement in School Nutrition Programs".
- Offeror shall comply with the provisions of the Consumer Product Safety Act.

- Offeror shall disclose all discounts, rebates, allowances and incentives received by the offeror from its suppliers. If the offeror receives a discount, rebate, allowance, or incentive from any supplier, the offeror shall disclose and return to the SFA, (if applicable), the full amount of the discount, rebate, or applicable credit that is received based on the purchases made on behalf of the SFA. The offeror shall identify the amount of each discount, rebate and other applicable credit on bills and invoices presented to the SFA for payment and individually identify the amount as a discount, rebate, or in the case of other applicable credits, the nature of the credit according to 7 CFR 210.21(f)(1)(iv).
- Offeror shall agree no expenditure may be made from the nonprofit school food service account for any cost resulting from a procurement failing to meet the requirements of the requirements for prohibited expenditures or as required in 7 CFR §210.21 or 7 CFR §210.21(f)(2).

13. FORCE MAJEURE

Except for payments of sums due, neither party shall be liable to the other, nor be deemed in default under this contract, if and to the extent that such party's performance of this contract is prevented by reason of force majeure. The term "force majeure" means an occurrence that is beyond the control of the party affected and occurs without its fault or negligence, including, but not limited to the following: acts of God (e.g. fire, flood, snow, earthquakes, tornadoes, violent winds, hail storms); acts of the public enemy; war; riots; strikes; mobilization; labor disputes; civil disorders; lockouts; injunctions-intervention-acts, or failures or refusals to act by government authority; and other similar occurrences beyond the control of the party declaring force majeure, which such party is unable to prevent by exercising reasonable diligence. The force majeure shall be deemed to commence when the party declaring it notifies the other party of the existence of the force majeure, and shall be deemed to continue as long as the results or effects of the force majeure prevent the party from resuming performance in accordance with the contract. Force majeure shall not include late deliveries of equipment or materials caused by congestion at a manufacturer's plant or elsewhere, an oversold condition of the market, inefficiencies, or similar occurrences. If either party is delayed at any time by force majeure, the delayed party shall notify the other party in writing of such delay within forty-eight (48) hours.

14. INDEMNIFICATION

14.1. General indemnification: To the extent permitted by law, Mohave and its members shall be indemnified and held harmless by contract vendor for its vicarious liability as a result of entering into this contract. Each party to the contract is responsible for its own negligence. Contract vendor agrees to save and hold harmless Mohave and/or its members from any and all liability for loss or damage to persons or property arising out of the work required by the contract. Contract vendor further agrees to waive any right of recovery against Mohave and/or its members for damage to the property of contract vendor, whether caused by negligence on the part of Mohave and/or its members or otherwise. This provision includes specifically the waiver of right of recovery against Mohave and/or its members for damage to property under contract and not yet formally accepted by member even though said property at the time of loss may be occupied, in whole or in part, by member.

14.2. Modification by member: Contract vendor shall have no obligation with respect to any patent and copyright infringement claim based upon member's modification of the equipment and/or software, or its operation or use with apparatus, data or programs not furnished by contract vendor. However, one member's action will not preclude contract vendor's obligation to members who have not modified their equipment or software.

14.3. Patent and copyright indemnification: To the extent permitted by law, contract vendor shall indemnify and hold harmless Mohave and its members against any liability, including costs and expenses, for infringement of any patent, trademark or copyright arising out of contract performance or use by Mohave and its members of materials furnished or work performed under this contract. Mohave and its members shall reasonably notify contract vendor of any claim for which it may be liable under this paragraph.

15. INTERVIEWS

After receipt and opening of preliminary technical proposals, Mohave will not hold interviews during the evaluation of this RFP.

16. LICENSES

In accordance with the Arizona Administrative Code, Article 11: School District Procurement R7-2-1112(A)(2), ARS §34-605(E)(2) and §41-2580(E)(2): The contractor is required to be licensed to perform construction.

A contract vendor shall maintain in current status all federal, state and local licenses, bonds and permits required for the operation of the business conducted by contract vendor. The contract vendor shall remain fully informed of and in compliance with all current ordinances and regulations pertaining to the lawful provision of services under the contract. Mohave reserves the right to stop work and/or cancel the contract of any contract vendor whose license(s) expire, lapse, are suspended or terminated. Contact vendor shall immediately notify Mohave of any expiration, lapse, suspension or termination of license(s).

The contract vendor is not required to be registered to perform design services pursuant to A.R.S. Title 32, Chapter 1 if the person actually performing the design services on behalf of the contract vendor is appropriately registered.

17. OFFER ACCEPTANCE PERIOD/WITHDRAWAL

17.1. Late proposals: Except as authorized by Arizona procurement rules and code, late proposals shall not be considered. Offeror shall be responsible for all shipping costs when requesting the return of a late proposal.

17.2. Withdrawal of proposal: An offeror may withdraw a proposal in writing at any time before proposal opening if the withdrawal is received before the proposal due date and time at the location designated in the Request for Proposal for receipt of proposals. After the opening time and date, proposals may not be withdrawn, except as allowed by Arizona procurement rules and code.

18. ORDER OF PRECEDENCE

In the event of a conflict in the provisions of the contract as accepted by Mohave, the following order of precedence shall prevail:

1. Special terms and conditions
2. General terms and conditions
3. Scope of work and specifications
4. RFP response
5. Attachments and exhibits
6. Documents referenced or included in the solicitation

19. ORDERING CYCLE

19.1. Acceptance of orders: This contract is for the sole use of Mohave and its members. All quotations provided to members must be based on prices in the contract and include the correct Mohave contract number. Contract vendor may only refuse a Mohave reviewed order under this contract after providing written documentation acceptable to Mohave describing the circumstances that warrant refusal. Improper documentation and/or frequent refusals may result in contract cancellation. Mohave may require the contract vendor to reject any purchase orders received from members based on this contract that may not comply with Mohave's rules, processes or standards.

19.2. Audit of contract activity: Mohave will audit some of the invoices related to this contract. The contract vendor agrees to provide all documentation necessary for Mohave to audit purchases made under contract, including invoices and credits issued to members, in a timely fashion.

19.3. Contract vendor contacts: Contract vendor agrees to assign only one contact person for each of the following: accounting, audit, contract administration, escalation, main member contact, open order/status report, and reconciliation. These contacts may be the same person, with the exception of the escalation contact. The name(s) of the contact persons will be provided to Mohave.

19.4. Open order and status reports: Mohave will send contract vendor open order and status reports on a periodic basis. Contract vendor agrees to reply to information requests in a timely fashion.

19.5. Orders in process: Member purchase orders dated on or before the contract cancellation and/or expiration date, will be processed and are considered valid until order fulfillment, or cancellation by the member. Any such order must be in the possession of Mohave within a reasonable amount of time. Acceptance of such orders shall be at the sole discretion of Mohave.

19.6. Purchase verification: It is the member's independent responsibility to verify that quotations and purchase orders comply with the terms of the award of a contract or procurement.

19.7. Quotations: Quotations with no end date are considered invalid after sixty (60) days from the issue date.

20. <u>PAYMENT</u>

20.1. Contacting member about payment: Contract vendor may contact member for payment for a product or service delivered to the member under the contract. Such contact shall be professional and courteous.

20.2. Contract vendor invoice: All invoices shall list the applicable member purchase order number and Mohave contract number. Contract vendor will invoice members directly. All transactions are payable in U.S. currency only. Contract vendor shall invoice member after delivery of goods and/or services. Goods and services shall be invoiced at applicable contract prices, which include Mohave's 1% administration fee.

Mohave's administration fee is included in the invoice amount paid by the member. Contract vendor shall remit administration fee to Mohave monthly. Administration fee shall be calculated at .0099 of the subtotal amount. The Mohave administration fee shall not be calculated on ancillary charges (e.g. performance bonds, shipping, transaction privilege tax, transportation charges, mileage, lodging, meals and incidental expenses (M&IE), permits).

20.3. Contract vendor payment: Member shall issue payment to contract vendor after receipt of invoice.

20.4. Correct invoicing: Contract products/services may not be invoiced greater than the purchase order. If incorrect invoices are discovered, contract vendor must correct invoices resulting in excess charges, no matter the cause of the error. Any excess payment must be returned to member within the time allowed by law, in the form of a check or credit memo, as determined by the member.

If a member is invoiced at less than contract prices, contract vendor will invoice the member for the difference unless Mohave approves the undercharge.

If contract pricing in effect on the contract has gone down between the time of the order and the invoice date, contract vendor may invoice at the current contract price.

20.5. Credit hold: Contract vendor agrees to advise Mohave's Procurement Manager within five (5) days if member(s) are placed on credit hold.

20.6. Payment time: Payment terms are net thirty (30) days from receipt of contract vendor's invoice.

20.7. Prepayment: In accordance with the Uniform System of Financial Records and ARS §15-905(N), prepayments may be requested on items that normally require prepayment in order to be procured or to receive a discounted price. Items not meeting these prepayment specifications may be paid only after receipt of goods and services.

20.8. Progress payments: Members may make progress payments under the following conditions: 1) Member and contract vendor agree to the terms of the progress payments prior to issuing a purchase order; 2) the purchase order describes the amounts/percentages to be paid and the dates/frequency of payment; 3) member accepts responsibility for verifying the validity of each payment application; 4) payments are made only after goods and/or services are verified; and 5) any such payments are made in full compliance with member's local governing entity rules and any and all other applicable state rules and regulations.

20.9. Quick pay discounts: Quick pay discounts may be offered to members, provided they have received the materials or services, and that such discounts are available equally to all members. Mohave must approve such discounts in writing and before they are offered to members.

20.10. Reporting and payment of administration fees to Mohave: The contract vendor agrees to provide a Reconciliation Report detailing activity under the contract, and payment for Mohave administration fees for invoices paid or Pcard transactions made in the previous month.

Purchases made with purchase orders: Items in the report must include member names, PO numbers, amounts, administration fees, invoice numbers, invoice dates and credit/return information for all invoices paid in the prior month.

Purchases made with Pcards: The report must be identified as Pcard (or as a credit card) when submitted. Items in the report must include member names, notation that the purchase was made with a Pcard, date of transaction, job number designation, amounts, administration fees, invoice numbers (if applicable), invoice dates (if applicable) and credit/return information for all invoices paid in the prior month. An electronic copy (e.g. PDF) of the detailed Pcard sales receipt, invoice, or quotation shall be provided for review.

Payment and report are due as per a schedule agreed upon by Mohave and contract vendor. The initial due date shall be the **10th, 15th, 20th, 25th or 30th** of the following month and will be specified in an award notification letter. If no invoices were paid under the contract in the previous month, the contract vendor will provide notice of no activity. A sample reconciliation report will be made available upon award of contract.

Make Mohave administration fees payable to Mohave Educational Services Coop., Inc. Payments shall be mailed to: 625 E. Beale St.
Kingman, AZ 86401

21. PREPARATION OF PROPOSAL and PROPOSAL FORMAT

21.1. Modification of proposal: An offeror may modify a proposal in writing at any time before proposal opening if the modification is received before the proposal due date and time at the location designated in the Request for Proposals for receipt of proposals.

21.2. Cost of proposal preparation: Mohave will not reimburse the cost of developing, presenting, or providing any response to this solicitation.

21.3. Offeror responsibility: Offeror shall examine the entire solicitation, seek clarification of any item or requirement that may not be clear, and check all responses for accuracy before submitting proposal. Failure to examine any requirements shall be at offeror's risk. Negligence in preparing a proposal confers no right of withdrawal after due date and time.

21.4. Proposal forms: The forms and format contained in the solicitation shall be used. Offerors may reproduce the forms and retype the information, but all of the required information must be presented in the tab order requested. Electronic or faxed proposals shall not be considered. ***Each offeror shall submit separately a technical and a price proposal.*** When applying the scoring method, the committee will separately evaluate the technical and price proposals. The technical proposal will be evaluated and scored before opening the price proposal. To be considered responsive, the offeror's entire proposal must reasonably and substantially conform to all the terms and conditions in the solicitation.

Technical and price proposals:

Technical proposal consists of: the offer and acceptance form; instructions to offeror and checklist form; scope of work and specification documents with exceptions/deviations noted; *scope of work and specifications acceptance form*; Method of Approach; Qualification and Experience; primary vendor information; Supporting contract documents; bid bond/alternate security; special terms and conditions; *special terms and conditions acceptance form*; general terms and conditions; standard terms and conditions for construction; *general terms and conditions and standard terms and conditions for construction acceptance form*; amendments (if any); single job and aggregate bonding capacity; certificate of insurance; company financials; past performance and management plans; sample supplemental agreements; and any additional required information.

Price proposal consists of (submitted in a sealed package from the technical proposal): all pricing related to the work/services to be provided under an awarded contract, and pricing methodologies.

22. PROPOSAL OPENING

Proposals shall be opened immediately following the proposal due date and time. The name of each offeror shall be publicly read and recorded in the presence of witnesses. All information in the proposals shall remain confidential until after award of contracts, with the exception of review by Mohave staff and selected evaluators.

23. PROSPECTIVE BIDDERS REGISTRATION

Any offeror submitting a perfunctory proposal with no serious intent of being accepted may be removed from Mohave's prospective bidders list. Any vendor not responding to two (2) consecutive Requests for Proposal for similar procurements may be removed from the prospective bidders list. A "no bid" response or request to remain on the list is sufficient to keep a vendor on the Prospective Bidders Registration.

24. PROTESTS

Protests shall be filed with Anita McLemore, C.P.M., the Executive Director (the District Representative), and shall be resolved in accordance with Arizona Procurement rules and code, ARS, Title 41, Chapter 23, Article 9 (https://www.azleg.gov/arstitle) and State Board Rules R7-2-1001 through R7-2-1196 (http://azsos.gov/rules/arizona-administrative-code). *A protest must be in writing and must be filed with the Executive Director at 625 E. Beale Street, Kingman, Arizona, 86401.* Protests based upon alleged improprieties in a solicitation shall be filed before the due date and time for responses to the solicitation. The interested party shall file the protest within ten (10) days after Mohave makes the procurement file available for public inspection. A protest filed on the tenth day must be received by 5:00 p.m., local Arizona time. The interested party may file a written request for an extension. The written request shall be filed before the time limit specified above and shall set forth good cause as to the specific action or inaction of Mohave that resulted in the interested party being unable to file the protest before the time limit specified above.

A protest shall be in writing and shall include the following information:

- The name, address and telephone number of the interested party;
- The signature of the interested party or the interested party's representative;
- Identification of the solicitation by contract number;

- A detailed statement of the legal and factual grounds of protest including copies of any relevant documents;
- The form of relief requested.

Should Mohave prevail in an appeal of a decision issued by the Executive Director, appellant waives any objection to the hearing officer awarding Mohave its reasonable attorneys fees and costs along with the costs for the hearing.

25. RIGHT TO ASSURANCE

Whenever one party to the contract has a good faith reason to question the other party's intent to perform, they may demand that the other party give written assurance of its intent to perform. If a demand is made and no written assurance is given within ten (10) days, the demanding party may treat this failure as an anticipatory breach of the contract.

26. SAFETY STANDARDS

Items supplied under the contract shall comply with current applicable Occupational Safety and Health Standards of the Arizona Industrial Commission, National Electric Code, and National Fire Protection Association Standards.

27. SHIPPING

27.1. Shipping terms/transfer of title: Shipments shall be F.O.B. destination. Title and risk of loss of material shall not pass to member until member receives the material at delivery point, unless otherwise provided in the solicitation.

27.2. Shipment under reservation: Contract vendor is not authorized to ship materials under reservation and no tender of a bill of lading will operate as a tender of the materials.

27.3. Shipping charges: Prices that include shipping to any location in Arizona, delivered to the specific receiving point identified in the purchase order, are preferred. If shipping is charged, it shall be that member is not charged more than the actual invoiced amount for shipping, and is prepaid by the contract vendor (PP&A). It is the member's responsibility to confirm shipping charges under the contract.

27.4. Shipping errors/risk of transportation: Shipping errors will be at contract vendor's expense. If contract vendor ships a product that was not ordered, contract vendor shall pay for return shipment at the convenience of member. All risk of transportation and all related charges shall be contract vendor's responsibility. Contract vendor shall file all claims for visible or concealed damage. Member will notify contract vendor promptly of any damaged goods and shall assist contract vendor in arranging for inspection.

28. SUSPENSION OR DEBARMENT STATUS

Offeror shall include a letter in its proposal notifying Mohave of any debarment, suspension or other lawful action taken by any federal, state or local government within the last five years that precludes offeror or its employees from participating in any public procurement activity. Such letter shall provide name and address of the public procurement unit, effective date, duration, and relevant circumstances of the suspension or debarment. Failure to supply such letter or not disclose all pertinent information shall result in cancellation of any contract. **Letter shall be placed after Tab 1a.**

29. TAXES

29.1. Federal Excise Tax: Most members are exempt from paying Federal Excise Tax.

29.2. Payment of taxes: Member is responsible for payment of all taxes listed on the invoice. Contract vendor is responsible for collecting such taxes and shall forward all taxes to the proper revenue office. All applicable taxes must be listed as a separate item on all invoices and will be paid by member issuing the purchase order.

29.3. Property taxes: Arizona public agencies may not pay state property taxes. (Arizona Constitution, Article 9, Section 2).

29.4. Reservation or tribal tax: If goods or services are subject to reservation or tribal tax, contract vendor shall include such taxes as a separate item on the original invoice to the member.

29.5. Transaction Privilege Tax (Sales Tax): Members may be liable for Arizona Transaction Privilege Taxes, which may include state, county and city taxes. Contract vendor is responsible for charging taxes correctly.

29.6. Taxes on construction: Contract vendors for construction-related projects must follow the latest tax requirements as described in current Arizona Administrative Code and Department of Revenue transaction privilege tax procedures.

30. TIME (DEFINITION OF)

Periods of time, stated as a number of days, shall be in calendar days, not business days.

1. BID SECURITY

1.1. Bid security requirement: School procurement rules [R7-2-1102 (A)] and as applicable in ARS §34-608 and §41-2573, require that all competitive sealed bidding for construction have bid security, if the amount of the construction contract will exceed the amount established by ARS §15-213(A). Bid security as a percentage of the bid amount is unacceptable, as this is a term contract with no specific bid amount. Bid security must be in the amount stated in "*Bid Bonds and Bonding Capacity*."

1.2. Form of bid security: Acceptable bid security for this RFP will be a certified or cashier's check, or an annual or one time bid bond underwritten by a surety company licensed to issue bid bonds in Arizona [R7-2-1102 (B, C), ARS §34-608 and §41-2573]. Bid security may be provided using the form found in this RFP, with the principal being the prime contractor and the Obligee being Mohave Educational Services Cooperative, Inc. An agent of your licensed bonding agency shall sign the bond. If the original bond is not signed and/or has conflicting information, it shall render your proposal nonresponsive.

2. CHANGE ORDERS

2.1. Adherence to specifications and drawings: The contract vendor shall follow the requirements of all specifications and drawings as closely as actual construction and work of contract vendors shall permit. Should existing conditions or limitations require a major change or rearrangement, the change shall be allowed only upon issuance of a written change order.

2.2. Change order requirement: Member and contract vendor shall establish a procedure for identifying and approving changes to the work. Said procedure shall include provisions for field change orders. Member shall notify Mohave of any change that revises the cost of the project. Contract vendor shall not begin the revised work prior to receipt of the Mohave reviewed member change order.

Contract vendor agrees to follow all applicable rules and regulations for any change orders, including R7-2-1005 and as applicable in ARS §41-2552.

Change orders shall be properly documented in writing. Minor changes mutually agreed between the member and the contract vendor that do not involve compensation may be made without informing Mohave.

2.3. Costs for changes associated with improper checking or coordination: The cost of any change in construction due to improper checking of site and/or other conditions, or coordination by contract vendor, shall be borne by the contract vendor, and the contract vendor shall not be entitled to reimbursement for such costs.

3. CONSTRUCTION CONTRACTS

3.1. Cancellation by Mohave: Mohave reserves the right to cancel a contract resulting from this RFP if the original contract holder is sold and ownership is transferred to a new party. If Mohave cancels the contract, the cancellation clause will be exercised, as required.

3.2. Compensation: Compensation for received goods, terms of progress payments, and a schedule of payments shall be described in the contract. The agreement shall state that Mohave will not be responsible for any late fees due the contract vendor by the member.

3.3. Member delays: As required by ARS §15-213 (D), the contract vendor shall negotiate with member for the recovery of damages related to expenses incurred by the contract vendor for a delay for which the member is responsible, which is unreasonable under the circumstances and which is not within the contemplation of the parties to the contract between the two parties. Any such negotiations shall not void any provisions between the parties that require notice of delays, provide for arbitration or other procedure for settlement or provide for liquidated damages.

3.4. Construction contract requirement: In any contract between the contract vendor and a member based on this contract, the terms and conditions of this contract shall prevail. In any contract between the member and the contract vendor, the scope of work shall include all specifications, drawings, and other official documents. All applicable codes around which the contract is made shall be included, as will any technical specifications and general conditions. The contract vendor shall acquire and pay for all permits and approvals from local, county, state and federal offices needed to accomplish the work. Contract vendor shall be entitled to direct reimbursement for the cost of such permits.

3.5. Form of construction contracts: A contract between the member and the contract vendor for construction shall be an industry standard agreement. The parties may agree to use the American Institute of Architects (AIA) General Conditions of Contract for Construction Form A201 as a guide.

3.6. Member representative: All formal contact between the contract vendor and/or contract vendor's personnel and the member shall be processed through the member representative. The member shall designate the member representative at the time of purchase.

3.7. Terms of acceptance: Terms for acceptance by the owner and title to work must be clearly agreed upon and described in the contract. If any part of the construction requires the member to assume control before the completion, this shall be defined. Both parties shall agree on the definition of what constitutes final acceptance. Upon completion of the project, the worksite shall be left in a condition equal to or better than before the project.

3.8. Void provisions: A provision, covenant, clause or understanding in, collateral to or affecting a construction contract that makes the contract subject to the laws of another state or that requires any litigation, arbitration or other dispute resolution proceeding arising from the contract to be conducted in another state is against public policy of the State of Arizona and is void and unenforceable. (ARS §15-213, §34-227, and §41-2583)

3.9. Work performed by the member: Work to be performed by the member must be clearly described and agreed upon prior to project start up.

4. CONSTRUCTION SCHEDULE

4.1. Schedule adjustment: The member retains the right to extend the schedule of work or to suspend the work, and to direct the contract vendor to resume work when appropriate. The agreement must describe an equitable adjustment for added costs caused by any suspension. Any increases shall be invoiced per approved contract pricing as allowed in the agreement.

4.2. Schedule requirement: A schedule for performance of work that can be met without planned overtime is the responsibility of the contract vendor.

4.3. Work crew size: The cost for each project shall include all costs of all necessary trained personnel to complete the project on, or before, the completion date(s) set forth in the contract. The member shall not incur additional expense for upsized crews, nor overtime costs, which might be necessary for the contract vendor to complete the project on schedule.

5. COORDINATION

5.1. Conflict with member activities: The contract vendor and member shall coordinate activities so as to avoid conflicts. The contract vendor shall make every reasonable effort not to interrupt scheduled member activities with work under the contract. The contract vendor shall notify the member of any construction work that may negatively impact scheduled member activities.

5.2. Coordination with other vendors: The contract vendor shall coordinate with other contractors.

5.3. Interruption of other work: The contract vendor shall employ such methods or means as will not cause any interruption of, or interference with, work of any other contractor on the project site.

6. DELIVERY OF CONSTRUCTION MATERIALS

6.1. Condition of materials on delivery: The contract vendor shall deliver materials to the worksite in new, dry, unopened, and well-marked containers showing product and contract vendor's name. Damaged or unlabeled materials will not be accepted.

6.2. Delivery requirement: The contract vendor shall deliver materials in sufficient quantity to allow for continuity of work. Delivery shall be coordinated with the member's representative.

6.3. Precautions: The contract vendor shall take all necessary precautions to protect its materials from damage, theft and misuse. The member shall have no responsibility for such precautions or protection.

6.4. Rejected and damaged material: Damaged or rejected materials shall be immediately removed from the work area.

7. INSURANCE

Course of Construction Insurance: Upon request from member, contract vendor shall purchase and maintain course of construction insurance equal to the estimated replacement cost of the property after completion of the entire work at the site as called for in the purchase order. The insurance form shall be an "all risk" type policy with standard exclusions. Coverage shall include temporary structures, scaffolding and office trailers at the site, as well as materials and equipment at the site destined to become a permanent part of the property. Any additional costs associated with course of construction insurance must be identified in the quote.

8. LABOR PRACTICES

8.1. Labor practices: The contract vendor must agree to treat its labor in keeping with its labor contract agreement and to the best interest of the member. Any overtime practices or retroactive agreements with labor unions that would be to the detriment of the member must be limited to only those approved by the member.

8.2. Labor requirements: The method and manner of performance must be stated in quotes and/or project documents: employees of the contract vendor are not employees of the member; the level of competency of the personnel will be subject to approval by the member; the contract vendor must agree to comply with all current applicable federal, state, and local laws; adjoining property owners must not be annoyed by noise, pollutants, material hauling operations; procedures for dealing with fire, theft, and storm damage must be established; methods the contract vendor will use to guarantee safe job practices relating to the health and welfare of the member employees and contract vendor employees will be clearly stated in quotes and/or project documents.

8.3. Quality of work: All work under the contract shall be accomplished by experienced craftsmen, helpers and laborers under the supervision of the foreman or supervisor.

8.4. Removal of Employee or Representative: The member shall have the right to require the contract vendor to remove from the project any employee or representative of the contract vendor, its subcontractors or suppliers that the member may deem incompetent, careless, insubordinate, or otherwise unacceptable.

8.5. Supervision: The contract vendor shall furnish the services of an experienced foreman or supervisor who will continually be in charge of work on the project. The foreman or supervisor shall provide continuous supervision, coordination and inspection of the work required under the contract.

9. LIQUIDATED DAMAGES

Any agreements on liquidated damages and early completion incentives shall be between the member and the contract vendor and must be agreed upon in writing prior to start up. If the member declines liquidated damages or early incentive agreement, the contract vendor shall obtain a written and signed statement to this effect. Mohave shall not be a party to liquidated damages or early completion incentive agreements.

10. LITIGATION FOR NONPAYMENT OR NONPERFORMANCE

All litigation for nonpayment or nonperformance shall be filed as allowed in R7-2-1103 (F), and in ARS title 34 or 41 as applicable.

11. MEMBER COSTS

Temporary electrical service and the cost for power, the cost for water, and other member costs shall be identified in writing and agreed upon.

12. PERFORMANCE AND PAYMENT BONDS

12.1. Issuing performance and payment bonds: It shall be the sole responsibility of the member to determine if any applicable performance and payment bonding requirements apply to the procurement under an awarded contract. Member must request that the contract vendor provide the performance and payment bonds that meets the requirements prior to project implementation.

The contract vendor shall supply Mohave with a copy of the procured bonds upon request. If the contract vendor fails to deliver any required performance or payment bonds requested by the member, the contract with Mohave may be cancelled.

12.2. Payment bond requirement: An irrevocable payment bond shall be executed in an amount equal to 100% of the price specified in the contract between the member and the contract vendor by a surety company authorized to do business in Arizona. This bond will protect all persons supplying labor and material to the contract vendor for the performance of the work provided in the contract.

12.3. Performance bond requirement: An irrevocable performance bond shall be executed in an amount equal to 100% of the price specified in the contract between the member and the contract vendor by a surety company authorized to do business in Arizona. The performance bond and payment bond for each job order shall cover the full amount of the project under the job order, and shall not include coverage of any amounts for design services, preconstruction services, finance services, maintenance services, operations services or other related services included in the job order. (The contract shall be available for use by any or all Mohave members. There is not an initial estimate of the amount of construction that will be done under the contract by the members. Therefore, the amount of performance and payment bonds must be based upon the amount of each job order.)

13. PROGRESS PAYMENTS

13.1. Progress Payments on Construction: R7-2-1105 and ARS §34-609 and §41-2577 allows for progress payments if the contract vendor agrees to adhere to ARS §34-609(B)(D)(F) and 41-2577(B)(D)(F) and as applicable in ARS §34-221. All progress payments must be invoiced to the member; it is the responsibility of the member to review and approve any estimates of work completed. If the member issues a written statement to the offeror that the estimate of work is not approved and certified, the member may withhold an amount from the progress payment the member reasonably expects to incur in correcting the deficiency set forth in the written finding, as permitted in R7-2-1105 (A) and ARS §34-609(B)(2) and §41-2577(A). In such cases, the offeror agrees to hold Mohave harmless for any deficiency of payment.

Progress payments may be made to the contract vendor on the basis of a duly certified and approved estimate of work performed during the preceding month. The contract vendor must agree to pay any subcontractors or material suppliers within seven days of their receipt of the progress payment, unless otherwise agreed on in writing between the parties.

13.2. Schedule of payments: Once all bonds are in place, the contract vendor and the member will agree upon a schedule of payments based on identifiable milestones.

If any payment is delayed beyond 30 days from the due date, the offeror agrees not to charge Mohave interest on the late payment. Any late charges will be the total responsibility of the member. The offeror may extend any due date to avoid the requirement to pay interest in R7-2-1105 (D) and ARS §34-609(I) and §41-2577(E).

Acceptance of final payment is a waiver of all claims except unsettled claims previously made in writing.

13.3. Subcontractor notification: A subcontractor to the prime contractor may request, in writing, that member notify the subcontractor in writing within five (5) days from payment of each progress payment made to the prime contractor [R7-2-1105(C) and ARS §41-2577(C) and §34-609(G). Upon request, the prime contractor must provide Mohave or the members with a contact name, title, company name, mailing address and fax number for all subcontractors and suppliers that are covered by a payment bond.

14. PROJECT ADVERTISING

The contract vendor must agree that the member reserves the right to release information about the project and that any advertising of the project by the contract vendor must be approved by the member.

15. PROJECT COMPLETION

15.1. Project documents: Upon completion of the work, the contract vendor shall present the member with all documents necessary to closeout the project. Maintenance manuals, drawings, warranties on installed equipment, etc., shall be given to the member.

15.2. Unfinished work: Even if final payments are made, if the member discovers an unfinished job that should have been completed, the contract vendor shall complete the work in a timely fashion at no additional cost.

16. PUBLIC WORKS

16.1. Preservation: The contract vendor shall be responsible for the preservation of all public and private property included on or adjacent to the worksite. This requirement shall apply to the surface and hidden features of the property.

16.2. Receipt of public funds: Contract vendors and subcontractors will meet the requirements of ARS § 34, Article 3, for eligibility to receive public funds.

16.3. Residency requirement: ARS §34-302 states that only persons who have been for not less than one year a bona fide resident of Arizona shall be employed in the performance in any public work. A public works contract is defined in ARS §34-321 as "*a contract to which the state or a political subdivision is a party involving the employment of laborers, workmen or mechanics in the construction, alteration or repair of public buildings or improvements.*" It shall be the responsibility of the contract vendor to comply with these laws, when applicable.

16.4. Restoration: The contract vendor shall repair, rebuild or otherwise acceptably restore any property on or adjacent to the worksite that was damaged during the course of work on the project. Such restoration shall be at the contract vendor's expense, and is not subject to reimbursement by the member.

16.5. Public building rules, regulations and codes: Construction work on public buildings shall be in compliance with the state fire code unless a fire code has been adopted by the city, town, county or fire district in which the building is located. Public buildings shall be constructed in compliance with applicable building, plumbing, electrical, fire prevention and mechanical codes adopted by the city, town, county or fire district in which the building is located. If a public building is built in an area that has not adopted local codes, the building shall be designed or constructed according to the state fire code adopted by the state fire marshal and the building, plumbing, electrical, fire prevention and mechanical codes that apply in the largest city in the county in which the building is located. Public buildings are subject to those codes that apply and are in effect when the building is designed or constructed and to the currently adopted codes when a building is found to be structurally unsafe, without adequate egress, or a fire hazard or are otherwise dangerous to human life. "Public Building" means a building or appurtenance to a building that is built in whole or in part with public monies (see ARS §34-461).

17. RETENTION

Retention shall not be allowed for any progress payments made under this contract.

18. RULES, REGULATIONS AND CODES

18.1. Certification of personnel regarding renovations, repair, and painting: Personnel performing renovations, repair, and painting activities that disturb lead-based paint in target housing and child-occupied facilities constructed before 1978, shall comply with Part II, Environmental Protection Agency, 40 CFR Part 745, Lead; Renovation, Repair, and Painting program; Lead Hazard Information Pamphlet (http://www.epa.gov/).

18.2. Compliance: All work will be accomplished in conformance to current applicable OSHA safety requirements, and any additional federal, state, or local fire or safety requirement. When specifications or scope of work will result in a violation of a code or result in an unsafe condition, the contract vendor must inform the member of the situation. The contract vendor will not construct any device or produce any condition that intentionally violates a fire or safety code or safety standard.

18.3. Hazard notification: Contract vendor must advise member whenever work is expected to be hazardous.

18.4. Liens/serial numbers: All materials shall be free of liens. Proposals must be for equipment on which the original manufacturer's serial number has not been altered in any way.

19. SURETY COMPANIES

Surety companies issuing bid bonds, performance bonds and/or payment bonds under this contract must be licensed by the Arizona Department of Insurance. Evidence of such license will be the name of the surety company as found in the license search database provided by the Arizona Department of Insurance (www.insurance.az.gov).

20. WORKSITE

20.1. Site access: The member shall provide an all-weather road to the site and prepare the site with room for construction equipment.

20.2. Site conditions: The condition of the site before start up shall be agreed upon between the member and the contract vendor and shall be written into the contract.

Technical Proposal – General Terms and Conditions and Standard Terms and Conditions for Construction Acceptance Form (Place after Tab 1c)

Signature on Page 2 certifies complete acceptance of the General Terms and Conditions and the Standard Terms and Conditions for Construction in this solicitation, except as noted below (additional pages may be attached, if necessary).

Check one of the following responses to the General Terms and the Standard Terms and Conditions for Construction:

☐ We take no exceptions/deviations to the General Terms and Conditions and the Standard Terms and Conditions for Construction.

(*Note: If nothing is listed below, it is understood that no exceptions/deviations are taken.)*

☐ We take the following exceptions/deviations to the General Terms and Conditions and the Standard Terms and Conditions for Construction. All exceptions/deviations shall be clearly explained. Reference the corresponding General Terms and Conditions and/or Standards Terms and Conditions for Construction that you are taking exceptions/deviations to. Clearly state if you are adding additional terms and conditions to the General Terms and Conditions and the Standard Terms and Conditions for Construction. Provide details on your exceptions/deviations below:

(*Note: All requested exceptions/deviations must be clearly explained. Reference the specific terms and conditions that you are taking exceptions/deviations to, detail any proposed substitute terms and conditions, and clearly demonstrate how Mohave and its membership will be better served by the substituted terms and conditions. Unacceptable exceptions/deviations shall remove your proposal from consideration for award. Mohave shall be the sole judge on the acceptance of exceptions and Mohave's decision shall be final.)*

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DIVISION 1-GENERAL REQUIREMENTS

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DIVISION 2-EXISTING CONDITIONS

Demolition

1.0 DESCRIPTION OF WORK: This specification covers the dismantling, salvage, demolition, and disposal of designated structures, utilities, and/or materials as directed by the Authorized Member Representative.
2.0 PRODUCTS: (Not Used).
3.0 EXECUTION:
3.1 Submittals: Procedures proposed for the accomplishment of all demolition and salvage work, including a detailed description of the methods and equipment to be used for each operation and the scheduled sequence of operations, shall be submitted to the Authorized Member Representative for approval. Operations that involve interruption of utility services or the handling of toxic or hazardous materials shall be scheduled and approved by the Authorized Member Representative at least 48 hours prior to the start of such operations.
3.2 Clearances and Permits: Obtain as required from local authorities.
3.3 Salvage: Title to all materials and equipment to be demolished is vested in the member. Unsalvageable materials shall be disposed of as directed by the Authorized Member Representative. Materials and equipment for Member salvage or reuse shall be carefully removed and delivered to a storage site designated by the Authorized Member Representative.
3.4 Protection of Existing Work: All necessary precautions shall be taken to ensure against damage to existing work that is to remain in place or is to remain the property of the Member. Damaged areas shall be repaired or replaced with new products to match existing surrounding surfaces. Shoring, bracing, and supports shall be provided as required and structural elements shall not be overloaded. Care shall be taken to prevent unscheduled interruptions to any utility service.
3.5 Protection From Weather: The interior of buildings and all materials and equipment shall be protected from the weather at all times.
3.6 Dust and Dirt Control: Dust and dirt resulting from demolition operations shall be controlled to prevent spread into occupied portions of buildings and to avoid creation of a nuisance to the surrounding area. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as ice, flooding, and pollution.
3.7 Burning: Burning at the project site for the disposal of refuse and debris will not be permitted.
3.8 Explosives: The use of explosives will not be permitted.
3.9 Hazardous Materials: Extreme care and caution shall be exercised at all times when handling toxic or hazardous materials in order to prevent harm to personnel and property and to prevent environmental contamination. Federal and state regulations governing handling, transportation,

and disposal of such materials shall be rigidly adhered to.

3.10 Utilities: Temporary interruptions, disconnections, and relocation of existing utilities and removal of abandoned utility services shall be as directed by the Authorized Member Representative.

3.11 Cleanup: Debris and rubbish shall not be allowed to accumulate in buildings or on site. Local regulations regarding hauling and disposal shall be followed.

DIVISION 3-CONCRETE

Concrete Formwork

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of structural cast-in-place concrete formwork. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Form Materials shall conform to ACI 301 and shall be made especially for concrete form use.

2.1.1 Corrugated or Formed Steel Sheets: ASTM A 361, G90 Coating, with depth of corrugations not less than 1/2 inch.

2.1.2 Plywood: DOC PS 1 "B-B (Concrete Form) Plywood", Class I, Exterior Grade. Minimum thickness shall be 3/4 inch.

2.1.3 Asbestos Cement Formboard: ASTM C 220, 1/4 inch thick, Type U or Type F.

2.1.4 Cylindrical Columns and Supports: Round-section members with paper or fiber tubes, constructed of laminated plies using water-resistant adhesive with wax-impregnated exterior.

2.1.5 Pan Type: 16-gauge steel with 1/4-inch thick concrete form hardboard conforming to AHA A135.4, or fiberglass at least 0.11 inch thick.

2.1.6 Lumber: Straight, uniform width and thickness and free from knots, offsets, holes, dents, and other surface defects. Minimum thickness shall be 1 inch.

2.1.7 Void Forms: Moisture-resistant treated paper faces, biodegradable.

2.2 Formwork Accessories:

2.2.1 Form Ties: Form ties shall be metal, factory-fabricated, removable or snap-off and will leave holes not less than 1/4 inch nor more than 1 inch in diameter and not more than 1 inch deep.

2.2.2 Form coating shall be industrial colorless material that will not stain concrete, absorb moisture, or impair natural bonding.

2.2.3 Fillets for chamfered corners shall be wood strips or rigid plastic type.

2.2.4 Dovetail anchor slots shall be galvanized steel material with release-tape-sealed slots and bent tab anchors, securable to concrete formwork.

2.2.5 Flashing reglets shall be galvanized steel with release-tape-sealed slots and alignment splines for joints, securable to concrete formwork.

2.2.6 Anchorages, spikes, nails, and lag and through bolts shall be as required to maintain formwork in place.

3.0 EXECUTION:

3.1 Inspection: forms shall be cleaned and reconditioned between usages. Temporary ports shall be provided in formwork to facilitate cleaning and inspection.

3.2 Preparation:

3.2.1 Formwork shall be constructed to maintain tolerances in accordance with ACI 301.

3.2.2 Form coating shall be applied prior to placing reinforcing steel, anchoring devices, and embedded items. Do not apply form coating where concrete surfaces are scheduled to receive special finishes.

3.2.3 Chamfer strips shall be provided on external corners that will be exposed.

3.3 Form Removal: Forms shall be removed in a progressive manner that will prevent injury to the concrete.

Concrete Reinforcement

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of concrete

reinforcement. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendation. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Reinforcement Materials:

2.1.1 Billet-Steel Reinforcing Bars: ASTM A 615, minimum Grade 40 steel, plain or deformed bars, uncoated or galvanized finish.

2.1.2 Rail-Steel Reinforcing Bars: ASTM A 616, Grade 50 and 60 steel, plain or deformed bars, uncoated or galvanized finish.

2.1.3 Axle-Steel Reinforcing Bars: ASTM A 617, minimum Grade 40 steel, plain or deformed bars, uncoated or galvanized finish.

2.1.4 Welded Steel Wire Fabric: ASTM A 185 for plain type and ASTM A 497 for deformed type fabric.

2.1.5 Stirrup Steel: ASTM A 82.

2.1.6 Dowel Steel: ASTM A 675, Grade 80 or ASTM A 499. Steel pipes, if used for dowels, shall be closed at each end with mortar, metal, or plastic cap and shall conform to ASTM A 53, Schedule 80.

2.2 Reinforcement Accessories:

2.2.1 Wire Ties: 16 gauge black annealed wire.

2.2.2 Chairs, bolsters, bar supports, and spacers shall be provided in conformance with ACI SP-66. Supports for formed surfaces exposed to view shall be plastic protected wire or stainless steel. Precast concrete, if used for bar supports, shall be wedge-shaped, not larger than 3-1/2 inches by 3-1/2 inches in thickness and with an embedded hooked tie wire for anchorage.

3.0 EXECUTION:

3.1 Regulations:

3.1.1 Reinforcement detailing and placement shall conform to ACI 318.

3.1.2 Laps or splices shall conform to ACI 318.

3.1.3 Welding shall comply with AWS D1.4.

3.2 Installation:

3.2.1 Reinforcement shall be free from loose or flaky rust and mill scale.

3.2.2 In slabs, beams, and girders, reinforcing steel shall not be spliced at points of maximum stress.

3.2.3 Dowels and tie bars in slabs on grade shall be placed at right angles to construction joints.

3.2.4 Wire fabric reinforcement shall be continuous between expansion, construction, and contraction joints in slabs on grade and between expansion joints in other slabs.

3.2.5 Reinforcing bars shall not be continuous through expansion joints but shall be 2 inches clear from the joint.

Concrete Accessories

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of concrete accessories. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Joint Materials:

2.1.1 Rubberized Asphalt Compound: ASTM D 1190.

2.1.2 Polyurethane-Base Elastomeric: Fed. Spec. TT-S-230.

2.1.3 Asphalt Compound: ASTM D 1190.

2.1.4 Liquid Neoprene: Applicable standards and/or specifications.

2.2 Sealer: Fed. Spec. TT-S-00227.

2.3 Waterstop:

2.3.1 Polyvinyl chloride: 1,750 psi minimum tensile strength, working temperature range from minus 51 F to plus 175 F, ribbed flaps on one side only.

2.3.2 Extruded neoprene: 2,000 psi minimum tensile strength, 60 Shore A hardness, flush or recessed from joint.

3.0 EXECUTION:
3.1 Preparation: All surfaces of joints to which sealer is to be bonded shall be absolutely clean, dry, and free of loose concrete, dirt, oil, or other foreign material.
3.2 Application:
3.2.1 All joints shall be in accordance with ACI 318.
3.2.2 Accessible edges of expansion joint shall be sealed with sealer.
3.2.3 The ambient temperature shall be between 50 and 100 F when the primer and joint sealing compound are applied.
3.2.4 Contraction joints shall have a minimum width of 1/8 inch and a depth of 1/4 the slab thickness or 1-1/2 inches minimum, whichever is greater.
3.2.5 Construction joints shall be doweled construction.
3.2.6 Expansion joint filler shall be installed below the finished floor with a temporary wood strip to form a groove not less than 3/4 inch deep.
3.2.7 Waterstops shall be installed so as to form a continuous water-tight diaphragm.

Cast-in-place Concrete
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of cast-in-place concrete. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Concrete Admixtures:
2.1.1 Air-Entraining Admixture: ASTM C 260.
2.1.2 Accelerating Admixture (Calcium Chloride): ASTM D 98.
2.1.3 Water-Reducing or Retarding Admixture: ASTM C 494.
2.2 Concrete Mixture:
2.2.1 Cement: ASTM C 150.
2.2.2 Normal Weight Aggregate: ASTM C 33.
2.2.3 Water: Potable, free from deleterious substances.
2.2.4 Proportion of cement, aggregate, and water shall comply with ACI 318.
2.2.5 Concrete shall have a compressive strength (28 day) as indicated on the drawings. Entrained air by volume shall be 6 percent, and the slump shall be a maximum of 4 inches and a minimum 1 of inch. All reinforcing steel shall be Grade 60.
2.3 Concrete Accessories:
2.3.1 Bonding agent shall be two component epoxy resin, two component polysulphide-epoxy, polysulphide polymer epoxy, or polysulphide polymer epoxy resin.
2.3.2 Vapor barrier shall consist of 6-mil polyethylene sheet, complying with ASTM C 171, or heavy Kraft papers laminated together with glass fiber and overcoated with polyethylene.
2.3.3 Floor Hardener:
2.3.3.1 Metallic Floor Hardener: Magnesium fluosilicate and zinc fluosilicate with water.
2.3.3.2 Non-metallic floor hardener shall be used when hardened floor is subject to light or medium floor traffic.
3.0 EXECUTION:
3.1 Concrete Placement:
3.1.1 Formwork, reinforcing steel, and embedment items shall be inspected before placing concrete.
3.1.2 Concrete placement shall comply with ACI 304 and 301.
3.1.3 Cold weather placing shall be in compliance with ACI 306. Concrete mixture temperature shall be not less than 50 F.
3.1.4 Hot weather placing shall be in compliance with ACI 305. Concrete mixture temperature shall be not more than 80 F.
3.2 Concrete finishes shall comply with ACI 301.
3.2.1 Float finish shall be applied to monolithic slab surfaces receiving trowel finish or slab surfaces to be covered with membrane or elastic waterproofing.

3.2.2 Trowel Finish: Power-driven troweling or hand troweling shall be applied to monolithic slab surfaces to be exposed to view and slab surfaces covered with resilient flooring.
3.2.3 Broom finish shall be applied to exterior concrete platforms, stairs, ramps, etc.
3.2.4 Rough Slab Finish: Slabs shall be screeded with straight edges so that no coarse aggregate is visible and slab is suitable to receive fill and mortar setting beds.

Concrete Topping

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of concrete floor toppings. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Cement: Portland cement, ASTM C 150, Type I or III.
2.2 Sand: ASTM C 33.
2.3 Coarse Aggregate: ASTM C 33, maximum size 3/8 inch.
2.4 Granolithic Material: Emery, hard mineral, or non-staining metallic material finely ground to produce non-skid surface.
3.0 EXECUTION:
3.1 Integral Topping: Topping shall be a one part cement, one part sand, and two parts aggregate mix to produce a hard topping with a minimum 28-day compressive strength of 5,000 psi.
3.1.1 Surface of base slab shall be roughened before placing topping.
3.1.2 Spread topping mixture evenly over base, bring to required depth, and strike off level with a straightedge. Consolidate surface by power-float finishing.
3.1.3 Hard trowel-finish slab topping.
3.1.4 Control joints in topping shall be located directly above joints in base slab.
3.2 Granolithic Finish: Topping shall be a one part cement, one part sand, and 1-1/2 parts aggregate mix. Topping shall be placed same as integral topping.
3.2.1 Prior to final troweling, granolithic material shall be spread evenly over the topping surface.
3.2.2 Granules shall be worked into the surface to provide complete bonding with the topping but also to provide an abrasion-resistant, non-skid surface.

Exposed Aggregate Concrete

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of exposed aggregate finish on concrete. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Cement: ASTM C 150, Type I Portland cement.
2.2 Admixtures: ASTM C 494, ASTM C 260.
2.3 Aggregate: ASTM C 33.
2.4 Water: Clean, potable.
2.5 Cleaning Agent: Commercial grade muriatic acid, mixed 1 part acid to 10 parts water.
2.6 Bonding Agent: Polyvinyl acetate emulsion.
2.7 Surface Aggregate: As directed.
3.0 EXECUTION:
3.1 Concrete shall be placed and vibrated to ensure that concrete is consolidated and that all voids are filled.
3.2 Formed Concrete:
3.2.1 Leave forms in place until removal can be effected without damage to the shape or strength of the concrete but, in no case, in less than 24 hours. Longer time periods will be required when lower ambient temperatures are experienced.
3.2.2 Immediately after removal of form work, remove surface cement paste from around aggregate by

either washing with water and scrubbing with a stiff bristle brush, wetting and scrubbing surface with acid etch solution, or sandblasting surface.

3.2.3 Cover concrete and continue curing procedures.

3.3 Slabs:

3.3.1 Allow concrete to cure until slab can be loaded without structural damage but, in no case, in less than 24 hours.

3.3.2 Uncover slab and remove surface cement paste from around aggregate, using methods described for the removal of paste from formed concrete.

3.3.3 Cover concrete and continue curing procedures.

3.4 Exposure: Do not expose more than 40 percent of aggregate surface.

3.5 Surface-Applied Aggregate:

3.5.1 Evenly distribute the aggregate on the prepared concrete surface.

3.5.2 Work aggregate into surface to form permanent bond.

3.5.3 Provide proper curing conditions for exposed aggregate surface.

Rusticated Concrete Finishes

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of rusticated concrete finishes. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Overlaid Plywood: DOC PS 1, B-B High Density Overlaid Concrete Form, Class I.

2.2 Plywood: DOC PS 1, B-B (Concrete Form) Plywood, Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection mark.

2.3 Chamfer Strips: Clear white pine with surface against concrete to be planed, metal, PVC, or rubber.

3.0 EXECUTION:

3.1 Form Construction: Forms shall be constructed to provide required sizes, shapes, lines, and dimensions and to provide continuous, straight, smooth exposed surfaces. Forms shall be fabricated for easy removal without hammering or prying against concrete surfaces. The number of joints shall be minimized. Joints shall be made watertight to prevent leakage of cement paste. Provisions shall be made for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, inserts, and other features required in the work.

3.2 Form Coatings: Forms shall be oiled with form-coating compounds that will not bond with, stain, nor adversely effect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

3.3 Finish: Fins and other projections shall be completely removed and smoothed. A smooth rubbed finish shall be provided not less than one day after form removal.•03353

Solid Board Concrete Finishes

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of solid board concrete finishes. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Overlaid Plywood: DOC PS 1, B-B High Density Overlaid Concrete Form, Class I.

2.2 Plywood: DOC PS 1, B-B (Concrete Form) Plywood, Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection mark.

2.3 Fiberboard: AHA A135.4, tempered, waterproof, screenback, concrete form hardboard.

3.0 EXECUTION:

3.1 Form Construction: Forms shall be constructed to provide required sizes, shapes, lines, and dimensions and to provide continuous, straight, smooth, exposed surfaces. The number of joints shall be minimized. Joints shall be made watertight to prevent leakage of cement paste.

3.2 Form Coatings: Forms shall be oiled with form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.
3.3 Finish: Fins and other projections shall be completely removed and smoothed. A smooth rubbed finish shall be provided not later than one day after form removal.

Flexural Concrete

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of flexural concrete. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Cement: ASTM C 150.
2.2 Fine and Coarse Aggregates: ASTM C 33.
2.3 Admixtures:
2.3.1 Air-Entraining Agents: ASTM C 260.
2.3.2 Retarders: ASTM C 494.
2.3.3 Pozzolans: ASTM C 618.
2.4 Mixture Proportions: The concrete shall possess the required 28-day flexural strength and shall be tested in accordance with ASTM C 293 and ASTM C 192.
3.0 EXECUTION:
3.1 Placing: Concrete shall be deposited in the forms or in front of slip-form pavers within 45 minutes from the time all ingredients are charged into the mixing drum. Concrete shall be deposited as close as possible to its final position. The placement of the concrete shall be continuous and at a uniform rate without unscheduled stops. Concrete shall be consolidated with mechanical vibrating equipment immediately after spreading.
3.2 Finishing operations shall be started immediately after placement of the concrete. Finishing shall be by the machine method except that, where directed, the hand method will be permitted on odd slab widths or shapes and in event of breakdown of the mechanical equipment to finish concrete. The sequence of operations shall be as follows: finishing, floating, straightedging, texturing or troweling, and, where directed, edging of joints.
3.3 Curing: Concrete shall be protected against loss of moisture and rapid temperature changes for at least 7 days from the beginning of the curing operation. Unhardened concrete shall be protected from rain and flowing water. Protection shall be provided as necessary to prevent cracking due to temperature changes during the curing period.

Specially Placed Concrete

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of pumped concrete. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Concrete pumps shall pump a minimum of 100 cubic yards of concrete per hour.
2.1.1 Piston Type: Pump shall draw alternately from a hopper into the discharge pipe by a piston, operated mechanically or hydraulically.
2.1.2 Pneumatic Type: Air pressure shall force the concrete into the discharge pipe.
2.1.3 "Squeeze" Type: Pump-powered rollers shall deform a concrete-filled flexible tube to push the concrete into the discharge pipe.
2.2 Discharge Lines:
a. 3- to 6-inch steel pipe.
b. 5-inch aluminum pipe with acceptable coating.
c. 4- to 5-inch rubber hose.

2.3 Hopper: 15 to 20 cu ft concrete capacity.
3.0 EXECUTION:
3.1 Slump loss shall be less than one inch while passing through the pumping system.
3.2 When concrete must be pumped long distance, a relay system shall be installed (one pump feeds into the hopper of another pump).
3.3 Placing concrete by pumping methods shall comply with ACI 304.2R.

Second-pour Concrete

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of second-pour concrete. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Second-pour concrete shall match the materials and mix used for first-pour concrete. Use of second-pour concrete shall be in pre-planned situations in which a small section of the first pour must be interrupted for purposes of expediting construction. Alternating- section pours of large slabs or walls shall not be considered first- or second-pour concrete. Second-pour concrete planning shall be approved by the Authorized Member Representative.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 All bulkheads and keyways used as limits of the first pour shall be removed and contact surfaces prepared to receive the second-pour concrete.
3.1.2 All forms, reinforcing, and embedments installed for the first pour that will be utilized in the second-pour shall be cleaned and prepared.
3.2 Erection:
3.2.1 All additional forms, reinforcing, and embedments required for the second-pour concrete shall be installed.
3.2.2 The second-pour concrete shall be placed in the manner specified for the first-pour concrete.
3.2.3 The curing procedures used for the first-pour concrete shall be used for the second-pour concrete unless otherwise directed or approved by the Authorized Member Representative.

Concrete Curing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for concrete curing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Impervious Sheet Materials: ASTM C 171.
2.2 Burlap: Fed. Spec. CCC-C-467.
2.3 Membrane-Forming Compound: ASTM C 309, Type I.
3.0 EXECUTION: Concrete shall be cured by protection against loss of moisture and rapid temperature change for a period of not less than 7 days for normal concrete or 3 days for high early strength concrete in accordance with ACI 301 procedures.
3.1 Absorptive cover shall be placed to provide coverage of concrete surfaces and edges, with 4-inch lap over adjacent absorptive covers.
3.2 Horizontal surfaces shall be cured by ponding, by covering with a 2-inch minimum thickness of continuously saturated sand, or by covering with polyethylene sheet, saturated burlap, or waterproof paper.
3.3 Formed surfaces shall be cured by moist curing with forms in place for full curing period. Wooden forms shall be kept wet at all times during curing.
3.4 Unformed surfaces, such as slabs and other flat surfaces, shall be cured by application of appropriate curing compound.
3.5 Membrane-curing compound shall not be applied where a protective coat or waterproofing is to be

expected.

Miscellaneous Precast Items

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of miscellaneous precast items. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Precast items shall include, but not be limited to, stairs, planters, picnic tables, including base, seats ant tops, handrails, splash blocks, and bumper curbs and shall be supplied by a manufacturer normally engaged in the fabrication of these items.
2.2 Fabrication: PCI MNL-117.
2.3 Each unit shall be complete and self-contained.
2.4 Items shall be fabricated from concrete with a minimum strength of 3,000 psi and shall be reinforced as required to withstand both construction loads and design loads.
2.5 Stairs shall be supplied in complete runs.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Provide anchors, devices, and openings required to install precast units.
3.1.2 Precast units shall be hoisted at points provided by the manufacturer and in manner that avoids damage to the units.
3.1.3 Temporarily brace precast units in proper position and alignment until permanent anchorage and supports are in place.
3.2 Erection:
3.2.1 Anchor units in final position by bolting, welding, grouting, or as otherwise directed. Remove temporary shims, wedges, and spacers as soon as possible after anchoring is completed.
3.2.1.1 At bolted connections, use lock washers or other acceptable means to prevent loosening of nuts.
3.2.1.2 At welded connections, apply rust-inhibitive coating on damaged areas, identical to shop-applied material. Use galvanizing repair coating on galvanized surfaces.
3.2.2 Cleaning: Clean exposed facings to remove dirt and stains that may be on units after erection and completion of joint treatments. Do not use cleaning materials or processes that could change the character of exposed concrete finishes.

Gypsum Concrete Decks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of gypsum concrete decks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Gypsum Concrete: ASTM C 317, Class A.
2.2 Formboards:
2.2.1 Sheetrock: ASTM C 36.
2.2.2 Mineral Fiber Board: ASTM C 612.
2.2.3 Cement Fiber Board: ASTM E 1264, Type IX, Fire Class A.
2.2.4 Glass Fiber Board: Lightweight, rigid, composed of pressed glass fibers.
2.3 Bulb Tees: Hot-rolled from high-strength rail steel, ASTM A 499.
2.4 Reinforcing Mesh:
2.4.1 Welded Wire Fabric: ASTM A 185, galvanized, 12 x 48-W O.5 x W O.5.
2.4.2 Woven Wire Fabric: ASTM A 82, galvanized, 19 gauge wire, 2-inch hexagonal mesh.
3.0 EXECUTION:
3.1 Support System: Sub-purlins shall be spaced to support formboard and rigidly attached to main supports. Formboards shall fit snugly at sub-purlins and at wall, curbs, and openings.

3.2 Reinforcement: Lay wire fabric continuously over subpurlins. Do not lap side of reinforcement.
3.3 Gypsum Concrete: Gypsum concrete shall be placed continuously without interruption until entire panel or section is complete. Immediately after placement, screed, level, and trowel smooth.

Insulating Concrete Roof Decks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of insulating concrete roof decks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Portland cement: ASTM C 150, Type I or III.
2.2 Aggregate: ASTM C 332, Type I, perlite or vermiculite.
2.3 Water: Clean, potable.
2.4 Admixture: Air-entraining, ASTM C 260.
2.5 Reinforcement: Welded wire fabric, ASTM A 185, galvanized, 12 x 48 - W 0.5 x W 0.5.
3.0 EXECUTION:
3.1 Reinforcing Mesh: Place reinforcing mesh at right angles to structural supports, with end laps at least 6 inches and no side laps. Cut to fit around roof openings and projections. Terminate mesh at control joints.
3.2 Place lightweight insulating concrete, using equipment and procedures to avoid segregation of mix and loss of air content. Deposit and screed in a continuous operation until an entire panel or section of roof area is completed. Do not vibrate or work mix except for screeding or floating. Leave top surface in acceptable condition to receive subsequent roofing application.
3.3 Begin Curing Operations immediately after placement, and air cure for not less than 3 days.

Precast Lightweight Roof Slabs

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of precast lightweight roof deck concrete channels, concrete planks, and gypsum planks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Channel Slabs: Slabs shall be composed of Portland cement and lightweight aggregate with minimum compressive strength 3,750 psi. Legs shall be reinforced with deformed bars; web shall have welded wire fabric reinforcement. Channels shall support a 30 psf live load plus a 20 psf superimposed dead load.
2.2 Planks: Planks shall be composed of Portland cement and lightweight aggregate with a minimum compressive strength of 3,750 psi. Planks shall be reinforced with welded wire fabric. Planks shall support a 30 psf live load plus a 20 psf superimposed dead load.
2.3 Gypsum planks shall be suitable for the intended use, factory-laminated to 2-inch thickness, 2-foot wide panels. Planks shall be continuously supported along sides.
2.4 Subpurlins shall be bulb-tees, hot-rolled from high-strength rail steel, ASTM A 499.
2.5 Grout shall be lightweight concrete or gypsum concrete.
3.0 EXECUTION:
3.1 Concrete channels and planks shall be securely attached to support steel or concrete by metal clips or other approved attachments; minimum support bearing shall be 4 inches. Open joints between channels or planks shall be filled with lightweight concrete grout. Planks with tongue and groove edges may not require grouting.
3.2 Gypsum planks shall be snugly fitted between bulb-tee subpurlins. Subpurlins shall be tack-welded or screw-attached to supporting steel or weld bar cast in supporting concrete. Joints at bulb-tees shall be grouted with gypsum grout.

Cementitious Wood Fiber Roof Deck Systems

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of cementitious wood fiberboard and tees for roof decks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Cementitious wood fiber planks shall be precast units composed of extra long wood fiber pressure bonded with Portland cement. Plank edges shall be either tongue and groove or rabbeted to receive bulb-tee subpurlins.

2.2 Bulb-Tees: Hot-rolled from high-strength rail steel, ASTM A 499.

2.3 Grout: Lightweight concrete.

3.0 EXECUTION:

3.1 Subpurlin System: Planks shall be fitted between bulb-tees. Bulb-tees shall be securely fastened to supporting members. Spaces between planks at subpurlins shall be filled with lightweight concrete grout. Systems of planks and subpurlins shall support a 30 psf live load and a 10 psf superimposed dead load.

3.2 Tongue and Groove System: Planks shall be erected directly on supporting members and securely attached with metal clips or other approved fasteners. The tongue and groove of both ends and sides of plank shall be snugly fitted to eliminate open cracks.

Grout

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of grout for bases and joints. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Premixed grout shall contain cement, sand, and admixtures to produce a non-shrinking grout with the addition of potable water. Expansion shall be limited to 0.10 percent at 28 days.

2.1.1 Metallic grout shall be non-rusting, containing finely graded metallic aggregate with a compressive strength of 12,000 psi at 28 days.

2.1.2 Non-metallic grout shall have a compressive strength of 13,000 psi at 28 days.

2.1.3 Fluid grout shall be a non-metallic grout with flowable consistency.

2.2.4 Field-Mixed Grout: Grout shall contain 1 part cement to 3 parts sand by volume, with the water content such that a mass of mortar tightly squeezed in the hand will retain its shape but will crumble when disturbed.

3.0 EXECUTION:

3.1 Baseplates shall be grouted with non-shrinking grout. Grout shall be placed so that all spaces and cavities below the top of base plates are completely filled without voids. Forms shall be provided where structural components of base plates will not confine the nonshrinking grout.

3.2 Joints shall be filled with field-mixed grout by tamping or ramming with a bar or rod until the joint is completely filled. Grout surface shall be smooth-finished and level with the adjoining material.

Concrete Restoration and Cleaning

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of concrete. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Epoxy Resin: Two-part epoxy adhesive containing 100 percent solids.

2.1.1 Bond Strength: ASTM C 882, 2,700 psi.

2.1.2 Tensile Strength: ASTM D 638, 6,600 psi.

2.1.3 Elongation: ASTM D 638, two percent.
2.1.4 Flexural Strength: ASTM D 790, 8,000 psi.
2.1.5 Compressive Strength: ASTM D 695, 10,000 psi.
2.2 Bonding Agent: Polyvinyl acetate emulsion, water-resistant when applied and cured.
2.3 Concrete:
2.3.1 Portland cement: ASTM C 150.
2.3.2 Sand: ASTM C 33.
2.3.3 Coarse Aggregate: ASTM C 33.
2.3.4 Water: Clean and potable.
2.3.5 Air-Entraining Admixture: ASTM C 260.
2.3.6 Water-Reducing and Retarding Admixture: ASTM C 494.
2.4 Cleaning Agent: Commercial muriatic acid, mixed one part to ten parts potable water.•03705
2.5 Reinforcing Steel: ASTM A 615, Grade 40 or 60.
3.0 EXECUTION:
3.1 Cleaning:
3.1.1 Clean concrete surfaces of dirt, laitance, corrosion, oil, stains, or other contamination. Surface cleaning shall be accomplished by one or more of the following methods as appropriate for the contamination: wire brush using plain water or acid, sandblasting, high pressure steam cleaning with or without chemical additives, high pressure water, high pressure air, or scrub brush and detergent. When acids or chemicals are used, surface shall be thoroughly rinsed and neutralized. Care shall be taken when sandblasting to not etch the surface.
3.1.2 Deteriorated or Spalled Concrete:
3.1.2.1 Completely remove all loose, deteriorated, or unsound concrete down to sound concrete.
3.1.2.2 Where removal Exceeds 1/4 inch or where resurfacing of the entire area is not anticipated, concrete shall be removed to a minimum depth of 2 inches. If cover for reinforcing bars is 2 inches or less, remove concrete to completely expose the reinforcing in the repair area. Remove concrete to a minimum of 1 1/2-inches clear beyond reinforcing. Edges of the repair area shall be cut sharp, perpendicular to the face of the concrete surface, and at least 1 inch deep. Make the perimeter cut with a concrete saw and in a manner to not cut the reinforcing. Clean reinforcing of all rust and scale. Clean repair area of all loose or foreign material using high pressure air or water.
3.2 Resurfacing:
3.2.1 Resurfacing for concrete floors shall be with either epoxy coating or cementitious materials.
3.2.1.1 Epoxy resurfacing shall be applied to a clean hard surface to a minimum thickness of 1/8 inch.
3.2.1.2 Cementitious material resurfacing shall be a minimum of 1 inch thick. Mix shall be one part Portland cement, one part sand, and 1-1/2 parts coarse gravel not exceeding 3/8-inch size crushed rock. Apply bonding compound and immediately place new surfacing. Curing shall be by burlap blanket method. Blankets shall be kept thoroughly saturated and in intimate contact with the concrete.
3.2.2 Resurfacing of Columns: Resurfacing of spalled or deteriorated column surfaces shall be with epoxy grout prepared with the addition of sand to epoxy resin to obtain a mix consistency that will not sag when placed in thin layers on vertical surfaces. Trowel finish.
3.3 Concrete Rehabilitation:
3.3.1 Concrete Patching:
3.3.1.1 Surface shall be prepared as specified for deteriorated concrete cleaning.
3.3.1.2 Any existing reinforcing bars that have a loss of more than 25 percent of their cross section through corrosion shall be replaced. Clean reinforcing bars by sandblasting or wire brushing.
3.3.1.3 Patch with Portland cement concrete if average patch thickness is 2 inches or greater; if less than 2 inches, patch with epoxy grout. Use bonding compound when placing Portland cement concrete patch.
3.3.2 Crack Repair:
3.3.2.1 Epoxy Resin Adhesive Injection: Provide temporary surface seal on crack with entry ports spaced equal to the approximate thickness of the concrete. Inject adhesive into ports under pressure. Continue from port to port until crack is filled, working from bottom to top. Remove temporary seal and clean surface.

3.3.2.2 Epoxy Grout: The crack shall be cut out at the surface in a V-shape that extends to approximately 2 to 3 inches in width. Thoroughly blow out crack with high pressure air and wet with clean water. Completely fill the crack beyond the V-shaped portion with epoxy grout. The mix shall be thin enough to run freely into the crack for horizontal surfaces. Vertical cracks shall require a stiff mix tamped into place to fill all voids. Trowel finish.

Bridge Piers, Abutments and Anchors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and maintenance of bridge piers, piles, cassions footings, abutments, and anchors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Treated Timber Piles: Comply with the state's standard specifications.
2.2 Steel H-Piles: ASTM A 36.
2.3 Steel Pipe Piles: ASTM A 252, Grade 1.
2.4 Precast Reinforced Concrete Piles: Comply with the state's standard specifications.
2.5 Precast Prestressed Concrete Piles: Comply with the state's standard specifications.
2.6 Steel Sheet Piling: ASTM A 328.
2.7 Wales, Plate Washers, and Tie Rods: ASTM A 36.
2.8 High Strength Steel Bolts, Nuts, and Washers: ASTM A 325.
2.9 Electrodes: AWS A5.1 or AWS A5.5.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Traffic Control: When traffic is maintained on bridge under repair or is directed over a temporary run-around, furnish, erect, and maintain all barricades, flags, torches, lights, guardrails, temporary pavement markings, and traffic control signs required for the protection of the public and for the direction of traffic. Number, type, color, size, and placement of all traffic control devices and the use of a flagman shall comply with USDOT FHA MUTCD "Traffic Controls for Highway Construction and Maintenance Operations." All traffic control devices in advance of the construction limits shall also be the responsibility of the Contractor.
3.1.2 Clearing and Dewatering: Scalp the area around timber pile bents and abutments. Remove from the vicinity all weeds and bushes as necessary to eliminate fire hazards. Keep work areas clear of water by using cofferdams, diversion channels, or other approved methods. Submit details of methods to be used to the Authorized Member Representative for approval prior to beginning work.
3.2 Maintenance and Repair Methods:
3.2.1 General: Preparation for pile driving, penetration of piles, tolerance in driving, splicing of piles, cut-offs, determination of bearing values, treatment of pile heads, and test piles shall comply with the state's standard specifications and these specifications. Drive new pile in the location and batter as directed. Pile shall not be pulled into location after driving.
3.2.2 Existing Timber Piles: Replace or repair decayed portions of piles as directed.
3.2.3 Existing Steel Piles: Remove corroded material by sandblasting or wire brushing. Strengthen the web and flanges of the corroded section by the addition of structural carbon steel or high strength steel and encase the piles in Class A concrete.
3.2.4 Caissons and Piers: Construct new caissons and piers in compliance with the Recommended Specifications of the Association of Drilled Shaft Contractors, Inc.
3.2.5 Footings: Repair spalling and rounding off of side spaces, transverse cracks, and deteriorated concrete as directed. Install additional reinforcing and drilled anchors where required. Provide formwork as required to restore concrete to its original shape to the extent practicable. New concrete shall cure at least 3 days prior to removal of forms and restoration of the stream channel to its proper course.
3.2.6 Concrete Abutments, Pile Bents, Walls, and Piers: Repair spalling, scaling, and pop-outs as directed. Remove concrete to a depth of 1-1/2 inches minimum clear distance behind the layer of reinforcing. Install additional reinforcing and drilled anchor rods as required. Replace concrete as

described above for footings.

3.2.7 Bearing Seats: Remove all debris from around bearings and bearing seats. Widen bearing seat and repair spalling, scaling, and pop-outs as directed. New concrete that will be in direct contact with a bearing shall be 4,000 psi concrete with 4 to 6 percent entrained air and 4 inch maximum slump if patch thickness is greater than 4 inches or non-shrink grout if patch thickness is less than 4 inches.

3.2.8 Steel Piers, Pile Abutments, Walls, and Pile Bents: Remove corroded material by sandblasting or wire brushing. Strengthen plates and shapes of corroded sections by the addition of structural carbon steel or high strength steel. Reweld or bolt loose connections as directed. Remove and replace loose bolts or rivets.

3.2.9 Repair of Displaced Sheet Pile: Remove displaced sheet pile and drive new pile in position of the original pile before it became displaced. Remove and replace deteriorated backing material. Backing material shall be approved by the Authorized Member Representative. Where directed, drive new sheet piling and add backing material in the void between old and new sheet piling.

3.2.10 Anchorage System: Repair tie rods and deadmen as directed.

Concrete Bridge Components

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of concrete bridge components. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Portland cement: ASTM C 150, Type I or Type III.

2.2 Air-entraining Admixtures: ASTM C 260.

2.3 Water-Reducing and Retarding Admixtures: ASTM C 494.

2.4 Water: Potable water, free from injurious amounts of oil, acid, salt, alkali, organic matter, or other deleterious substances.

2.5 Aggregate: ASTM C 33.

2.6 Concrete Curing Materials:

2.6.1 Membrane Curing Compound: Comply with ASTM C 309, Type I. Curing compound shall not be used where bituminous concrete surfaces will be added unless certified not to affect adherence of the surface.

2.6.2 Vapor Barrier: A .004-inch thick polyethylene film complying with ASTM C 171.

2.6.3 Burlap: Fed. Spec. CCC-C-467.

2.7 Reinforcement:

2.7.1 Reinforcement Bars: ASTM A 615, Grade 40 or 60.

2.7.2 Welded Wire Fabric: ASTM A 185 for plain fabric; ASTM A 496 for deformed wire fabric.

2.7.3 Accessories: Comply with CRSI "Manual of Standard Practice of Reinforced Concrete Construction."

2.7.4 Prestressing Steel Strand: ASTM A 416, Grade 250.

2.8 Formwork:

2.8.1 Form Ties: Watersealing snap-in type with a minimum working strength of 3,000 psi.

2.8.2 Plywood for Forms and Liners: DOC PS 1, minimum grade B-B High Density Concrete Form Overlay, Class I.

2.8.3 Formwork Lumber: Straight and clean. All nails shall be withdrawn and surfaces in contact with concrete shall be thoroughly cleaned before reuse.

2.9 Epoxy Bonding Compound: A 100 percent solids, moisture insensitive, epoxy resin system complying with Fed. Spec. FF-G-450.

2.10 Concrete Sealer: A colorless liquid complying with Fed. Spec. TT-C-800.

2.11 Poured Joint Sealers:

2.11.1 Cold-Poured Joint Sealer: CE CRD-C-527.

2.11.2 Hot-Poured Joint Sealer: AASHTO M173.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 General: Provide scaffolding, falsework, and cofferdams as required for access to the work.

3.1.2 Traffic Control: When traffic is maintained on bridge under repair or is directed over a temporary run-around, furnish, erect, and maintain all temporary pavement markings and traffic control signs required for the protection of the public and for the direction of traffic. Number, type, color, size, and placement of all traffic control devices and the use of a flagman shall comply with USDOT FHA MUTCD "Traffic Controls for Highway Construction and Maintenance Operations." All traffic control devices in advance of the construction limits shall also be the responsibility of the Contractor.

3.1.3 Formwork: ACI 347 and ACI 318. Use plywood or metal forms for exposed surfaces. All exposed external corners of concrete shall be chamfered.

3.1.4 Reinforcement:

3.1.4.1 Fabrication: ACI 315 and ACI 318.

3.1.4.2 Cover: Concrete protection for reinforcement shall comply with AASHTO Standard Specifications for Highway Bridges, Section 1.5.6.

3.1.5 Concrete Mixtures:

3.1.5.1 General: The proportions of cement, aggregate, and water shall be selected by the Contractor in compliance with ACI 318 to provide a plastic and workable mix. Concrete shall be mixed in compliance with ASTM C 94. Concrete not otherwise indicated shall be Class A Concrete. Final mix proportions shall be subject to the approval of the Authorized Member Representative.

3.1.5.2 Class A concrete shall have a strength of 4,000 psi after 28 days and a maximum slump of 4 inches. Concrete shall contain 7 bags cement per cubic yard and 4 to 6 percent entrained air by volume.

3.1.5.3 Class B concrete shall have a strength of 4,000 psi after 28 days, contain 8 bags of cement per cubic yard, and have a maximum slump of 4 inches. Concrete shall be 3/8 inch maximum aggregate size and contain 6 to 9 percent entrained air by volume.

3.1.5.4 Class C concrete shall have a strength of 4,000 psi after 28 days, contain 8 bags of cement per cubic yard, and have a maximum slump of 4 inches. Concrete shall be 1-1/2 inch maximum aggregate size and contain 6 to 9 percent entrained air by volume.

3.1.5.5 Patching mortar shall be a mix of 1 part cement and 2 parts fine aggregate.

3.1.5.6 Grout for bonding new concrete to old shall consist of equal parts by weight of Portland cement and sand, mixed with sufficient water to form a stiff slurry.

3.1.5.7 Non-shrink grout shall have a strength of 9,000 psi after 28 days. Mixtures to be placed in excess of 1 inch thick may include 3/8 inch pea gravel.

3.2 Installation:

3.2.1 Placing Concrete:

3.2.1.1 Deposit concrete as close as practicable to its final position to avoid segregation of materials. Do not retemper or remix concrete that has reached its initial set.

3.2.1.2 Under Water: All concrete deposited under water shall be mixed in the proportions specified except that 10 percent additional cement shall be used in the mix. Concrete deposited under water shall be placed in still water and shall be carefully placed in its final position by means of a tremie and shall not be disturbed after being deposited. The tremie shall consist of a 10 inch or larger watertight tube. The discharge end shall be kept below the top of the deposited concrete until the batch is discharged. The flow shall be continuous and in no case shall be interrupted until the work is complete.

3.2.2 Consolidating Concrete: Where practicable, thoroughly compact concrete with internal vibrators having a frequency of 8,000 vibrations per minute. Do not laterally move concrete with the vibrator. Where vibrators cannot be used, hand spade or rod concrete. Do not vibrate concrete placed under water.

3.2.3 Protection and Curing: Concrete shall be cured for not less than 7 days for normal concrete or 3 days for high early strength concrete. Comply with ACI 305 and ACI 306 for protecting and curing concrete in hot and cold weather.

3.2.4 Tests:

3.2.4.1 Compressive Strength: Secure two specimens for each day's pour in compliance with ASTM C 172. Laboratory cure the specimens in compliance with ASTM C 31. Make compressive strength tests at the ages of 7 and 28 days in compliance with ASTM C 39.

3.2.4.2 Slump Tests: Make two slump tests each day. Tests shall comply with ASTM C 143.

3.2.4.3 Air Entrainment Tests: Make two air entrainment tests each day. Tests shall comply with ASTM C 231.

3.3 Maintenance and Repair Methods:

3.3.1 Repair of Deteriorated Concrete:

3.3.1.1 Remove deteriorated or unsound concrete down to sound concrete and to a minimum depth of 2 inches. If cover for reinforcing bars is 2 inches or less, remove concrete to completely expose the reinforcing in the repair area. Remove concrete to a minimum of 1-1/2 inches clear beyond reinforcing. Edges of the repair area shall be cut sharp, perpendicular to the face of the concrete surface, and at least 1 inch deep. Clean reinforcing of all rust and scale. Clean repair area of all loose or foreign material.

3.3.1.2 Formwork shall be of such size and shape to restore the original lines of the structure. If jacketing is used for repair of deteriorated columns, piers, or piling, jacket forms shall be held in position by spacers and bands.

3.3.1.3 Provide bonding coat of either epoxy-resin or Portland cement mortar bonding course.

3.3.1.4 Patch with Class A concrete if average patch thickness is 4 inches or greater; use Class B concrete if average patch thickness is less than 4 inches.

3.3.2 Repair of Transverse Cracks: Cut the crack in the shape of a "V" at the surface to approximately 2 to 3 inches wide. Completely fill the crack beyond the V-shaped portion with an epoxy bonding compound or epoxy grout. Apply epoxy bonding compound to the V-shaped portion of the crack and fill with a stiff mix of patching mortar.

3.3.3 Patching PCC Bridge Deck:

3.3.3.1 Saw cut along all areas to be patched not bounded by existing joints. Cuts shall be vertical and at right angles to the pavement. Make cuts to a depth of 3/4 inch or the top of reinforcing, whichever is less.

3.3.3.2 Completely remove loose and unsound concrete in the patch area. In no case remove less than 3/4 inch. Exercise care to prevent injury to load transmission devices, tie bars, or adjacent concrete to remain in place.

3.3.3.3 Reinforcing: All existing reinforcement bars shall remain in place except any existing reinforcing bars that have a loss of more than 25 percent of their cross section through corrosion shall be replaced.

3.3.3.4 Provide bonding coat of either epoxy-resin or Portland cement grout bonding course to all surfaces of existing concrete is to be in contact with new concrete.

3.3.3.5 After the grout bonding course has been applied, place Class B concrete in patches less than 2 inches deep and Class C concrete in patches 2 inches or deeper. Consolidate concrete. Finish the concrete to the elevation of the adjacent surface. The surface of the new concrete shall be broomed to produce a light, corrugated texture.

3.3.3.6 Cure the concrete by the burlap blanket method, AASHTO M182. Do not apply a waterproofing membrane or overlay until concrete has been allowed to dry 3 days after completion of curing.

3.3.4 Sealing Cracks and Joints in PCC Bridge Deck: Remove excess existing bituminous sealer, dirt, stones, or other foreign matter from the concrete surface along cracks and joints. The sealing material shall be placed so that joints are completely filled from the bottom to top. Place sufficient compound in the joint so that the compound will be flush with the surface of the adjacent surfacing upon completion of the pouring operation. Dust the sealant lightly with Portland cement, finely pulverized limestone dust, pulverized calcium carbonate, calcium silicate, or other finely divided inert material or cover with a tape that will adhere to the concrete.

DIVISION 4-MASONRY

Unit Masonry

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of facing brick, concrete block, glazed concrete unit masonry, sound-absorbing unit masonry, clay wall tile, sound-absorbing structural glazed tile, glass unit masonry, and vitrified clay flue liners. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations.

Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Facing Brick:

2.1.1 Facing brick units shall be of standard size, texture, and color and shall conform to ASTM C 216, Grade SW.

2.1.2 Glazed brick units shall be of standard size and color and shall conform to ASTM C 216, Grade S.

2.2 Concrete Block:

2.2.1 Solid Load-Bearing Concrete Block: ASTM C 145.

2.2.2 Hollow Load-Bearing Concrete Block: ASTM C 90.

2.2.3 Nonload-Bearing Concrete Block: ASTM C 129, Type I.

2.2.4 Patterned concrete block: compatible with existing in dimension and appearance.

2.2.5 Architectural or decorative concrete block: split face units shall be hollow concrete masonry units conforming to the applicable requirements of ASTM C90. Color, pattern, and texture shall be compatible with existing or as selected by the Authorized Member Representative.

2.3 Glazed Concrete Unit Masonry:

2.3.1 Factory-applied, pre-faced, concrete masonry units shall be of standard shapes and sizes conforming to ASTM C 90, Grade N or Type 1.

2.3.2 Facing components shall conform to ASTM C 744.

2.3.3 Units shall be smooth and colored with satin gloss finish.

2.4 Sound-Absorbing Unit Masonry:

2.4.1 Sound-absorbing masonry units shall be of standard shapes and sizes conforming to ASTM C 90 or ASTM C 129, as applicable.

2.4.2 Slots in the masonry unit cavities shall be narrow slots in empty cavities or wide slots with fibrous fillers in cavities, as applicable, for desired sound transmission absorption.

2.4.3 Prefinished units shall have ground-face or glazed surface.

2.5 Clay Wall Tile:

2.5.1 Load-Bearing Wall Tile hollow units shall be of standard shapes and sizes conforming to ASTM C 34, Grade LB or LBX.

2.5.2 Nonload-bearing wall tile shall be of standard shapes and sizes conforming to ASTM C 56, Grade NB.

2.5.3 Clay wall tile color shall conform to ASTM C 212 or ASTM C 126.

2.5.4 Plaster base Finish shall conform to ASTM C 34 and ASTM C 56.

2.6 Sound-Absorbing Structural Glazed Tile: Sound-absorbing tile units shall be of standard shapes and sizes conforming to ASTM C 212 or ASTM C 126. The required Sound Transmission Class (STC) shall be in accordance with ASTM E 90.

2.7 Glass Unit Masonry:

2.7.1 Glass block hollow units shall be classified for 3/4 hour of fire exposure in accordance with UL Fire Exposure Classification 9 (UL-9): "Fire Test for Window Assemblies."

2.7.2 Insulation R-values for the following unit face sizes shall be: 6 inches by 6 inches equals R-2; 8 inches by 8 inches equals R-1.96; and 12 inches by 12 inches equals R-1.92.

2.7.3 Unit face pattern shall be of a standard design to provide desired light transmission, brightness, and privacy.

2.7.4 Mortar shall be Type S in accordance with ANSI A41.1 and ASTM C 270.

2.8 Refractories: Vitrified clay flue lining shall be rectangular, round, or modular, of standard sizes, and shall conform to ASTM C 315.

2.9 Mortar Materials and Mixing:

2.9.1 Hydrated Lime: ASTM C 207, Type S or N.

2.9.2 Admixtures: Fed. Spec. SS-C-1960/1 and consisting of water-repellant stearates and pozzolanic plasticizers in powder form.

2.9.3 Portland cement shall comply with ASTM C 150, Type I or II. Masonry cement shall comply with ASTM C 91.

2.9.4 Coarse aggregate for masonry grout shall comply with ASTM C 404. Do not use aggregate containing any substance that will stain masonry.

2.9.5 Sand shall comply with ASTM C 144 or ASTM C 33, paragraph 3.1.

2.9.6 Mortar shall comply with ASTM C 270 and in the proportions, measured in parts by volume, as required for the application.
2.10 Masonry Accessories:
2.10.1 Reinforcement bars for lintels, bond beams, pilasters, and other masonry reinforcement shall comply with ASTM A 615, Grade 40.
2.10.2 Joint reinforcement shall be prefabricated from zinc-coated cold drawn steel wire complying with ASTM A 641, Class 2 or 3 coating. Side wires shall be 8-gauge deformed wire; truss rods shall be 9-gauge smooth or deformed wire. 2.10.3 Wire-Mesh Ties shall be 16-gauge or larger diameter, zinc-coated steel wire woven into 1/2-inch mesh and cut into strips 1 inch narrower than the width of walls in which they are used. Zinc-coated wire shall comply with ASTM A 641, Class 2 or 3 coating.
2.10.4 Rigid steel anchors shall be a minimum of 1 inch x 1/4 inch x 26 inches long with each end turned up not less than 2 inches. Anchors shall be zinc-coated complying with ASTM A 123.
2.10.5 Seals and gaskets for control and expansion joint shall be of closed cell natural or synthetic rubber.
2.11 Water-repellent materials for concrete block shall be solvent type silicone complying with Fed. Spec. SS-W-110; transparent, nonstaining, 5 percent silicone resin.
3.0 EXECUTION:
3.1 Water repellent application shall be spray or brush in a single coat, using not less than one gallon for each 80 square feet covered. A flood coating with a rundown of material on the surface of from 6 inches to one foot shall be produced.

Scaffolding - Tubular Steel

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of tubular steel scaffolding. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Tubular steel or aluminum scaffolding system shall comply with OSHA Safety and Health Standards, Section 29 CFR, 1926/1910.
3.0 EXECUTION: (Section not used.)

Brickwork

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of brickwork. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Face Brick: Compatible with existing in mechanical characteristics, permeability, and appearance and shall comply with ASTM C 216.
2.2 Common Brick: Compatible with existing in mechanical characteristics, permeability, and appearance and shall comply with ASTM C 62.
2.3 Concrete Brick: ASTM C 55.
2.4 Mortar Materials and Mixing:
2.4.1 Hydrated Lime: ASTM C 207, Type S or N.
2.4.2 Admixtures: Fed. Spec. SS-C-1960/1 and consisting of water-repellent stearates and pozzolanic plasticizers in powder form.
2.4.3 Portland cement shall comply with ASTM C 150, Type I or II. Masonry cement shall comply with ASTM C 91.
2.4.4 Coarse aggregate for masonry-grout shall comply with ASTM C 404. Do not use aggregate containing any substance that will stain masonry.
2.4.5 Sand shall comply with ASTM C 144.
2.4.6 Colored masonry cement shall be a factory formulated mixture complying with Fed. Spec. SS-C-1960/1.
2.4.7 Mortar shall comply with ASTM C 270 and in the proportions, measured in parts by volume, as

required for the application.

2.5 Masonry Accessories:

2.5.1 Reinforcement bars for lintels, bond beams, pilasters, and other masonry reinforcement shall comply with ASTM A 615, Grade 40.

2.5.2 Joint reinforcement shall be prefabricated from zinc-coated, cold drawn steel wire complying with ASTM A 641, Class 2 or 3 coating. Side wires shall be 8-gauge deformed wire; truss rods shall be 9-gauge smooth or deformed wire.

2.5.3 Wire-mesh ties shall be 16-gauge or larger diameter, zinc-coated steel wire woven into 1/2-inch mesh and cut into strips 1 inch narrower than the width of walls in which they are used. Zinc-coated wire shall comply with ASTM A 641, Class 2 or 3 coating.

2.5.4 Rigid steel anchors shall be a minimum of 1 inch x 1/4 inch x 26 inches long with each end turned up not less than 2 inches. Anchors shall be zinc-coated complying with ASTM A 615, Class 2 or 3.

2.5.5 Seals and gaskets for control and expansion joint shall be of closed cell natural or synthetic rubber.

2.5.6 Nylon Rope for weep holes shall be 3/8 inch diameter by 12 inches long.

2.5.7 Wire brick ties shall be fabricated from 3/16-inch diameter zinc-coated steel wire conforming to ASTM A 641, Class 2 or 3 coating. Ties shall be at least 4 inches wide and embedded 4 inches into backup material.

2.6 Flashing:

2.6.1 Through-wall flashing shall be one of the following:

2.6.1.1 Five-ounce copper sheet shall comply with ASTM B 370, cold-rolled temper, coated both sides with a factory-applied elastic asphalt compound complying with ASTM D 449.

2.6.1.2 Ten-ounce rib-formed copper sheet shall comply with ASTM B 370, cold-rolled temper, with ribs approximately 3/16-inch high and spaced not more than 3 inches apart.

2.6.1.3 Rib-formed 32-gauge, Type 302 or 304 stainless steel sheet shall comply with ASTM A 167. Deformations shall be approximately 3/16 inch high and shall be spaced not more than 3 inches apart.

2.6.2 Flashing beneath coping stone shall be one of the following:

2.6.2.1 Stainless steel sheet shall comply with ASTM A 167, Type 302 or 304, finish No. 2P, dull, 26-gauge.

2.6.2.2 Copper sheet shall comply with ASTM B 370, cold-rolled temper, 16-ounce per square foot.

2.6.2.3 Aluminum-sheet shall comply with ASTM B 209, alloy 3003, temper H-14, .032 inch thick.

2.6.2.4 Galvanized steel Sheet, 26-gauge, shall comply with ASTM A 527, and coating shall comply with ASTM A 525, designation G90.

2.7 Caulking and sealants shall comply with Fed. Spec. TT-S-00227, Type II, Class A or Fed. Spec. TT-S-00230, Type II, Class A.

2.7.1 Backup material for sealants shall be closed-cell resilient urethane or polyvinyl-chloride foam, closed-cell polyethylene foam, closed-cell sponge of vinyl or rubber, polychloroprene tubes or beads, polyisobutylene extrusions, oilless dry jute, or rope yarn.

2.7.2 Bond preventative material shall be pressure sensitive polyethylene tape, aluminum foil, or wax paper.

2.8 Water-repellent materials for facing brick masonry shall be solvent type silicone complying with Fed. Spec. SS-W-110; transparent, nonstaining, 5 percent silicone resin.

3.0 EXECUTION:

3.1 Brick shall be laid with completely filled mortar joints in line with and of equal width to existing jointing.

3.2 3/8-inch nylon weep rope, 24 inches apart, shall be provided in the head mortar in the first course above the top of steel lintels, shelf angles, and ledge supports and where flashings and waterproofing terminate in horizontal joints. 3.3 Water Repellent Application shall be spray or brush in a single coat, using not less than one gallon for each 100 square feet covered. A flood coating with a rundown of material on the surface of from 6 inches to one foot shall be produced.

Exposed Aggregate Surface Concrete Walls

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of exposed aggregate surface concrete walls. Products shall match existing materials and/or shall be as

directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:
2.1 Concrete Materials and Mixing:
2.1.1 Portland cement: ASTM C 150, Type I or IA.
2.1.2 Shrinkage-Compensating Cement: Portland cement containing a stable expansive chemical compound such as calcium sulfoaluminate.
2.1.3 Aggregate: ASTM C 33; aggregate for exposed aggregate concrete shall match existing, if appropriate.
2.1.4 Admixtures: Submit manufacturer's literature for all fixtures proposed for the work.
2.1.5 Curing Compounds: ASTM C 309, Type 1.
2.1.6 Epoxy Bonding Agent: ASTM C 932.
2.2 Concrete Formwork, Reinforcement, and Accessories:
2.2.1 Formwork: plywood form and liners shall be minimum grade B-B High Density Concrete Form Overlay, Class I, complying with APA.
2.2.2 Reinforcement:
2.2.2.1 Reinforcement Bars: ASTM A 615, Grade 40 or Grade 60.
2.2.2.2 Welded Wire Fabric: ASTM A 185. Where welded wire fabric is needed, use No. 6 gauge wire at 6-inch spacing in each direction.
2.2.2.3 Accessories for proper installation of reinforcement shall comply with CRSI "Manual of Standard Practice for Reinforced Concrete Construction."
2.2.2.4 Reinforcement fabrication shall comply with ACI 318 and ACI 315.
2.3 Curing and Climatic Conditions:
2.3.1 Comply with ACI 306 and ACI 305 for protecting and curing concrete in cold and hot weather.
2.3.2 Immediately after finishing, begin curing slatwork by covering with constantly saturated moisture retaining fabrics, impervious sheeting, or membrane curing compounds.
2.3.3 Apply membrane curing compounds as required.
3.0 EXECUTION:
3.1 Preparation when attaching to existing surfaces:
3.1.1 Remove all defective material by chipping and cutting to sound concrete in order to secure a solid foundation.
3.1.2 Square cut or undercut the edges to a minimum depth of one inch to form a key.
3.1.3 Cut concrete out from behind exposed reinforcing bars and rods.
3.1.4 All exposed reinforcing shall be cleaned of rust and primed.
3.2 Installation:
3.2.1 Formwork Requirements:
3.2.1.1 Formwork shall comply with ACI 347. Joints in forms shall be horizontal or vertical.
3.2.1.2 Use plywood, fiberglass, or metal forms.
3.2.2 Reinforcement shall be repaired when rusted through. Rods at least 12 inches long shall be wired to the failed rods. In closing gaps, rods shall lap existing rods by at least 12 inches or 30 diameters, whichever is greater.
3.2.3 Mixing and Transporting Concrete: Ready-mixed concrete shall be mixed and delivered to the project in compliance with ASTM C 94. Job-mixed concrete shall comply with the requirements of ACI 318.
3.2.4 Mixing Epoxy-Resin Patching Mortar: Mix thoroughly with a power mixer at low speeds (150 - 400 rpm) until material attains uniform color and consistency (minimum time of two to three minutes at 70 F).

Terra Cotta

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of terra cotta. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:
2.1 Terra Cotta: Hard-burned, nonload-bearing clay building units.
2.2 Material for Setting Terra Cotta:
2.2.1 Cement shall be Portland cement complying with ASTM C 150, Type I or Type IA.
2.2.2 Sand for mortar shall be tested in compliance with ASTM C 40 and C 117. Sand shall have a fineness modulus between 2.0 and 2.5.
2.2.3 Lime shall comply with ASTM C 5.
2.2.4 Hydrated lime, if allowed, shall comply with ASTM C 206.
2.3 Mortar for the resetting of terra cotta shall be composed of one part Portland cement, 3 1/2 parts sand, and 1/2 part lime putty by volume.
3.0 EXECUTION:
3.1 Restoration of Terra Cotta Surface:
3.1.1 Remove all loose chips or flaking pieces from the surface. Cut mortar out of all joints to a depth of 3/8 inch from the face of the terra cotta.
3.1.2 Build up voids and Irregularities in the surface using successive coats of an epoxy caulk consisting of a 2-component 100 percent flexible-cured, thixotropic epoxy suitable for vertical surfaces.
3.1.3 Give all patched surfaces of the terra cotta two coats of an epoxy glaze consisting of 2-component, 100 percent epoxy, high-solids content, flexible cured, interior-exterior, high-gloss glaze.
3.2 Replacement of Terra Cotta:
3.2.1 Terra cotta units required to be replaced shall be carefully removed to avoid disturbing adjacent units.
3.2.2 Set replacement units plumb, level, true to line, and in a manner to match existing terra cotta.
3.3 Sealing Terra Cotta Joints:
3.3.1 Remove joint material to a depth of 3/8 inch or to the depth of sound material.
3.3.2 Clean the joints thoroughly.
3.3.3 Regrout joints and tool surface to match appearance of adjacent floor.

Stonework

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of stonework. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Indiana Limestone: ASTM C 568, Category II.
2.2 Field Stone: Compatible with existing.
2.3 Marble: ASTM C 503.
2.4 Building Sandstone: Compatible with existing.
2.5 Structural Granite: ASTM C 615.
2.6 Masonry Accessories:
2.5.1 Fastenings for Stone: Furnish and install all anchors, dowels, clamps, clips, bolts, and other attachments necessary to fasten and anchor stone in place. Steel wire shall be zinc-coated in compliance with ASTM Specification A 641 for Class 2 coating. Stainless steel shall be used to fabricate the sizes, shapes, and types of all anchoring and fastenings, except wire.
2.5.2 Slots for dovetail anchors shall be of 24-gauge commercial galvanized sheet metal, formed to give double anchorage for shoulder to forms.
2.5.3 Dovetail anchors for fastening masonry to concrete shall be compatible with anchor slots.
2.6 Epoxy Mortar Patching Materials:
2.6.1 Epoxy Adhesive shall be a two-component epoxy consisting of epoxy resin and hardener and complying with the following performance requirements:
2.6.1.1 Tensile Elongation: 2.5 percent minimum per ASTM D 638.
2.6.1.2 Tensile Strength: 3,500 psi minimum per ASTM D 638.
2.6.1.3 Compressive Strength: 6,000 psi minimum per ASTM D 695.
2.6.1.4 Water Absorption (24 hours): 0.5 percent ASTM D 570.
2.6.2 Stone filler shall be stone of the same type and color as the stone being patched and shall be

ground to approximately the texture of coarse sand.
2.6.3 Pigments shall be of the type that will not react with the epoxy adhesive.
2.6.4 Thickening powder shall be silicon carbide powder or asbestos powder.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Removal of Deteriorated Material: Chip out all deteriorated stone in areas to be patched to sound material. Square cut or undercut edges to a minimum 1-inch depth to form a key for patching material.
3.1.2 Cleaning: Clean area to be patched and dry thoroughly.
3.2 Installation:
3.2.1 Patching Stone:
3.2.1.1 Within 30 minutes after mixing epoxy adhesive, apply mortar to the area to be patched. Build up mortar beyond the adjacent surface to allow grinding to match existing surface textures. 3.2.1.2 Allow patching mortar to cure for a minimum of 24 hours before grinding or chiseling.
3.2.2 Replacing Stone:
3.2.2.1 Cut replacement stone accurately to shape and dimensions with joints and bonding as required.
3.2.2.2 Exterior sill stones, panels, copings, cornice, and similar sones with exposed top surfaces shall be cut to set on their natural beds and shall have a wash on the top surface.
3.2.3 Setting Stone:
3.2.3.1 Where stone is backed up with concrete or concrete blocks, coat the face of the backup material with an approved non-staining asphalt complying with ASTM D 449, Type D.
3.2.3.2 Provide expansion or control joints in stonework as required.
3.2.3.3 Install pressure sensitive polyethylene tape or aluminum foil bond breaker complying with Fed. Spec. QQ-A-1876, prime edges of stone, and fill remainder of joint with caulking and sealing compound.
3.2.4 Pointing and Cleaning:
3.2.4.1 Upon completion, all joints shall be carefully pointed.
3.2.4.2 Clean stone surfaces using fiber brushes and trisodium phosphate solution.

Masonry Restoration

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for general masonry restoration. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Abrasive blasting material shall be a combination of friable, finely graded, clean particles, containing approximately 97.8 percent silicates and other minerals by weight. The material shall contain no free silica nor any crushed or quarried sand.
2.1.1 Sieve analysis for wet blasting aggregate shall be:

Sieve Mesh (Percent Retained)	Min.	Max.
28	5 1	5
35	22	32
48	73	90

2.1.2 Aggregate for Dry Blasting: The size of aggregate for dry blasting shall be determined by careful material analysis for the given application.
2.2 Mortar Materials:
2.2.1 Hydrated Lime: ASTM C 207, Type S or N.
2.2.2 Cement:
2.2.2.1 Portland cement: ASTM C 150, Type I or II.
2.2.2.2 Masonry Cement: ASTM C 91.
2.2.2.3 Cement shall not have more than 0.60 percent alkali (sodium oxide) nor more than 0.15 percent water soluble alkali in the combination of lime and cement.
2.2.3 Aggregate:

2.2.3.1 Coarse Aggregate: ASTM C 404 and not containing any substance that will stain the masonry.
2.2.3.2 Sand for Use with Masonry: ASTM C 144. Sand shall not contain any substance that will stain masonry.
2.2.3.3 Sand for Use with Stone: ASTM C 33.
2.2.4 Admixtures: Fed. Spec. SS-C-1960/1 consisting of water-repellent stearates and pozzolanic plasticizers in powder form. Salt, anti-freeze liquid, accelerator, or other admixtures shall not be used.
2.2.5 Colored Masonry Cement: Fed. Spec. SS-C-1960/1, Type II. Mortar colors shall be high purity, chemically inert, color-fast, and alkali-proof mineral oxides. Color shall not exceed 15 percent of the cement weight; carbon black shall not exceed 3 percent of the cement weight.
2.2.6 Water shall be clean, fresh, and free from injurious amounts of oil, acid, salt, alkali, organic matter, or other deleterious substances.
2.2.7 Mortar proportions shall be as follows:

Portland Cement	Hydrated Lime	Sand
1	1	6

Add pigments if required.
2.3 Grout: Grout shall be a flexible, non-shrink, non-staining grout specifically formulated for use in masking and grouting.
2.4 Masking material shall be a special masking tape, compatible with the grout technique.
2.5 Caulking and Sealants shall comply with Fed. Spec. TT-S-00227, Type II, Class A or Fed. Spec. TT-S-00230, Type II, Class A.
2.6 Backup material for sealants shall be closed-cell resilient urethane or polyvinyl-chloride foam, closed-cell polyethylene foam, closed-cell sponge of vinyl or rubber, polychloroprene tubes or beads, polyisobutylene extrusions, oilless dry jute, or rope yarn.
2.7 Bond preventive material shall be pressure sensitive polyethylene tape, aluminum foil complying with Fed. Spec. QQ-A-1876 or wax paper complying with Fed. Spec. A-A-883.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 General: Clean masonry surfaces free from efflorescence, mildew, fungus, graffiti, vines, tentacles, and all other blemishes. Wire brushing or sandblasting will not be allowed for paint removal.
3.1.2 Deteriorated Material: For repointing, tuck pointing, masking, and grouting, cut out old mortar in brickwork to a minimum depth of 1/2 inch and cut out old mortar in stonework to a minimum depth of 1 inch. Deteriorated material shall be removed to the full depth of mortar disintegration. Following cleaning, blow joints clean to remove all dust, dirt, and remaining loose aggregate.
3.2 Masonry Cleaning:
3.2.1 Washing: A specialized aeration type nozzle shall be used to project water at 1,000 or 1,200 psi pressure. Any evidence of masonry material damage or removal shall be cause for immediate work stoppage.
3.2.2 Steam Cleaning: Scrub all surfaces to be cleaned with a mild soap or detergent. Apply steam at a pressure of 10 to 30 psi to thoroughly flush and remove all foreign matter and to neutralize and rinse away all cleaning solutions.
3.2.3 Chemical Cleaning:
3.2.3.1 Acidic products shall be used only on acid-tolerant materials such as granite, sandstone, and unglazed brick.
3.2.3.2 Alkaline cleaners shall be used only an acid-sensitive materials such as limestone and marble.
3.2.3.3 Surfactants shall be used only on polished granite or glazed brick.
3.2.4 Abrasive Blasting:
3.2.4.1 Wet aggregate blasting shall be performed using a specialized nozzle that combines specified aggregate, clean water and air. Water pressure shall not exceed 150 psi. Air pressure shall not exceed 70 psi. After cleaning, rinse surfaces to remove aggregate and loosened soil.
3.2.4.2 Dry aggregate blasting shall be continuous bombardment of the masonry surface with a finely divided aggregate. Air pressure shall be between 20 and 100 psi. After cleaning, rinse surfaces to remove aggregate and loosened soil.

3.2.5 Repointing and Tuckpointing:
3.2.5.1 Pointing of Brickwork: Compact new mortar in deep cuts in successive layers until a uniform joint depth throughout has been attained. After deep joints have been leveled, fill all joints with mortar and pack the back corners of the joint.
3.2.5.2 Painting of stonework: compact new mortar in deep cuts in successive layers until a uniform joint depth throughout has been attained. After dep joints have been leveled, fill joints with a layer of mortar 1/2 inch deep and pack the back corners of the joint. Approximately 1 hour later, apply another layer of mortar completely filling the joint.
3.2.5.3 Tooling: Tool the joint to match the appearance of the adjacent mortar joints with a round jointer to produce smooth, dense, concave joints.
3.2.6 Masking and Grouting:
3.2.6.1 Masking: Mask the face of each individual masonry unit, keeping the edge of the tape 1/16 inch away from all edges of the masonry unit to allow an overlap of the grouting material onto the masonry.
3.2.6.2 Grouting: Completely fill all joints, cracks, and voids with grout.
3.2.6.3 Cleaning: Keep all exposed masonry clean and free of mortar as work progresses. Clean masonry surfaces using fiber brushes and trisodium phosphate solution. Rinse surfaces with clean water immediately after cleaning.

DIVISION 5-METALS

Structural Steel

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of structural steel. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work. The contractor shall be responsible for all temporary shoring and/or bracing needed to support the construction. The structure may not be stable until all elements are in place.
2.0 PRODUCTS:
2.1 Structural Steel:
2.1.1 Carbon Grade Steel: ASTM A 36.
2.1.2 High-Strength Low-Alloy Steel: ASTM A 572.
2.1.3 Corrosion-Resistant High-Strength Low-Alloy Steel: ASTM A 242 or A 588.
2.1.4 Quenched and Tempered Alloy Steel: ASTM A 514.
2.1.5 Structural Tubing: ASTM A 500, Grade B or ASTM A 501.
2.1.6 Steel Pipe: ASTM A 53, Type E or Type S, Grade B.
2.2 Connections:
2.2.1 High-Strength Bolts: ASTM A 325 or A 490 including nuts and washers.
2.2.2 Carbon Steel Bolts: ASTM A 307, Grade A.
2.2.3 Carbon Steel Nuts: ASTM A 563, Grade A, Square or Hex Style.
2.2.4 Plain Washers, Other Than Those in Contact with High-Strength Bolts: ANSI B18.22.1, Type B.
2.3 Finish: Galvanized, ASTM A 123 and ASTM A 153 or ASTM A 386 or shop primer Fed. Spec. TT-P-86, Type I or II, or TT-P-645.
2.4 Fabrication: Fabrication shall be in accordance with the applicable provisions of the AISC Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings. Fabrication and assembly shall be done in the shop to the greatest extent possible. Ends shall be square within the tolerances for milled ends specified in ASTM A 6. Ungalvanized structural steelwork, except surfaces to be field welded or friction bolted, shall be prepared for painting in accordance with the AISC Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings and primed with the specified paint. All welding shall be in accordance with AWS D1.1 and shall be performed by certified welders for the type of welds and positions indicated.
3.0 EXECUTION: Erection of structural steel shall be in accordance with the applicable provisions of the AISC Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings.
3.1 Connections: Anchor bolts and other connections between the structural steel and foundations shall

be provided and shall be properly located and built into connecting work.

3.2 Base Plates and Bearing Plates: Column base plates for columns and bearing plates for beams, girders, and similar members shall be provided. Base plates and bearing plates shall be provided with full bearing after the supported members have been plumbed and properly positioned, but prior to placing superimposed loads. Separate setting plates under column base plates will not be permitted. The area under the plate shall be dry-packed solidly with bedding mortar.

3.3 Galvanized Field Connections: Galvanized steel shapes shall be bolted connections only using galvanized bolts, nuts, and washers. No field welding of galvanized steel will be permitted.

3.4 Welded Connections: Field welded structural connections shall be completed before load is applied. Quality of welds shall be as described in AWS D1.1. Welds determined to be defective shall be repaired at no additional expense to the member. All welds shall receive a visual examination. In addition to visual examination, fracture critical members shall receive other non destructive tests such as ultrasonic, radiographic and magnetic particle. Specific welds to receive this testing shall be as indicated on the drawings.

3.5 Field Priming: After erection of ungalvanized structural steel, the field bolt heads and nuts, field welds, and any abrasions in the shop coat shall be cleaned and primed with paint of the same quality as that used for the shop coat.

Steel Bridge Components

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of steel bridge components. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Structural Carbon Steel: ASTM A 36.

2.2 High Strength Steel:

2.2.1 High-Strength Low-Alloy Columbium-Vanadium Steel: ASTM A 572.

2.2.2 High-Strength Low-Alloy Structural Steel with 50,000 psi Minimum Yield: ASTM A 588.

2.2.3 High-Yield Strength Quenched and Tempered Alloy Steel Plate: ASTM A 514.

2.2.4 Structural Steel for Bridges: ASTM A 709.

2.2.5 High Strength Low-Alloy Structural Steel: ASTM A 242.

2.3 Turned and Ribbed Bolts: High carbon steel turned and ribbed bolts shall comply with ASTM A 307.

2.4 High Strength Steel Bolts, Nuts, and Washers: ASTM A 325.

2.5 Electrodes for manual or arc welding shall comply with AWS A5.1 or AWS A5.5.

2.6 Steel Forging: ASTM A 668 and of the class specified.

2.7 Steel Castings: AASHTO M192 and of the class specified.

2.8 Gray Iron Castings: AASHTO M105 and of the class specified.

2.9 Malleable Castings: ASTM A 47, Grade 32510 or 35018.

2.10 Rolled Copper-Alloy Plates: ASTM B 100, Alloy 510.

2.11 Lead Plates: Comply with the requirements for common desilverized lead of ASTM B 29.

2.12 Stud Shear Connectors: ASTM A 108, Grade 1015, 1017, or 1020, either semi- or fully killed.

2.13 Rollers and Pins: ASTM A 36.

2.14 Anchor Bolts:

2.14.1 Cast-In-Place: ASTM A 307.

2.14.2 Power Driven: Stainless steel with minimum penetration in concrete of 6 times bolt diameter.

2.15 Rails: Section 4.2, Specifications for Steel Rails of AREA-01.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 When traffic is maintained on bridge under repair or is directed over a temporary run-around, furnish, erect, and maintain all barricades, flags, torches, lights, guardrails, temporary pavement markings, and traffic control signs required for the protection of the public and for the direction of traffic. Number, type, color, size, and placement of all traffic control devices and the use of a flagman shall comply with USDOT FHA MUTCD "Traffic Controls for Highway Construction and

Maintenance Operations." All traffic control devices in advance of the construction limits shall also be the responsibility of the Contractor.

3.1.2 Structural metal work shall comply with the following:
a. AISC Code of Standard Practice.
b. AWS Structural Welding Code as modified by the AASHTO Standard Specifications for Welding of Structural Steel Highway Bridges.
c. AREA-01.
d. AASHTO Standard Specifications for Highway Bridges.

3.1.3 Fabrication: Form shapes with sharp lines and angles and finish with smooth surfaces. Drill or ream bolt holes 1/16 inch larger than the diameter of the bolt. Provide welded shop connections wherever possible.

3.2 Maintenance and Repair Methods:

3.2.1 Erection: bearing surfaces and surfaces to be in permanent contact shall be clean and free from dirt and scale. Ream holes that must be enlarged to admit bolts.

3.2.2 Correction of Loose Connections: Remove loose rivets by cutting rivet heads off and removing the shank or by drilling. Torches shall not be used. Remove loose bolts in bolted connections. Bolts shall not be retightened. Thoroughly remove rust and scale around bolt and rivet holes by sandblasting or wire brushing. Install a new high strength bolt of the same size as the removed bolt or rivet, unless the hole has become enlarged and a larger bolt can be used. Tighten bolts by the turn-of-nut method.

3.2.3 Repair of Corroded Material: Remove all rust and corrosion by and blasting or wire brushing. Strengthen corroded members by the addition of structural carbon steel or high strength steel.

Steel Trusses

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of steel trusses. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Steel Trusses:

2.1.1 Structural Carbon Steel: ASTM A 36, unless otherwise indicated.

2.1.2 High-Strength Low-Alloy Structural Steel: ASTM A 242, Grade 42.

2.2 Steel Forgings: Forgings that are to be welded shall comply with Supplementary Provision S4 of ASTM A 668.

2.3 Fasteners:

2.3.1 High Strength Bolts, Nuts and Plain Hardened Washers: ASTM A 325.

2.3.2 Anchor Bolts: ASTM A 307.

2.4 Filler Metal for Welding: Electrodes for manual arc welding shall comply with AWS A5.1 or AWS A5.5.

2.5 Field Repair of Shop Primer: Fed. Spec. TT-P-86.

3.0 EXECUTION:

3.1 Structural Metals:

3.1.1 Comply with AISC "Specifications for Design, Fabrication and Erection of Structural Steel for Buildings" and "Code of Standard Practice," both as modified herein.

3.1.2 Piping and electrical wiring conflicting with erection of members shall be removed and placed in a new position approved by the Authorized Member Representative. Provide temporary utilities and coordination to prevent outages during this period.

3.1.3 Shop and field connections shall be high strength steel bolted unless otherwise indicated.

3.1.4 All metal parts shall be shop-fabricated. Assemblies shall be fitted together in the shop and delivered complete and ready for installation. Welds shall be made by operators who have been previously qualified in compliance with AWS standards to perform the type of work required. Welds exposed to view shall be dressed smooth.

3.1.5 Before members are assembled or installed, bearing surfaces to be in permanent contact shall be

clean and free from dirt, scale, and corrosion. Immediately after cleaning add a prime coat of red lead paint. Drifting to enlarge holes will not be permitted. Holes that must be enlarged to admit bolts shall be reamed. Poor matching of holes caused by either shop errors or erection errors shall be cause for rejection by the Authorized Member Representative. Steel erected under this contract shall be cleaned of any dirt, mud, or grease and left in a condition to receive coatings.

3.2 Strengthening of Deteriorated Members: Remove corrosion by wire brushing, sanding, or other approved method. Strengthen as directed.

3.3 Correction of Loose Connections: Remove loose rivets by cutting rivet heads off and removing the shank. If necessary, remove the rivet shank by drilling. Remove loose bolts in bolted connections. Bolts shall not be retightened. Install a new high strength bolt of the same size as the removed bolt or rivet, and tighten by the turn-of-the-nut method.

3.4 Repair of Bearings and Anchor Bolts: Remove corrosion by wire brushing, sanding, or other approved method. Additional repair requirements shall be as directed.

3.5 Repair of Tie Rods and Bracing: Tighten loose tie rods to the snug tight condition. Remove corrosion by wire brushing, sanding, or other approved method. Strengthen as directed.

Steel Joists

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of steel joists. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Open Web Steel Joists: Steel joists shall conform to Steel Joist Institute SJI-01, K-Series. Joists shall be designed to support the loads given in the standard load table of SJI-01.

2.2 Longspan Steel Joists and Deep Longspan Steel Joists: Steel joists shall conform to SJI-01, LH-Series or DLH-Series. Joists shall be designed to support the loads given in the standard load tables of SJI-01.

2.3 Accessories and Fittings: Accessories and fittings, including end supports and bridging, shall be in accordance with the standard specifications under which the members were designed.

2.4 Shop Painting: Joists and accessories shall be shop-painted with a rust-inhibiting primer paint.

3.0 EXECUTION: Joists shall be accurately set, and end anchorage shall be compatible with the bearing surface and the expansion requirements. Joist bridging and anchoring shall be secured in place prior to the application of any construction loads. Any temporary loads shall be distributed so that the carrying capacity of any joist is not exceeded. Loads shall not be applied to bridging. Abraded, corroded, and field-welded areas shall be cleaned and touched up with the same type of paint used in the shop painting.

Steel Decks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of steel roof and floor deck. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Deck Units: Deck material shall be ASTM A 611, Grade C for painted deck and ASTM A 446, Grade A for galvanized deck. Deck units shall conform to the SDI Design Manual for Composite decks, form decks, roof decks, and cellular metal floor deck with Electrical Distribution. units shall be fabricated of 22-gauge or thicker steel and shall be galvanized with ASTM A 525, G90 coating class or painted with one coat of manufacturer's standard paint.

2.2 Accessories: Metal accessories shall be of the same material as the deck and have minimum gauge as follows: saddles, 18-gauge; welding washers, 10-gauge; cant strip, 22-gauge; other metal accessories, 20-gauge; unless otherwise indicated.

2.3 Closure Plates: Voids above interior walls shall be closed with 22-gauge sheet metal where directed. Open deck cells at parapets, end walls, eaves, and openings through floors and roofs shall

be closed with 22-gauge sheet metal.
2.4 Miscellaneous steel shapes: ASTM A 36.
3.0 EXECUTION:
3.1 Erection of deck and accessories shall be in accordance with the SDI Design Manual for Composite decks, form decks, roof decks, and cellular metal floor deck with Electrical Distribution. The deck units shall be placed on secure supports, properly adjusted, and aligned at right angles to supports before being permanently secured in place. The maximum uniform distributed storage load shall not exceed the design live load.
3.2 Attachment: The deck units shall be welded or fastened with screws, powder-actuated fasteners, or pneumatically driven fasteners to supports in accordance with requirements of the SDI Design Manual for composite decks, form decks, roof decks, and cellular metal floor deck with Electrical Distribution.
3.3 Repair of Coatings: Welds and deck finish damage shall be touched up with an approved galvanizing repair paint for galvanized surfaces or the same type used for shop primer for painted surface.
3.4 Openings through deck: holes and openings required shall be drilled or cut, reinforced, and framed for rigidity and sufficient load-carrying capacity. Holes less than 6 inches across require no reinforcement. Openings 6 to 12 inches across shall be reinforced by 22-gauge steel sheet at least 12 inches wider and longer than the opening and be fastened to the steel deck a maximum of 12 inches on center. Openings larger than 12 inches shall be reinforced by steel angles on opposite sides of the opening and at a right angle to the deck ribs. Both sides of the angles shall be fastened to each rib. Angles shall extend at least two ribs beyond each side of the opening.

Anchor Bolts and Expansion Anchors
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of anchor bolts and expansion anchors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Anchor Bolts and Nuts: ASTM A 307; Hot-dipped galvanized, ASTM A 153.
2.2 Flat Washers: ANSI B18.2.1, of the same material as bolt.
2.3 Expansion Anchors:
2.3.1 Lead Shield Type: Fed. Spec. FF-S-325, Group I, Type 1, Class 1.
2.3.2 Wedge Type: Fed. Spec. FF-S-325, Group II, Type 4, Class 1or 2.
2.3.3 Self-Drilling Type: Fed. Spec. FF-S-325, Group III, Type 1.
2.4 Fabrication:
2.4.1 Anchor bolts shall be "J" type for use in concrete or hooked type for use in masonry. All bolts shall be hot-dipped galvanized and furnished complete with nut and washer.
2.4.2 Expansion anchors shall be of standard manufacture and unless otherwise specified shall be galvanized or cadmium-plated in accordance with Fed. Spec. FF-S-92.
3.0 EXECUTION:
3.1 Anchor bolts shall either be cast in new concrete or regrouted in place with non-shrinking grout.
3.2 Expansion anchors shall be of the type best suited for the work. Embedment shall be as directed but in no case less than six times the bolt diameter. Minimum distance between the anchor center line and the edge of concrete shall not be less than 4-1/2 times the diameter of the hole in which anchor is installed.

Metal Stairs
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of metal stairs. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:

2.1 Steel Plates, Shapes, and Bars: ASTM A 36.
2.2 Steel Bar Grating: ASTM A 569.
2.3 Gray Iron Castings: ASTM A 48, Class 30.
2.4 Malleable Iron Casting: ASTM A 47.
2.5 Cast Aluminum: ASTM B 26 or B 108.
2.6 Metal Pan Treads: Pressed or structural steel pans, ASTM A 446, Grade B, shop coated, with a minimum depth of 2 inches for concrete fill. 2.7 Cast Metal Treads shall have an integral non-skid surface.
2.8 Grating and metal pan treads shall have cast metal non-skid nosings. 2.9 Finish: Steel plates, shapes, bars, and grating shall be galvanized in accordance with ASTM A 386 or primed with fabricator's standard shop primer as directed.
2.10 Fabrication: stair units shall be shop welded or bolted. Units shall be shop-assembled to ensure fit. Stairs are to be shipped in the largest units practical to reduce field erection time. All fabrication shall conform to AISC Manual and ASTM A 6.
3.0 EXECUTION:
3.1 Erection: Erect stairs level and plumb. Treads shall be level both front to back and across the width. Stair units shall be securely fastened to floors and landings. Field erection shall be in accordance with AISC Manual except that connections shall be bolted only.
3.2 Repair of Coatings: Connections and abrasions in the shop coating shall be touched up with an approved galvanizing repair paint or primer to match shop primer.

Pipe and Tube Railings

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of handrailings and ladders. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Post and Rails: Steel pipe, ASTM A 53, Type E or S, Grade B, Schedule 40.
2.2 Bars and Rungs: ASTM A 36.
2.3 Finish: Galvanized, ASTM A 123 or shop primer, Fed. Spec. TT-P-86, Type I or II; TT-P-645.
2.4 Fabrication:
2.4.1 Handrailings shall be smooth, with all projecting joints and sharp corners ground smooth. Welded joints shall be flush type. Members shall be neatly coped and continuously welded at all junctions of posts and rails. Flattening of the rail or post ends at junctions of posts and rails will not be permitted. Fittings or other connectors shall not be used at junctions of posts and rails.
2.4.2 Ladders: Rails shall be angle or flat bars. Rungs shall be round or square bars and shall project through rails. Welds shall be continuous.
2.4.3 Cages shall be provided as directed and shall be fabricated from flat bars. Vertical bars shall be inside supporting hoops. Bars shall be welded at each intersection.
3.0 EXECUTION: Hand rails and ladders shall be erected in accordance with the AISC Manual. Hand rails shall be rigidly attached to structure to provide unyielding obstruction. Ladders shall be bolted to structure unless otherwise directed.

Grating

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of grating. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Aluminum Grating, Banding, and Kick Plate: Rectangular, pressure-locked bearing bars, ASTM B 221, 6063-T6, mill finish.
2.2 Steel Grating:
2.2.1 Grating: Rectangular, welded, ASTM A 569.

2.2.2 Bands and Kick Plate: ASTM A 36.
2.2.3 Finish: Galvanized, ASTM A 123 or painted with fabricator's standard shop primer.
2.3 Fabrication: rectangular floor grating shall be in accordance with the Metal Bar Grating Manual published by the National Association of Architectural Metal Manufacturers (NAAMM). Where openings are directed in the grating, sections shall be laid out so that section edges will be centered on the openings. All openings shall be provided with kick plate or banding or required. All raw edges of grating shall be banded unless directed otherwise.
3.0 EXECUTION:
3.1 Erection: grating shall be anchored in place with welded stud bolts and saddle clips or other acceptable fasteners.
3.2 Touchup shall be either with an approved galvanizing repair paint or a primer to match shop primer.

Castings

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of castings. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedure shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Frames, Covers, and Steps:
2.1.1 Gray Iron: ASTM A 48, Class 30.
2.1.2 Steel: ASTM A 36; Galvanized, ASTM A 123.
2.1.3 Aluminum: ASTM B 26, 356-T6.
2.2 Corner Protection: Steel angles with anchors, ASTM A 36; Galvanized, ASTM A 123.
2.3 Ventilation Boxes: Extruded Aluminum, ASTM B 221, 2063-T6.
2.4 Bituminous Paint: SSPC-Paint 12 (cold-applied asphalt mastic).
3.0 EXECUTION:
3.1 Frames, steps, corner protection, or other castings to be embedded in concrete shall be accurately positioned and securely anchored to forms prior to placement of concrete.
3.2 Castings to be located in masonry or other building material shall be temporarily braced and held firm to ensure accurate placement in final construction.
3.3 Aluminum surfaces that will be in contact with grout, concrete, masonry, wood, or dissimilar metals shall be coated with a heavy coat of bituminous paint.

Miscellaneous Metal Bridge Components

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of miscellaneous metal bridge components. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Structural Carbon Steel: ASTM A 36.
2.2 High Strength Steel Bolts, Nuts, and Washers: ASTM A 325.
2.3 Electrodes: Electrodes for manual or arc welding shall comply with AWS A5.1 or AWS A5.5.
2.4 Anchor Bolts:
2.4.1 Cast-In-Place: ASTM A 307.
2.4.2 Power Driven: Stainless steel. When set in concrete or masonry, the minimum penetration shall be 6 times the diameter of the shank.
2.5 Grid Flooring: ASTM A 36, galvanized, skid-resistant, unless otherwise directed.
2.6 Aluminum for Railings:
2.6.1 Aluminum Alloy Extruded Rail: ASTM B 221, Alloy 6061-T6 or 6351-T5.
2.6.2 Cast Aluminum Railing Posts: AASHTO M193, Alloy A444-T4.
2.7 Stainless Steel Hardware for Railings:
2.7.1 Stainless Steel Machine Bolts and Cap Screws: ASTM A 193, Grade B8 or B8M, Class 2A threads,

except the minimum tensile strength shall be 100,000 psi.

2.7.2 Stainless Steel Threaded Bars: ASTM A 276, Type No. 302, Condition B, Class 2B threads.

2.7.3 Stainless Steel Flat Washers and Lock Washers: ASTM A 240, Type 302.

2.7.4 Carbon and Alloy Steel Nuts: ASTM A 194, Grades 6 and 6F.

2.8 Steel Pipe for Railings and Posts: ASTM A 53, Grade B, or ASTM A 120, black or galvanized.

2.9 Steel Plate Beam Guardrail:

2.9.1 Guardrail: AASHTO M180, Class A, Type 1.

2.9.2 Bolts, Nuts, and Washers: ASTM A 307, galvanized in compliance with ASTM A 153.

2.9.3 Post Connectors: ASTM A 36, galvanized in compliance with ASTM A 123.

2.10 Cables and Accessories for Cable Guardrail: AASHTO M30, Class A, Type I.

2.11 Metal Posts: ASTM A 36 galvanized in compliance with ASTM A 123.

2.12 Wood Posts: Comply with the specifications for treated wood posts contained in the state's standard specifications.

2.13 Steel Traffic Treads: Not less than 3/16 inch thick, exclusive of the raised portions, not less than 24 inches wide, and the individual sections not more than 15 feet long. Treads shall have a non-skid surface with alternate projections at right angles to each other. The raised portions shall be formed in the rolling and not by punching or pressing from the underside. Treads shall be punched 7/16 inch for lag screws or bolts. The holes shall be placed not less than 1-1/4 inches nor more than 1-1/2 inches from the edge of the tread. The spacing of holes on both sides of the tread shall not be more than 15 inches and on both ends of each section not more than 6 inches. The weight of the treads shall be approximately 8-3/4 pounds per square foot.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Traffic Control: When traffic is maintained on bridge under repair or is directed over a temporary run-around, furnish, erect, and maintain all barricades, flags, torches, lights, guardrails, temporary pavement markings, and traffic control signs required for the protection of the public and for the direction of traffic. Number, type, color, size, and placement of all traffic control devices and the use of a flagman shall comply with USDOT FHA MUTCD "Traffic Controls for Highway Construction and Maintenance Operations." All traffic control devices in advance of the construction limits shall also be the responsibility of the Contractor.

3.1.2 Structural metal work shall comply with the following:

a. AISC Code of Standard Practice.

b. AWS Structural Welding Code as modified by the ANSI/AASHTO/AWS D1.5.

c. AREA-01, Chapter 15 .

d. AASHTO Standard Specifications for Highway Bridges.

3.1.3 Fabrication: Form shapes with sharp lines and angles and finish with smooth surfaces. Drill or ream bolt holes 1/16 inch larger than the diameter of the bolt. Provide welded shop connections wherever possible. Fabricate rail elements parallel to grade line. Posts shall be normal to parapet.

3.1.3.1 Steel Railing: Rails and posts shall be jointed by either mechanically fastened flush fittings or welding. Grind welds smooth and flush. Lay flex beam railing in the direction of traffic.

3.1.3.2 Aluminum Railing: Join railings and posts by either slip type fittings, mechanically fastened fittings, or inner-wedge system. Fastenings shall be stainless steel, set flush or recessed.

3.2 Erection:

3.2.1 Connections: Bearing surfaces and surfaces to be in permanent contact shall be clean and free from dirt and scale. Ream holes that must be enlarged to admit bolts. Field correction of fabrication errors shall be made only with approval of the Authorized Member Representative.

3.2.2 Coat aluminum surfaces that will be in contact with dissimilar materials as follows:

a. Contact with Steel: One coat of zinc chromate primer, Fed. Spec. TT-P-645 or one coat of a suitable nonhardening joint compound, Fed. Spec. TT-S-

b. Contact with Wood, Fiberboard, Masonry, or other Porous Material: Alkali-resistant bituminous paint, ASTM D 2939.

c. Aluminum Embedded in Concrete: One coat of zinc chromate primer, Fed. Spec. TT-P-645, alkali-resistant bituminous paint, ASTM D 2939, or wrapped with a suitable plastic tape.

3.3 Maintenance and Repair Methods:

3.3.1 Open Grid Bridge Floor: Realign grids that are not in proper alignment. Replace broken clips connecting grids to grid support system. Reweld cracked or broken welds between grid and grid support system. Remove and replace deficient rectangular grid decking as directed.
3.3.2 Concrete Filled Grating: Repair or remove and replace grating as directed. Replace concrete with 4,000 psi concrete with 4 to 6 percent entrained air. 3.3.3 Railing:
3.3.3.1 Remove damaged and deteriorated railing and install new railing as directed.
3.3.3.2 Anchor Bolts and Connections: Tighten all loose nuts. Replace all corroded anchor bolts with drilled anchor bolts to concrete, ASTM A 307 bolts to steel for steel railing, and stainless steel bolts for aluminum railing. 3.3.4 Repair of Corroded Material: Remove all rust and corrosion by sandblasting or wire brushing. Strengthen corroded members by the addition of structural carbon steel or high strength steel.

Ornamental Handrail and Railings

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of ornamental handrail and railings. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Tubing, Bars, and Shapes:
2.1.1 Aluminum: ASTM B 221, 6063-T6, T-52.
2.1.2 Steel: ASTM A 36, A 500, A 501.
2.1.3 Bronze: ASTM B 135, Alloy C23000.
2.1.4 Stainless Steel: ASTM A 554, Grade MT304; ASTM A 312, Grade TP304; ASTM A 167, Type 304.
2.1.5 Brass: ASTM B 135, Alloy C28000 and ASTM B 455, Alloy C38500.
2.2 Castings:
2.2.1 Aluminum: ASTM B 26, 356-T6.
2.2.2 Steel: Gray Iron, ASTM A 48, Class 30; Malleable Iron, ASTM A 47.
2.2.3 Bronze: ASTM B 584, Alloy C92300.
2.2.4 Stainless Steel: ASTM A 743, Grade CF8 or CF20.
2.2.5 Brass: ASTM B 584, Alloy C85700.
2.3 Wood handrails shall be hardwood handrail of species and profile selected from manufacturer's standards, bonded to metal subrail, with manufacturer's standard transparent finish, unless otherwise directed.
2.4 Fasteners: Furnish fasteners of basic metal and alloy, matching finished color and texture as the metal being fastened, unless otherwise directed. Unless otherwise directed provide Phillips flat-head screws for exposed fasteners.
2.5 Bituminous Paint: SSPC-Paint 12 (cold-applied asphalt mastic).
2.6 Fabrication: Stainless steel and steel handrails shall have welded connections. Aluminum handrails shall be either welded or non-welded. Bronze and brass handrail shall have non-welded connections.
2.6.1 Welded Connections: Fabricate handrails and railings of materials indicated for interconnections of members by welding. Preassemble railing units, to maximum extent practicable, consistently with shipping and handling limitations. Welding shall comply with applicable AWS specifications, using method appropriate for metal and finish indicated. Grind exposed welds smooth and flush to match and blend with adjoining surfaces.
2.6.2 Nonwelded Connections: Fabricate railings and handrails for interconnection of members by means of railing manufacturer's standard concealed mechanical fasteners and fittings unless otherwise directed. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
2.6.3 Protective Lacquer: Metal handrails shall be shop-coated with clear non-yellowing lacquer, of type recommended for protection of the finished metal surface.
3.0 EXECUTION:
3.1 Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

3.2 Expansion Joints: Provide expansion joints at locations directed or at intervals not to exceed 40 feet. Provide internal sleeve type slip-joint extending 2 inches beyond joint on either side; fasten internal sleeve securely to one side, locate joint within 6 inches of post.
3.3 Provide Anchorage Devices and Fasteners where necessary for securing ornamental metal items to in-place construction, including threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.
3.4 Form Tight Joints with exposed connections accurately fitted with uniform reveals and spaces for sealants and joint fillers. Where cutting, welding, and grinding are required for proper shop fitting and jointing of the work, restore finishes to eliminate any evidence of such corrective work.

Ornamental Sheet Metal

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of ornamental sheet metals. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Materials:
2.1.1 Steel Sheet: ASTM A 527, galvanized.
2.1.2 Aluminum Sheet: ASTM B 209, Alloy 5052-H32.
2.1.3 Extruded Aluminum: ASTM B 221, Alloy 6063-T6, T-52.
2.1.4 Bronze: ASTM B 455, Alloy C38500 and ASTM B 135, Alloy C8000.
2.1.5 Stainless Steel: ASTM A 554, Grade MT304; ASTM A 312, Grade TP304; ASTM A 167, Type 304.
2.2 Wall Louvers: Weather-resistant type, with bird screens and made to withstand a wind load of not less than 30 lb/sf. Wall louvers shall bear the AMCA certified rating program seal for air performance and water penetration in accordance with AMCA-500 and AMCA-511. The rating shall show a water penetration of 0.20 or less at 800 fpm.
2.2.1 Extruded Aluminum Louvers: Fabricated of extruded 6063-T6 or 6063-T52 aluminum with a wall thickness of not less than 0.080 inch thick.
2.2.2 Formed Metal Louvers: Formed of zinc-coated steel sheet not thinner than 16 U.S. gauge, or aluminum sheet not less than 0.08 inch thick.
2.2.3 Mullions: Same material and finish as louvers.
2.2.4 Screens and Frames: Minimum 1/4-inch square mesh and minimum 16-gauge aluminum bird screen. Mount screens in removable, rewirable frames of same material and finish as the louvers.
2.3 Door Louvers: Inverted "Y" or "V" sightproof type not less than 1-3/8 inch thick with matching metal trim. Louvers for exterior doors shall be weather-resistant type.
2.3.1 Extruded Aluminum Door Louvers: Minimum 0.050 inch thick 6063-T6 or 6063-T52 aluminum alloy. Frame and trim shall be clamp-in "L" type.
2.3.2 Formed Metal Door Louvers: Minimum 20 U.S. gauge steel sheet or minimum 0.050 inch thick sheet aluminum. Trim shall be beveled "Z" molding both sides.
2.3.3 Screens and Frames: Screen shall be aluminum, RR-W-365, Type VII. Mount screens in removable, rewirable frames of same material and finish as the louvers.
2.4 Fasteners: Stainless steel screws and fasteners as required.
2.5 Finishes:
2.5.1 Aluminum: Factory-applied anodic coating or organic coating.
2.5.1.1 Anodic Coating: AA-M10-C22-A31, Architectural Class II, clear finish or AA-M10-C22-A32, Architectural Class II, integral color finish.
2.5.1.2 Organic Coating: AAMA 605.2, 0.8 mil minimum dry film thickness, baked enamel finish.
2.5.2 Steel: Factory-applied coating, rust-inhibitive primer and baked enamel finish coat, 1 mil minimum total dry film thickness.
2.6 Motorized Louvers: Electric motor shall be completely encased in the louver sill. Motor shall be U.L. approved, 120 volt, 60 hertz with a transformer.
3.0 EXECUTION:
3.1 Copper or Copper-Bearing Alloys: Paint copper or copper-bearing alloys in contact with dissimilar

metal with heavy-bodied bituminous paint or separate with inert membrane.

3.2 Aluminum: Where aluminum contacts metal other than zinc, paint the dissimilar steel with a primer and two coats of aluminum paint.

3.3 Metal: Paint metal in contact with mortar, concrete, or other masonry materials with alkali-resistant coatings such as heavy-bodied bituminous paint.

3.4 Wood: Paint wood or other absorptive materials that may become repeatedly wet and in contact with metal with two coats of aluminum paint or a coat of heavy-bodied bituminous paint.

Expansion Control

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of building expansion joint covers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Frames and Covers:

2.1.1 Aluminum: ASTM B 221, 6063-T6.

2.1.2 Bronze: ASTM B 455, Alloy C 38500.

2.1.3 Stainless Steel: ASTM A 167, Type 304.

2.2 Resilient Filler: Neoprene, elastomeric, or extruded vinyl.

2.3 Bituminous Paints: SSPC-Paint 12 (cold-applied asphalt mastic).

2.4 Fabrication: Shop assemble components and package with anchors and fittings. Provide joint components in single lengths whenever practical.

3.0 EXECUTION:

3.1 Corrosion Protection: Coat concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.

3.2 Installation: Rigidly anchor expansion assembly to both sides of expansion joints to prevent misalignment.

Bridge Expansion Devices, Bearings and Anchors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of bridge expansion devices, bearings, and anchors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Joint Filler:

2.1.1 Preformed Bituminous: AASHTO M33.

2.1.2 Preformed Fiber and Preformed Bituminous Inorganic Fiber: AASHTO M213.

2.1.3 Preformed Cork: AASHTO M153, Type II.

2.1.4 Preformed Self-Expanding Cork: AASHTO M153, Type III.

2.1.5 Preformed Sponge Rubber: AASHTO M153, Type I.

2.1.6 Preformed Closed Cell Plastic: Low density, extruded, closed cell expanded polyethylene plastic foam that is chemically inert.

2.2 Cold-Poured Joint Sealer: CE CRD-C-527.

2.3 Hot-Poured Joint Sealer: AASHTO M173.

2.4 Preformed Elastomeric Compression Joint Sealer: AASHTO M220.

2.5 Neoprene Expansion Joints:

2.5.1 Elastomer shall have the following physical properties:

a. Tensile Strength (ASTM D 412): 1,800 psi minimum.

b. Elongation at Break (ASTM D 412): 400 percent minimum.

c. Hardness (ASTM D 2240): 40 to 50 points Durometer A.

2.5.2 Sealant: A two-component polysulfide liquid sealant complying with Fed. Spec. TT-S-00227, Type II.

2.6 Fabric bearing pads shall consist of a fabric and rubber body made with unvulcanized rubber and unused fabric fibers. The rubber body shall be natural polyisoprene or polychloroprene. Average hardness shall be 80 to 90 Shore A Durometer. Ultimate breakdown limit under compressive loading shall be no less than 7,000 psi. Tolerance on thickness shall be plus or minus 1/16 inch.
2.7 Graphited Asbestos Bearing Pads: Asbestos fibers bonded together with synthetic rubber elastomer. One face of each pad shall be impregnated with graphite. The surface hardness shall be 95-100 Shore A Durometer. Tolerance on thickness of pads shall be plus or minus 1/16 inch. Graphited surfaces shall be in contact.
2.8 Bronze Bearings and Expansion Plates: AASHTO M107, Alloy B.
2.9 Rolled Copper-Alloy Bearings and Expansion Plates: AASHTO M108, Alloy 510.
2.10 Bearing and Expansion Plates: Sliding bearings shall have a surface roughness value not exceeding 125 per ANSI B46.1.
3.0 EXECUTION:
3.1 Traffic Control: When traffic is maintained on bridge under repair or is directed over a temporary run-around, furnish, erect, and maintain all barricades, flags, torches, lights, guardrails, temporary pavement markings, and traffic control signs required for the protection of the public and for the direction of traffic. Number, type, color, size, and placement of all traffic control devices and the use of a flagman shall comply with USDOT FHA MUTCD "Traffic Controls for Highway Construction and Maintenance Operation." All traffic control devices in advance of the construction limits shall also be the responsibility of the Contractor.
3.2 Maintenance and Repair Methods:
3.2.1 Expansion Devices:
3.2.1.1 Remove all dirt and debris from joints to be repaired. Adjust joint width accurately for temperature at time of setting. Cut joint filler to fit exactly and completely fill the joint.
3.2.1.2 Expansion Devices, Including Elastomeric and Steel: Repair or replace as directed.
3.2.2 Bearing Devices:
3.2.2.1 General: Remove all debris from the bearing seats. Tighten loose connections. Loose high strength bolts shall be removed and replaced.
3.2.2.2 Steel Components: Remove rust and corrosion by sandblasting or wire brushing.
3.2.2.3 Bearing Devices, Including Bearing Plates, Roller Expansion Bearings, Rocker Expansion Bearings, Pins and Hanger Bearings, and Anchor Bolts: Repair or replace as directed.

Water Treatment Plant Debris Racks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation materials for repair and maintenance of debris racks for water treatment plant intake structures. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Manually Cleaned Racks: Repair or replacement parts for manually cleaned racks shall be galvanized or alloy steel rods, bars, or structural shapes. Galvanized material shall comply with ASTM A 153 and B 633. Alloy steel material shall comply with ASTM A 193, A 480; and A 564, as applicable.
2.2 Fasteners shall comply with ASTM A 307 or A 325 for bolts and A 502 for rivets.
3.0 EXECUTION:
3.1 Silt Removal: Cofferdams and temporary bypass inlets shall be provided to allow dewatering. Water level shall be lowered, and silt and debris shall be pumped, shoveled, or otherwise removed from around rack.
3.2 Repair or replacement of structural members, rods, and shapes shall be by welding or riveting, as applicable to the existing construction. All welding shall be in compliance with AWS D1.1.

DIVISION 6-WOOD AND PLASTICS

Light Wooden Structures Framing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for light wooden structures framing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Grading and Marking: Materials shall bear the grademark, stamp, or other identifying marks indicating grades of material and rules or standards under which they were produced, including requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification. The inspection agency for lumber shall be certified by the Board of Review, American Lumber Standards Committee, to grade species used. Except for structural laminated members, plywood, and lumber, bundle marking or certificates will be permitted in lieu of marking each individual piece. Species and grades are listed in Table 1 at the end of this section.

2.2 Sizes: Lumber sizes shall conform to the requirements of the rules or standards under which produced, and unless otherwise specified, lumber shall be surfaced on four sides.

2.3 Moisture Content: At the time lumber and other materials are delivered and when installed in the work their moisture content shall be as follows:

2.3.1 Treated and Untreated Lumber 2 Inches or Less in Thickness, Except Roof Planking: 19 percent maximum.

2.3.2 Treated and Untreated Lumber Over 2 Inches in Thickness, Except Roof Planking: 25 percent maximum.

2.3.3 Roof Planking 2 Inches or More in Thickness: 15 percent maximum.

2.3.4 Materials Other Than Lumber: In accordance with standard under which product is produced.

2.4 Wood Member Design:

2.4.1 Trussed Rafters: As an option to standard rafters, trussed rafters may be provided. Connections shall be made with light metal plate connectors. Light metal plate connected wood trusses shall be designed in conformance with TPI Design Specifications for Metal Plate Connected Wood Trusses and fabricated in conformance with the TPI Quality Standard for Metal Plate Connected Wood Trusses.

2.4.2 Non-stress graded members shall include plates, caps, bucks, studs, framing for skirting and other miscellaneous framing, blocking, nailers, sleepers, and grounds. Members shall be standard grade or No. 2 grade except studs may be stud grade. Non-stress member grades shall conform to the National Grading Rule for Dimension Lumber established in conformance with the rules or standards under which produced and as applied in individual grading rules of applicable grading agencies.

2.4.3 Structural glued laminated members shall be in accordance with AITC A 190.1. Members shall be sealed with a penetrating sealer and wrapped in accordance with AITC 111.

2.5 Preservative Treatment: Lumber not over 5 inches thick and plywood, when in contact with soil, shall be treated in accordance with AWPB LP-22, LP-33, or LP-44; when specified to be painted or used in built-up roofing systems, AWPB LP-2 or LP-22; and for all other purposes, AWPB LP-2, LP-3, or LP-4. Except as otherwise specified, lumber over 5 inches thick shall be pressure preservative-treated in accordance with AWPA C2. Structural glued laminated timber shall be treated in accordance with AWPA C28. Wood treated with oil-borne preservatives shall be clean, free from surface oil, and properly seasoned for use in building construction. Wood treated with water-borne preservatives shall be marked with the word "Dry." Creosote or coal-tar solutions shall not be used. Surfaces of lumber that will be exposed shall not be incised. Exposed areas of treated wood that are cut or drilled after treatment shall receive a field treatment in accordance with AWPA M-4. Items of all-heart material of cedar, cypress, or redwood will not require preservative treatment, except when in direct contact with soil. Unless otherwise specified, all wood members exposed to weather or in contact with soil, water, masonry, or concrete, and all wood framing members

directly above soil when the bottom elevation is 18 inches or less above soil shall be pressure preservative-treated. The following items will always be treated:

a. All wood members set into concrete regardless of location, including flush-with-deck wood nailers for roofs.

b. All wood members in contact with slabs-on-grade, including wood floor sleepers over waterproofed slab surface.

c. All wood members in contact with foundation walls.

d. Furring strips used on walls or partitions below grade.

e. Furring strips used on exterior walls above grade.

f. All wood members used for rough framing of openings in exterior concrete or masonry walls.

g. All wood members used in exterior exposed construction such as steps, platforms, walkways, railways, and framing for skirting and other miscellaneous framing.

h. Nailing strips used over fiberboard or gypsumboard wall sheathings as a base for wood shingles.

2.6 Fire-Retardant Treatment: Fire-retardant treated wood shall be pressure-treated in accordance with AWPA C20 for lumber and AWPA C27 for plywood. Treatment and performance inspection shall be by an independent and qualified testing agency that establishes performance ratings. Each piece or bundle of treated material shall bear identification of the testing agency to indicate performance in accordance with such rating. Treated materials to be exposed to rain wetting shall be subjected to an accelerated weathering technique in accordance with ASTM D 2898 prior to being tested for compliance with AWPA C20 or C27.

3.0 EXECUTION:

3.1 All nailing shall be in accordance with the recommended nailing schedule as contained in NFOPA Manual for Wood Frame Construction.

3.2 Installation of timber connectors shall conform to applicable requirements of the NFOPA National Design Specification for Wood Construction.

3.3 Members shall be framed for passage of ducts and pipes and shall be cut, notched, or bored in accordance with applicable requirements of the NFOPA Manual for Wood Frame Construction.

3.4 Framing shall be kept at least 2 inches away from chimneys and 4 inches away from fireplace backwalls.

3.5 Leveling of joists, beams, and girders on masonry or concrete shall be with slate or steel; on wood or metal, leveling shall be without shims.

Grading Rules	Species	No. 1	No. 2
NHLA	Red Oak	X	
NELMA	Northern Pine		X
	Eastern Hemlock-Tamarack		X
SPIB	Southern Pine	X	
WCLB	Douglas Fir-Larch		X
	Hem-Fir		X
WWPA	Douglas Fir-Larch		X
	Hem-Fir		X
	Douglas Fir-South		X

Sheathing, Siding and Subflooring

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of sheathing, siding, and subflooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: Materials shall bear the grademark, stamp, or other identifying marks indicating grades of material and rules or standards under which produced. Such identifying marks on material shall be in accordance with the rule or standard under which the material is produced, including

requirements for qualifications and authority of the inspection organization, usage of authorized identification, and information included in the identification. The inspection agency for lumber shall be certified by the Board of Review, American Lumber Standards Committee, to grade species used. Bundle marking or certificates will be permitted in lieu of marking each individual piece, except for structural laminated members, plywood, and lumber. Size and moisture content shall conform to requirements of the rules or standards under which materials are produced.

2.2 Plywood shall be in accordance with DOC PS 1, Grade C-D for wall sheathing and Grade C-D with exterior glue for roof sheathing, unless otherwise specified.

2.3 Roof decking design stresses shall be as specified for structural members. Decking shall be tongue and groove, V-jointed, and matched and dressed where exposed. As an option, fabricated, laminated lumber decking with interlocking tongue and groove joints may be provided.

2.4 Sheathing shall be of either fiberboard, gypsum board, plywood, V-structural-use panels, or wood for wall sheathing; and either plywood, structural-use panels, or wood for roof sheathing and skirting for temporary structures including access doors through skirting as required.

2.4.1 Fiberboard shall be in accordance with ASTM C 208, sheathing grade, or ASTM D 2277; asphalt-impregnated or asphalt-coated to be water-resistant but vapor permeable.

2.4.2 Gypsum board shall be in accordance with ASTM C 79.

2.4.3 Structural-use panels shall meet the qualification requirements of APA Performance Standards and Policies for Structural-Use Panels. Panels shall conform to APA Product Guide for Performance Rated Panels for Sheathing, Exp 1 or 2, or Ext; or Structural I or II Rated Sheathing, Exp 1 or Ext.

2.4 4 Wood shall be center-matched, ship-lapped, or square-edge, except exposed roof sheathing shall be V-jointed, matched and dressed. Species and grade shall be in accordance with Table 1 at the end of this section.

2.5 Shear wall panels shall be of plywood or sheathing conforming to APA Product Guide for Performance Rated Panels for Sheathing, Exp 1 or 2, or Ext; or Structural I or II Rated Sheathing, Exp 1 or Ext.

2.6 Subflooring shall be of either plywood, structural use panels, or wood.

2.6.1 Plywood shall conform to DOC PS 1; Grade C-D for uses not otherwise specified, Grade C-D with exterior glue for reception of underlayment as wood flooring, underlayment grade with exterior glue or C-C (Plugged), and exterior grade for use as a combination subfloor-underlayment under resilient flooring.

2.6.2 Structural-use panels shall be APA Rated structural-use panels qualified for subflooring or combination subfloor-underlayment under APA Performance Standards and Policies for Structural-Use Panels.

2.6.3 Wood shall be center-matched, ship-lapped, or square-edge. Species and grade shall be in accordance with Table 1 at the end of this section.

2.6.4 Adhesive shall conform to APA AFG-01.

2.7 Underlayment shall be either hardboard, particleboard, or plywood.

2.7.1 Hardboard shall be in accordance with ANSI A135.4, service class, sanded on one side, 1/4-inch thick and 4 feet wide.

2.7.2 Particleboard shall be in accordance with ANSI A208.1, Grade 1-M-1, 1/4-inch thick, and 4 feet by 4 feet.

2.7.3 Plywood shall be in accordance with DOC PS 1, underlayment grade with exterior glue, or C-C (Plugged) exterior grade, 3/8-inch thick and 4 feet wide.

2.8 Moisture barrier of building paper shall be asphalt-saturated felt conforming to ASTM D 226, Type I or polyethylene sheeting shall conform to ASTM D 2103, 4 mil thick.

3.0 EXECUTION:

3.1 Nailing shall be in accordance with the Recommended Nailing Schedule as contained in NFOPA Manual for Wood Frame Construction.

3.2 Sheathing Installation:

3.2.1 Fiberboard sheathing shall be applied with edges 1/8 inch apart at joints, fitted snugly at abutting frames of openings, and nailed or stapled. Sheets 2 feet wide shall be applied horizontally with the tongued groove up and with vertical joints over supports and staggered. Sheets 4 feet wide shall be applied vertically, extended over top and bottom plates, and with all vertical and horizontal

joints over supports.

3.2.2 Gypsum board sheathing shall be applied with edges in light contact at joints and nailed. Sheets 2 feet wide shall be applied horizontally with tongued edge up and with vertical joints over supports and staggered. Sheets 4 feet wide shall be applied vertically, extended over top and bottom plates, and with all vertical and horizontal joints over supports.

3.2.3 Plywood sheathing shall be applied with edges 1/8 inch apart at side joints, 1/16 inch apart at end joints, and nailed at supported edges at 6 inches on center and at intermediate supports 12 inches on center. Nailing of edges shall be 3/8 inch from the edges. Wall sheathing shall extend over top and bottom plates. If applied horizontally, the vertical joints shall be made over supports and staggered. Wall sheathing over which wood shingles are to be applied shall be applied horizontally. Roof sheathing shall have face grain at right angles to supports with end joints made over supports and staggered.

3.2.4 Structural-use panels shall be applied with edges 1/4 inch apart at side joints, 1/8 inch apart at end joints, and nailed at supported edges at 6 inches on center and at intermediate supports 12 inches on center. Nailing of edges shall be 3/8 inch from the edges. Wall sheathing shall extend over top and bottom plates and, if applied horizontally, the vertical joints shall be made over supports and staggered. Wall sheathing over which wood shingles are to be applied shall be applied horizontally. Roof sheathing shall have end joints made over supports and staggered.

3.2.5 Wood Sheathing: End joints shall be made over framing members and so alternated that there will be at least two boards between joints on the same support. Each board shall bear on at least three supports. Boards shall be nailed at each support using two nails for boards 8 inches and less in width and three nails for boards more than 8 inches in width.

3.3 Subflooring Installation: A clearance of 1/4 inch shall be provided at walls. Plywood subflooring and structural-use panel subflooring may be installed with adhesive conforming to APA AFG-01 and nails spaced at 12 inches on center. Installation of subflooring with adhesives shall be in accordance with APA Design/Construction Guide: Residential and Commercial. Each plywood or structural-use panel shall have end joints made over supports and staggered. Where finish flooring of different thicknesses is used in adjoining areas, wood trips of the thickness required to bring the finish flooring surfaces to the same plane shall be used under the subfloor panels. Plywood subflooring shall be applied with the face grain at right angles to the supports, with edges 1/8 inch apart at side joints and 1/16 inch apart at end joints. Structural-use panel subflooring shall be applied over two or more supports with the long dimension across supports and with edges 1/4 inch apart at side joints and 1/8 inch apart at end joints. Wood subflooring shall bear on at least three supports.

3.4 Installation of Underlayment shall be applied with edges 1/32 inch apart at joints and a clearance of 1/4 inch at walls. Joints at underlayment shall not be located directly over parallel joints at subflooring. Power driven wire staples of lengths recommended by the underlayment manufacturer may be used in lieu of nails. Any surface roughness at nail heads or joints shall be lightly sanded to blend with the undisturbed surface. When plywood combination subfloor-underlayment is used in lieu of separate layers, it shall be installed as specified for plywood subfloor, except all joints shall be made over supports with edge joints spaced 1/8 inch apart and end joints spaced 1/16 inch apart. When plywood combination subfloor-underlayment is tongued and grooved, only end joints shall require support. Tongued and grooved combination subfloor-underlayment shall be applied with joints spaced 3/32 inch apart.

3.5 Installation of Shear Wall Plywood or Structural-Use: Panels shall be installed with the long dimension parallel or perpendicular to the supports. Blocking shall be provided behind edges not located over supports.

3.6 Moisture barrier shall be applied over all wood wall sheathing, over studs to directly receive horizontal siding or board siding, over any wall sheathing to receive an unbacked stucco base, and over square edge wood subflooring to receive wood strip flooring. Moisture barrier over sheathing shall be applied horizontally, starting at the bottom, lapped 6 inches at edges and ends, and nailed at laps 16 inches on center. Moisture barrier over subfloor shall be applied as the strip flooring installation progresses and lapped 2 inches at edges and ends.

SPECIES AND GRADE

Subflooring, Roof Sheathing, Wall Sheathing, Furring

Grading Rules	Species	Standard	Const Comm	No.2 Board	No.2 Comm	No.3 Comm
NHLA	Cypress					X
NELMA	Northern White Cedar					X
	Eastern White Pine	X				X
	Northern Pine	X				X
	Balsam Fir					X
	Eastern Hemlock-Tamarack					
NHPMA	Eastern White Pine					
	Northern Pine					
	Balsam Fir					
	Eastern Hemlock-Tamarack					
RIS	Redwood		X			
SCMA	Cypress				X	
SPIB	Southern Pine			X		
WCLB	Douglas Fir-Larch	X				
	Hem-Fir	X				
	Sitka Spruce	X				
	Mountain Hemlock	X				
	Western Cedar	X				
WWPA	Douglas Fir-Larch					X
	Hem-Fir					X
	Idaho White Pine					X
	Lodgepole Pine					X
	Ponderosa Pine					X
	Sugar Pine					X
	Englemann Spruce					X
	Douglas Fir South					X
	Mountain Hemlock					X
	Subalpine Fir					X
	Western Cedar					X

Wood Trusses

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for maintenance and repair of wood trusses. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Structural glue-laminated timber shall comply with ANSI/AITC A190.1. Lumber for laminating shall be of a stress grade providing glue-laminated members with allowable stress values of 2,000 psi in bending, 1,600 psi in tension, 1,500 psi in compression parallel to grain, and 385 psi in compression perpendicular to grain for dry condition of service.

2.1.1 Adhesives shall meet requirements for dry condition of service.

2.1.2 Appearance of members shall be Industrial Grade. Plywood shall comply with DOC PS 1.

2.1.3 Surfaces of members shall be sealed with a penetrating sealer. Members shall be delivered individually wrapped. Do not unwrap until members are installed and adequate protection is provided.

2.2 Timber Connections:

2.2.1 Split-ring connectors shall be SAE 1010 hot-rolled carbon steel. Rings shall be of standard

manufacture and shall fit snugly into pre-cut groove.

2.2.2 Shear Plate:

2.2.2.1 Pressed steel type shall be SAE 1010 hot-rolled carbon steel. Shear plates shall be of standard manufacture.

2.2.2.2 Malleable Iron Type: Casting shall comply with ASTM A 47, Grade 35018. Casting shall be of standard manufacture.

2.3 Fasteners:

2.3.1 Nails: Fed. Spec. FF-N-105.•06135

2.3.2 Anchor Bolts, Lag Bolts, and Miscellaneous Bolts and Screws: ASTM A 307. Type, size, and finish shall be best suited for the intended use.

2.4 Saw Lumber:

2.4.1 Lumber shall be one of the following species and commercial grades:

2.4.1.1 Douglas Fir or Larch: Select structural (1500 f) or better.

2.4.1.2 Southern Pine: No. 1 (1500 f) or better.

2.4.1.3 Western Hemlock: Select structural (1500 f) or better.

2.4.2 Sizes, grading and marking shall comply with the requirements of the rules or standards under which produced, and unless otherwise indicated, lumber shall be surfaced on four sides. Dressed sizes shall be accepted as the minimum net sizes conforming to nominal sizes. Lumber shall be free from warp. All timber materials shall bear a grademark or other identifying marks indicating grades of material and standards under which produced. If lumber is treated, treatment and retention shall be indicated.

2.5 Preservative Treatment: All lumber shall be preservative-treated unless otherwise indicated. Pressure treat with water borne salt preservative. The retention shall be a minimum of 0.25 pounds per cubic foot. Treatment shall comply with Fed. Spec. TT-W-00571 and AWPA P5. Give all cuts and abrasions 2 brush coats of the same preservative as used at the factory.

2.6 Moisture Content: The moisture content of wood shall not exceed 15 percent at the time of treatment or installation.

3.0 EXECUTION:

3.1 Wiring Conflicts: Piping and electrical wiring conflicting with erection of members shall be removed and placed in a new position approved by the Authorized Member Representative. Provide temporary utilities and coordination to prevent outages during this period.

3.2 Connections: Drive nails and spikes with just sufficient force to set the heads flush with the surface of the wood. Drill bolt holes a maximum of 1/16 inch larger than the diameter of the bolt. A washer not less than a standard cut washer, or in lieu thereof a metal plate or strap, shall be between the wood and the bolt head and between the wood and the nut. Lag screw holes for the unthreaded portion of the shank shall be the same diameter as the shank and the same depth as the length of the unthreaded shank. The lead hole for the threaded portion of the shank shall be properly sized for species of lumber involved. Insert the threaded portion of the lag screw into its lead hole by turning with a wrench.

3.2.1 Nails: Use 8-penny or larger nails for nailing through 1-inch thick lumber and for toe nailing 2-inch thick lumber; use 16-penny or larger nails for nailing through 2-inch thick lumber. Size and spacing of nails shall comply with NFOPA Specification for Stress-Graded Lumber and its Fastenings.

3.2.2 Wood Screws: Lead holes for withdrawal resistance shall have a diameter of 70 percent of the root diameter of the wood screw. Lead holes for lateral resistance shall have a diameter of 7/8 of the root diameter of the wood screw. The part of the hole receiving the shank shall be about 7/8 the shank diameter. Insert screws in the lead holes by turning with a screw driver or other tool.

3.2.3 Timber Connections: Install the split ring and shear plate in grooves cut by the Contractor.

3.3 Truss Connections and Splices: Tighten all loose bolts and screws, adding washers as required. Remove and replace severely corroded or deteriorated bolts and screws.

3.4 Repair of Bearings and Anchor Bolts: Remove corrosion by wire brushing, sanding, or other approved method. Additional repair requirements shall be as directed.

3.5 Repair of Excessive Truss Deflection: Install tension turnbuckles or install a strengthening system as required to correct deflection.

Timber Bridge Components

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of timber bridge components. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Timber for bridges shall comply with the specifications for timber bridges contained in the state's standard specifications.

2.2 Preservative treatment shall comply with the specifications for preservative treatment contained in the state's standard specifications. All timber shall be treated unless specified otherwise.

2.3 Hardware and Castings:

2.3.1 Castings: Cast steel shall comply with ASTM A 27, Grade 70-36, or gray iron castings shall comply with AASHTO M105 Class No. 30, unless otherwise specified.

2.3.2 Hardware:

2.3.2.1 Machine bolts, drift-bolts, and dowels may be either wrought iron or rolled steel. Machine bolts shall have the square heads and nuts unless otherwise specified.

2.3.2.2 Cast washers shall be made of malleable or gray iron. The outside diameter shall not be less than 3 1/2 times the bolt diameter and its thickness equal to the bolt diameter. Plate washers shall be made of wrought iron or rolled steel. The outside diameter shall not be less than 3 1/2 times the bolt diameter, and they shall not be less than 1/4 inch thick.

2.3.2.3 Nails and spikes shall comply with Fed. Spec. FF-N-105.

2.3.2.4 Finish: Unless otherwise specified, all hardware for treated timber bridges shall be galvanized or cadmium-plated. Galvanizing shall comply with ASTM A 123 or A 153. Cadmium plating of steel shall comply with ASTM B 766.

2.4 Timber connectors shall be ring type or plate type and shall be galvanized in compliance with ASTM A 123 or A 153.

2.4.1 Split Ring: SAE 1010 hot-rolled carbon steel of standard manufacture.

2.4.2 Tooth Ring: Stamped cold form 16-gauge steel sheet complying with SAE 1010 hot-rolled carbon steel of standard manufacture.

2.4.3 Shear-plate timber connectors:

2.4.3.1 Pressed steel type shall be SAE 1010 hot-rolled carbon steel of standard manufacture.

2.4.3.2 Malleable iron type shall be ASTM A 47, Grade No. 36018 of standard manufacture.

2.5 Structural glue-laminated timber shall comply with ANSI/AITC A190.1. Lumber for laminating shall be of such stress grade as to provide glue-laminated members with allowable stress values of 2,000 psi in bending, 1,600 psi in tension, 1,500 psi in compression parallel to grain, and 385 psi in compression perpendicular to grain for dry condition of service.

2.5.1 Adhesives shall meet requirements for wet condition of service.

2.5.2 Surfaces of members shall be sealed with a penetration sealer or sealed with a sealer coat.

2.6 Ties: Comply with Section 3.1.1 of AREA-01 Manual. Ties shall be treated with creosote, creosote-petroleum solution, or pentachlorophenol in compliance with Section 3.9 of AREA-01.

2.7 Asphalt cement shall comply with AASHTO M20, penetration grade 85-100.

2.8 Surface coat aggregate shall be ASTM D 692, except the gradation shall be as follows:

Sieve Size	Percent Passing (Wt.)
1/2 in.	100
3/8 in.	94-100
No. 4	15-45
No. 16	0-4

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Traffic Control: When traffic is maintained on bridge under repair or is directed over a temporary run-around, furnish, erect, and maintain all barricades, flags, torches, lights, guardrails, temporary pavement markings, and traffic control signs required for the protection of the public and for the

direction of traffic. Number, type, color, size and placement of all traffic control color, size, and placement of all traffic control devices and the use of a flagman shall comply with USDOT FHA MUTCD "Traffic Controls for Highway Construction and Maintenance Operations." All traffic control devices in advance of the construction limits shall also be the responsibility of the Contractor.

3.1.2 Treated Timber: Give all cuts, abrasions, and holes made after treatment 2 applications of 60 percent creosote oil and 40 percent roofing pitch or brush coat with 2 applications of hot creosote oil and covered with hot roofing pitch. Any unfilled holes, after being treated with preservative oil, shall be plugged with treated plugs.

3.2 Erection:

3.2.1 Holes:

3.2.1.1 Drift Bolts and Dowels: Bore holes for round drift bolts and dowels with a bit 1/16 inch less in diameter than the bolt or dowel to be used. The diameter of holes for square drift bolts or dowels shall be equal to the least dimension of the bolt or dowel.

3.2.1.2 Machine Bolts and Rods: Bore holes for field fabrication with a bit the same diameter as the bolt. Holes for fabrication prior to treatment shall be 1/16 inch larger than the bolt diameter.

3.2.1.3 Lag Screws: Bore hole with a bit not larger than the body of the screw at the base of the thread.

3.2.2 Nuts and Washers: Use a washer of the size and type specified under all bolt heads and nuts except carriage bolts. The nuts of all bolts shall be locked by scoring threads after they have been finally tightened.

3.2.3 Countersinking: Paint all recesses in treated timber formed for countersinking with hot creosote oil. Fill recesses likely to collect injurious materials with hot pitch. 3.2.4 Framing: All lumber and timber shall be accurately cut and framed to a close fit in such manner that the joints will have even bearing over the entire contact surfaces. Place stringers in position so that knots near edges will be in the top portions of the stringer. Screw type fastenings shall be screwed into place for the entire length of the fastener. Install the split ring and the shear plate in grooves cut by the Contractor. Force the toothed ring into the contact surfaces of the timbers jointed by means of pressure equipment.

3.2.5 Nailing: Nails and spikes shall be driven with just sufficient force to set the heads flush with the surface of the wood.

3.3 Maintenance and Repair Methods:

3.3.1 Timber Deck:

3.3.1.1 Remove existing plank floor deck and fasteners and replace with new planks and fasteners. Lay the floor planks at 45 degrees to centerline of roadway. When more than one length of plank is required, stagger joints between abutting ends at least 3 feet in any two adjacent lines of plank.

3.3.1.2 Standard wrought washers shall be used under the heads of all lag screws and under the heads or nuts of all machine bolts. Where machine bolts are used for fastening the floor plank all nuts used shall be locknuts. Countersink heads of all lag screws and bolts in the surface of the floor. Fill recesses formed for countersinking with hot pitch.

3.3.1.3 Bituminous Surface Coat: Clean the floor of foreign materials. Apply asphalt cement at a temperature of 275 F to 350 F and at a rate of approximately 1/4 gallon per square yard of surface. The deck shall be dry at the time of bitumen application. Cover the entire surface with a thin coating of aggregate in a sufficient quantity to take up any free bitumen.

3.3.2 Hardware: Remove all corrosion by sandblasting or wire brushing. Replace all loose bolts and screws, adding washers as required. Replace deteriorated hardware.

3.3.3 Metal Tread Plates: Remove and replace treads as directed. Before installing treads, remove high spots and rough spots in the plank floor so that the treads will be in contact with the floor for their full length and width. Treads shall be laid in a heavy mop coat of asphalt filler. Treads shall be laid with a space of 1/4 inch between adjacent ends and shall be fastened by means of 3/8-inch galvanized bolts. Where bolts cannot be used, use 3/8-inch by 3-inch galvanized lag screws.

3.3.4 Timber Railroad Bridge Deck: Remove defective ties and guardrail, including fasteners, and replace with similar ties, guardrail, and fasteners as directed.

3.3.5 Repair of Structural Timber Members: Repair, including removal and replacement, shall be as directed.

Millwork

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of millwork. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: All millwork products shall be marked with manufacturer's identification and grade, in compliance with Architectural Woodwork Institute (AWI) quality grade. Products shall conform to applicable requirements of AWI Architectural Woodwork Quality Standards, Guide Specifications, and Quality Certification Program and Woodwork Institute of California (WIC) Manual of Millwork.

2.2 Millwork: Millwork shall include the following representative examples of architectural woodwork:
a. Exterior cornices, fasciae, and soffits.
b. Trim for exterior and interior openings.
c. Frames for exterior and interior doors and other openings.
d. Casework.
e. Wood shelving.

2.3 Wood Moisture Content: Lumber for millwork shall be kiln-dried to an average moisture content range of 9 percent to 13 percent for exterior work and 6 percent to 11 percent for interior work.

2.4 Grade of Work: Interior millwork surfaces that are to receive transparent finishes shall be premium grade of the species selected. Millwork surfaces that are to be painted shall be custom grade of the species selected.

2.5 Fire-Retardant Marking: Each unit of fire-retardant treated wood and plywood shall be marked with the producer's label and UL label showing grade and rating.

2.6 Preservative Treatment: Exterior millwork and designated interior millwork shall be preservative-treated in accordance with NWWDA I.S.4. Use a preservative that will not interfere with the designated finish. Apply brush coat on surfaces cut after treatment.

3.0 EXECUTION: Millwork shall be installed plumb, level, true, and straight with no distortions. Millwork that abuts adjoining work shall be scribed and cut to fit. Millwork shall be installed with a minimum number of joints, coped at returns, mitered at corners, and shall comply with quality standards for joinery.

Cabinets

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of cabinets. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Cabinets shall comply with ANSI/NKCA A161.1.

2.2 Countertops shall comply with ANSI A161.2.

2.3 Materials:

2.3.1 Particleboard shall be ANSI A208.1 mat-formed particleboard, Grade 1-M-2 with minimum density of 40 lbs/cu ft, internal bond of 60 psi; and minimum screw holding capacity of 225 lbs on faces and 200 lbs on edges.

2.3.2 Plastic laminate shall be NEMA LD 3.

2.3.3 Hardwood plywood shall be HPMA FE.

2.3.4 Hardwood lumber shall be clear, dry, sound, and free of defects, First Grade Lumber (NHLA).

2.3.5 Hardboard shall be ANSI A135.4, Class 1, tempered.

2.3.6 Decorative boards shall be low pressure melamine plastic laminate composite panels.

2.3.7 Medium density fiberboard shall be ANSI A208.2.

2.4.8 Transparent finish construction wood cabinet:

2.4.1 Solid lumber and plywood face veneer shall be selected for compatible grain and color of the species.

2.4.2 Semi-Exposed Materials:

2.4.2.1 Solid Lumber: Dry, sound, selected to eliminate appearance defects, of any species of hardwood

or softwood, with color and grain characteristics similar to exposed portions.
2.4.2.2 Plywood: Species to match color and grain of exposed members; with particleboard core or veneer core.
2.4.3 Style of Face Construction: Provide base, wall, and full height units with drawer fronts, doors, and fixed panels overlaying and concealing face frames of cabinet body, as required.
2.4.4 Face Frame Style: Provide base, wall, and full height units with face frames of cabinets exposed around drawer fronts and doors.
2.4.4.1 Drawer Fronts and Doors: Surface applied or recessed flush with cabinet front, as required.
2.4.4.2 Flush Style Door Construction: Lumber core plywood, 5-ply with hardwood face veneers and crossbanding.
2.4.4.3 Flush Style Drawer Fronts: Same construction as door, or solid or glued-up lumber, not less than 1/2 inch thick.
2.4.4.4 Stile and Rail Drawer Fronts and Doors: Of design selected, with stiles and rails of solid lumber, 3/4 inch thick for doors and 5/8 inch thick for drawer fronts.
2.5 Countertop Construction:
2.5.1 Exposed Surfacing Material: High pressure plastic laminate, 0.050 inch thick, general purpose type (GP50); except where postformed countertop configuration is required, when 0.042 inch thick, postforming type (PF42) shall be used.
2.5.2 Substrate (Core) for Exposed Surfacing Material: Particleboard.
2.5.3 Countertop Configuration: Provide countertops with front styles (nose), cove, and backsplash style, as required.
2.5.4 Countertop Thickness: Not less than 1-1/2 inches with substrate (core) not less than 3/4 inch thick.
2.6 Cabinet Hardware: ANSI/BHMA A156.9.
2.7 Accessories: Provide designated accessories.
3.0 EXECUTION: (Section not used.)

Wood Paneling
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of wood paneling. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 General: Paneling shall bear a stamp, brand, or other identifying mark indicating quality, construction and compliance with the grading rules of the respective grading and inspecting agency for the species and product indicated. Marking shall be placed on blind sides only.
2.2 Plywood paneling shall be of softwood or hardwood veneers, as designated. Plywood shall comply with PS 1 and ANSI A199.1. Hardwood plywood shall comply with PS 51.
2.3 Board type paneling shall be of softwood or hardwood, as designated. Softwood shall comply with PS 20. Hardwood shall comply with National Hardwood Lumber Association rules.
2.4 Hardboard products type paneling shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less when tested in accordance with ASTM E 84.
3.0 EXECUTION:
3.1 Preparation: Backprime material when exposed to moisture and high relative humidity.
3.2 Installation:
3.2.1 Plywood Paneling: Where grain character or color variations are noticeable, select and arrange panels on each wall for best match of adjacent panels. Install in accordance with manufacturer's instructions.
3.2.2 Board Type Paneling: Arrange in random-width pattern unless boards are of uniform width. Install in accordance with manufacturer's instructions.
3.2.3 Hardboard Products Type Paneling: Install in accordance with manufacturer's instructions.

DIVISION 7-THERMAL AND MOISTURE PROTECTION

Bituminous Waterproofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of bituminous waterproofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Asphalt Waterproofing:

2.1.1 Primer: Asphalt waterproofing material shall comply with Fed. Spec. SS-A-701.

2.1.2 Bitumen: A heavy-bodied bituminous compound of trowel consistency, heavily reinforced with fiber, complying with Fed. Spec. SS-C-153, Type I.

2.2 Tar Waterproofing:

2.2.1 Primer: Creosote complying with ASTM D 43.

2.2.2 Bitumen: Coal-Tar Pitch complying with ASTM D 450.

3.0 EXECUTION:

3.1 Primer:

3.1.1 Diluted Asphalt: Apply by brush or power spray in a continuous unbroken film, free from pinholes or other surface breaks.

3.1.2 Creosote: Apply by brush, roller, or power spray.

3.2 Bitumen:

3.2.1 Asphalt: Apply a 1/16 inch coating by trowel in a continuous unbroken film. Wait 24 hours and apply a second 1/16 inch coating.

3.2.2 Coal-Tar Pitch: Apply with mop or roller in a continuous, unbroken film, free from pinholes over any exposed surface area. Wait 24 hours and apply second coat.

Bituminous Membrane Waterproofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of bituminous membrane waterproofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Asphalt Membrane Waterproofing:

2.1.1 Primer: Asphalt waterproofing compound complying with Fed. Spec. SS-A-701.

2.1.2 Joint Covering: Asphalt saturated felt, complying with ASTM D 250.

2.1.3 Membrane: Burlap fabric, complying with ASTM D 1327; open mesh fiberglass, smooth, evenly woven to permit complete penetration of asphalt compound complying with ASTM D 1668, Type I; or asphalt-coated or saturated felt, complying with ASTM D 250.

2.1.4 Bitumen: A heavy-bodied bituminous compound of trowel consistency complying with Fed. Spec. SS-C-153, Type I.

2.1.5 Protection: A rigid or semi-rigid board for protection of membrane waterproofing from penetration by sharp objects during backfilling and later settlement. The board shall be an asphaltic core board or asphalt-saturated fiberboard complying with ASTM C 208. Thickness shall be 1/8 inch.

2.2 Tar Membrane Waterproofing:

2.2.1 Primer: Creosote complying with ASTM D 43.

2.2.2 Joint Covering: Coal-tar saturated felt, complying with ASTM D 227.

2.2.3 Membrane: Burlap fabric complying with ASTM D 1327; open mesh fiberglass, smooth, evenly woven to permit complete penetration of coal-tar compound; or coal-tar coated or saturated felt.

2.2.4 Bitumen: Coal-tar pitch complying with ASTM D 450.

2.2.5 Protection: A rigid or semi-rigid board for protection of membrane waterproofing from penetration by sharp objects during backfilling and later settlement shall be provided. The board shall be an asphaltic core board or asphalt saturated fiberboard. If used with coal-tar products, the board shall

be faced with a polyethylene film to separate dissimilar materials. Thickness shall be 1/8 inch.

3.0 EXECUTION:

3.1 Installation:

3.1.1 Primer:

3.1.1.1 Diluted Asphalt: Apply by brush or power spray in a continuous unbroken film, free from pinholes or other surface breaks.

3.1.1.2 Creosote: Apply by brush, roller, or power spray.

3.1.2 Bitumen and Membrane:

3.1.2.1 Reinforce all inside and outside corners, joints, cracks, or places where stresses are likely to occur, with no less than two plies of fabric in alternate coats of bitumen.

3.1.2.2 All penetrations through the wall such as pipes, conduits, etc., shall be sealed with two additional plies.

3.1.2.3 Apply the specified number of plies of membrane material in alternate coats of bitumen.

3.1.2.4 For vertical applications, secure membranes near the top of each course.

3.1.2.5 Coat last ply of membrane with a thorough coat of bitumen.

3.2 Protection: As the membrane is completed, apply the protection course. Apply the protection board in a solid coating of asphalt or coal-tar pitch. All coatings must be dry before application of the protection board. Apply protection board by the lap method (lap each sheet 6 inches over preceding sheet) or by the batten method (butt each sheet then apply a 6-inch strip of protection board in adhesive over all joints).

Plastic Sheet Waterproofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of plastic sheet waterproofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Butyl Sheet shall be an impermeable butyl rubber membrane 1/16 inch thick having a tensile strength of 1,200 psi minimum, complying with ASTM D 412, and an elongation of 300 percent minimum, complying with ASTM D 412. Butyl sheet shall be resistant to ozone and remain flexible to 40 F below zero.

2.2 Neoprene Sheet shall be an impermeable, self-extinguishing, ozone-resistant material 1/16 inch thick. Neoprene shall have a tensile strength of 1,500 psi minimum, complying with ASTM D 412, and an elongation of 250 percent minimum, complying with ASTM D 412.

2.3 Ethylene Propylene Diene Monomers (EPDM) Sheet shall be an impermeable membrane resistant to ozone and ultraviolet. EPDM shall have a tensile strength of 1,400 psi minimum, complying with ASTM D 412, and an elongation of 300 percent minimum, complying with ASTM D 412.

2.4 Vinyl sheet shall be heavy-duty polyvinyl chloride sheet, complying with ASTM D 3083.

2.5 Primers: As required.

2.6 Adhesives:

2.6.1 Adhesive for cold application shall be a non-setting bitumen cut-back asphalt.

2.6.2 Adhesive for hot application shall be asphalt complying with ASTM D 312, Type III.

2.7 Butt Joint Tape: Elastomeric vapor barrier in 6-inch wide rolls. Tape shall be self-adhesive and require no additional adhesive.

3.0 EXECUTION:

3.1 Primer: Apply primer by brushing or spraying uniformly over surface to receive membrane. Allow primer to dry before applying membrane.

3.2 Membrane:

3.2.1 At footings, shape the membrane to conform to the surface by cutting a strip of sufficient width to seat over the footing and at least six inches up the wall.

3.2.2 On vertical surfaces, apply adhesive to both wall and membrane.

Fluid-applied Waterproofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of fluid-applied waterproofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Two-Component Polyurethane: Two component, self-curing urethane system to form a seamless, permanently flexible and waterproof coating. Compound shall be a light-weight, 99 percent solids, liquid-applied system.

2.2 Single Component Polyurethane: One-part moisture cured elastomeric urethane for adhesion to concrete or wood. Compound shall be hard, flexible material with resistance to weather, gas, oil, and salt water having a temperature range of -65 F to +200 F.

2.3 Two-Component Polyurethane Rubber Base: Liquid-applied, elastomeric two component urethane rubber, 100 percent solids materials containing no coal-tar or asphaltic extenders. After proper mixing, with activators that are supplied as a unit, it shall cure to an elastomeric urethane rubber.

2.4 Two-Component Polysulfide Base Liquid Polymer: Two-component, chemically-curing, high-solids compound containing liquid polysulfide polymer. Product shall be furnished in two components: Part 1, consisting of the cure agent and suitable reinforcing agents; Part 2, the base component, incorporating liquid polysulfide polymer.

2.5 Modified Polyurethane Coal-Tar (Spray Grade): Two-part product, consisting of: Part 1, a blend of polyurethane resins, and Part 2, containing a selected blend of coal-tars, catalysts, and modifiers. The cured membrane shall be a seamless, low modulus, high elongation, physically and chemically resistant synthetic rubber.

2.6 Modified Polyurethane Coal-Tar (Trowel Grade): One component polyurethane coal-tar modified compound that forms a continuous seamless, flexible, impervious membrane when applied to vertical or horizontal surfaces.

2.7 Elastomeric Sheet Reinforcing: Smooth, evenly woven, open mesh glass fiber fabric weighing 1/4 ounce per square foot and which permits complete penetration of waterproofing compounds.

2.8 Protection Board: Rigid or semi-rigid board for protection of membrane waterproofing shall be an asphaltic core board or an asphalt saturated fiberboard complying with ASTM C 208. Protection board shall be 1/8 inch thick. If used with coal-tar products, the board shall be faced with a polyethylene film to separate dissimilar materials.

3.0 EXECUTION:

3.1 Two-Component Polyurethane:

3.1.1 Prime surfaces as required.

3.1.2 Spray machine mixed membrane coating directly onto the prepared surfaces to the desired thickness.

3.1.3 Apply the second spray coat after application of the first coat.

3.2 Single Component Polyurethane:

3.2.1 Prime surfaces as required.

3.2.2 Application shall be spray-applied.

3.2.3 Below grade exterior applications shall receive two coats.

3.3 Two-Component Polyurethane Rubber Base:

3.3.1 Prime surfaces as required.

3.3.2 Apply compound by hand trowel to a thickness of 1/16 inch.

3.3.3 Before membrane is completely cured, place protection board over the surface.

3.4 Two-component Polysulfide Base Liquid Polymer:

3.4.1 Fill all joints and cracks over 1/8 inch in width with a polysulfide polymer base sealant. Apply a bond breaker over the joint and cover with 100 mil coating of the elastomeric material.

3.4.2 Apply membrane by spray in a continuous unbroken film. Surface coverage shall be at the rate of approximately 20-25 square feet per gallon to produce a thickness of 60 mils.

3.5 Modified Polyurethane Coal-Tar (Spray Grade):

3.5.1 Prime surfaces with required primer.

3.5.2 Apply with proper spray equipment in a continuous unbroken film. Application rate shall be approximately 25 sq. ft. per gallon to produce a thickness of 60 mils.
3.6 Modified Polyurethane Coal-Tar (Trowel Grade):
3.6.1 Prime surfaces with required primer.
3.6.2 Mix and apply with hand trowel in a continuous unbroken film.
3.6.3 Place protection board after membrane has attained its initial set.
3.7 Elastomeric Sheet Reinforcing for Fluid-Applied Waterproofing: Trowel fabric into first coat of membrane while membrane material is soft and pliable. Install sheet reinforcing in compliance with membrane compound manufacturer's requirements.
3.8 Protection Board:
3.8.1 Apply protection board over membrane while membrane material is still tacky.
3.8.2 Apply protection board by the lap method.

Metal Waterproofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of metal waterproofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Lead sheet and strip shall be fabricated from 99 percent pure soft lead or lead alloy containing six to seven percent antimony. Four or eight pound per square foot lead shall be used for all work.
2.2 Copper sheet and strip shall be fabricated of 16 or 20 ounce per square foot tough-pitch copper. Copper shall be either hot-rolled soft copper or cold-rolled copper. Copper shall have a lead coating of 15 pounds per 100 square feet of copper (7-1/2 pounds on each face of copperplate).
2.3 Solder: Solder shall be 50 percent lead and 50 percent tin solder with a resin flux.
2.4 Bituminous paint shall be high quality proper bodied bituminous (asphalt) compound of brush or spray consistency. Compound shall contain a hydrophilic wetting agent to ensure proper adhesion. Bituminous paint shall comply with Fed. Spec. SS-A-701.
3.0 EXECUTION:
3.1 Lead Pan Waterproofing:
3.1.1 Preparation: All surfaces on which lead is to be applied shall be smooth; rough projections shall be eliminated. Lead surfaces in contact with uncured concrete, mortar, or in other corrosive locations shall be given a coat of bituminous paint prior to installation.
3.1.2 Small holes and spot repairs shall be accomplished by soldering the leak spots.
3.1.3 Large damaged areas shall be cut out and replaced with lead sheet or strip of the proper weight lead. Apply a coating of bituminous paint to the affected area after the new sheet or strip lead has been soldered in place.
3.1.4 Joints: Use optimal size of sheet or strip to compensate for expansion. Pre-tin all soldered joints and clean immediately after soldering. All joints shall be soldered.
3.1.5 Corners: Wall sheets shall end short of corners. Mold full sheet around corners and joint with wall sheets each side of corner.
3.2 Copper Waterproofing:
3.2.1 Preparation: All surfaces on which copper is to be applied shall be smooth; rough projections shall be eliminated. Give copper surfaces in contact with uncured concrete, mortar, dissimilar metals, or in other corrosive locations a coat of bituminous paint prior to installation.
3.2.2 Fabrication: Prefabricate shapes as required. Copper sheet and strip shall be bent only to rounded angles with no sharp creases.
3.2.3 Small holes and spot repairs shall be accomplished by soldering.
3.2.4 Large damaged areas shall be cut out and replaced with copper sheet or strip of proper weight. Apply a coating of bituminous paint to the affected area after the new sheeting or strip copper has been soldered in place.
3.2.5 Joints: Use optimal size sheet or strip to compensate for expansion. Pre-tin all soldered joints and clean immediately after soldering.

Bentonite Clay Waterproofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of bentonite clay waterproofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Preformed Bentonite Clay Panels and Tubes:

2.1.1 Panels shall be made of dry bentonite granules packed into the corrugated flutes of biodegradable Kraft boards. Panels shall be four feet square by 3/16 inch thick and weigh 18 pounds.

2.1.2 Tubes shall be a water soluble polyvinyl alcohol container filled with dry granular bentonite and hermetically sealed. Tubes shall be two-inch diameter by two-foot lengths and weigh approximately three pounds.

2.2 Bentonite Gel: Clay composition of hydrated aluminum silicate, which swells upon absorption of water into a thick gel.

2.3 Joint Seal: A hydrated bentonite gel for trowel application to concrete for sealing construction joints, form tie voids, and wall penetrations.

2.4 Joint-pak Containers: A biodegradable Kraft container filled with dry bentonite granules for preformed concrete joints in below grade foundation walls. Standard joint-paks shall be 1-1/4 x 1-1/4 inches, weighing approximately 1.1 pounds. Provide triangular-shaped cross section 2-3/8 x 2-3/8 x 2-3/8 inches x 2 feet long, weighing approximately 3 pounds for inside corner joints.

2.5 Chemically Modified Bentonite For Spray Application: High pressure spray combining bentonite clay with a modified asphalt binder that adheres the bentonite to vertical surfaces. Clay content shall be 1-1/2 pounds per square foot.

2.6 Moisture Barrier: 4 mil polyethylene sheeting complying with ASTM D 2103.

2.7 Protection Board: Multi-ply, semi-rigid board composed of a mineral fortified asphaltic core between a layer of asphalt saturated liner and a weathercoated glass mat liner with polyethylene film facing. Protection board shall be 4 feet by 8 feet by 1/8 inch. 2.8 Masonry Nails: 2-inch minimum by No. 9 fluted masonry nails with 1-inch minimum diameter disks complying with Fed. Spec. FF-N-105 for fastening panels to concrete and masonry walls.

3.0 EXECUTION:

3.1 Maintenance and Repair Methods:

3.1.1 Preformed Bentonite Panels:

3.1.1.1 Prior to installation of panels, parge all joints and cracks with joint seal to 1/8-inch minimum depth and 3-inch minimum width. Apply panels with masonry nails, joint seal, or approved mastic. Fold and attach panels around corners with corrugations horizontal. Lap all adjoining panel edges 1 1/2 inches and stagger vertical joints of succeeding courses.

3.1.1.2 Install polyethylene sheeting immediately after panels are installed to provide temporary protection to bentonite panels against moisture. Overlap sheeting four inches. Apply sheeting with adhesive.

3.1.1.3 Install protection board with the asphalt-saturated felt face against the waterproofing for protection from damage by maintenance and repair activities including backfilling.

3.1.1.4 Bentonite Tubes: Place bentonite tubes along the base of the first panel course on sidewall applications to provide protection at the footing-foundation joint.

3.1.2 Chemically Modified Bentonite Spray:

3.1.2.1 Remove damaged material if damage is extensive, and completely clean area of application.

3.1.2.2 If small spot repair is all that is required, cover damaged area with bentonite panel or pour loose dry granular bentonite adjacent to the damage.

3.1.2.3 For large scale repair work, apply a spray coating of minimum 3/8-inch bentonite to the damaged surface.

3.1.2.4 At foundation-footing joint spray, application shall be two inches thick in a cove or cant configuration.

3.1.2.5 Spray joints with a double thickness, resulting in a membrane 3/4 inch to one inch thick. For

small areas, joint seal may be trowel-applied.
3.1.3 Miscellaneous Joint Seals:
3.1.3.1 Bentonite gel shall be trowel-applied to concrete for sealing construction joints, form tie voids, and wall penetrations.
3.1.3.2 Bulk granular Bentonite may be poured at the base joints of walls and foundations.
3.1.3.3 Press joint-pak containers filled with dry granular bentonite into preformed joint cavities next to PVC waterstop in joints between two concrete pours.

Bituminous Dampproofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of bituminous dampproofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Asphalt Dampproofing:
2.1.1 Primer: Fed. Spec. SS-A-701.
2.1.2 Cement, Bituminous Plastic: ASTM D 449. A heavy-bodied asphalt emulsion of brush or power spray consistency.
2.1.3 Asphalt: ASTM D 449. Hot asphalt or asphalt emulsions for mop application.
2.2 Tar Dampproofing:
2.2.1 Primer: Creosote complying with ASTM D 43.
2.2.2 Bitumen: Coal-tar pitch complying with ASTM D 450.
3.0 EXECUTION:
3.1 Preparation: Remove all materials completely, exposing the base surfaces to which the dampproofing materials are to be applied.
3.2 Installation:
3.2.1 Application of Dilute Asphalt Emulsion Primer: Brush or spray in a continuous unbroken film, free from pinholes or other surface breaks.
3.2.2 Application of Creosote Primer: Apply with a brush or roller to entire surface.
3.2.3 Interior and Exterior Cold Application: Brush or spray apply without thinning in a continuous unbroken film, free from pinholes or other surface breaks. Apply to entire primed area.
3.2.4 Exterior Hot Application:
3.2.4.1 Coal-Tar Pitch: Apply over exposed surface area with mop or roller in a continuous, unbroken film, free from pinholes.
3.2.4.2 Asphalt: Mop two coats of hot asphalt over the entire primed area. Use not less than 25 pounds per 100 square feet.

Silicone Dampproofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of silicone dampproofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of material shall be as required to support the work.
2.0 PRODUCTS: Silicone water repellent (5 percent solution) shall be a clear, ready to use liquid consisting of polymerized silicone resins and penetrating hydrocarbon solvents specifically formulated to repel water. Silicone solution shall comply with Fed. Spec. SS-W-110.
3.0 EXECUTION:
3.1 Precautions: Immediately remove any solution that comes in contact with glass surfaces. Protect glass surfaces with polyethylene.
3.2 Installation: Apply silicone solution by brush or a low pressure spray unit. If pumped from a barrel, use an agitator. Apply in one or two coats so that the surface is flooded to the point of maximum absorption. Start at top and work down, providing a continuous rundown of 6 to 12 inches during application. Start at top with second coat as soon as drop has been made.

Water-repellent Coating Dampproofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of water-repellent coating dampproofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: The materials shall be colorfast, non-yellowing, and impervious to the following solutions:
Water.
One percent soap solution.
Salt solutions.
Most dilute acids.
Most alkalis.
Urine.
Color fast and non-yellowing.

2.2 Acrylic Sealers: Clear, water-white, non-staining sealing compound shall consist of a blend of penetrating and film-forming materials in a petroleum distillate and a methylacrylate resin and shall have a flash point (tag open cup) of 82 F minimum. The product must breathe and have the ability to be later recoated without any special treatment.

2.3 Polymeric Resins: Clear, colorless, inorganic polymer water repellents for impregnating and hardening the surfaces. The product must breathe and have the ability to be later recoated without any special treatment.

2.4 Polyester Resins: A mixture of modified polyester resins.

2.5 Butyrate Resins: Clear liquid, one component mixture of selected butyrate resins in a mineral spirit base.

3.0 EXECUTION:

3.1 Preparation: Prior to application of dampproofing, fill voids, cracks, and holes with cement mortar.

3.2 Installation: Coating may be applied by conventional spray equipment, airless spray equipment, brush, or roller.

Cementitious Dampproofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of cementitious dampproofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Portland cement: ASTM C 150, Type I cement shall be used when the special properties of other types are not required.

2.2 Sand: Washed silica sand graded within the following limits:

Sieve	Percent Passing
No. 4	95 to 100
No. 8	80 to 100
No. 16	50 to 85
No. 30	25 to 60
No. 50	10 to 30
No. 100	2 to 10

2.3 Water: Clean, fresh, and free from injurious amounts of oil, acid, salt, alkali, organic matter, or other deleterious substances.

2.4 Bonding Agent:

2.4.1 A re-emulsifiable one-component liquid resinous emulsion shall be used where area is not subject to constant dampness.

2.4.2 A two-component epoxy resin compound shall be used in areas under damp conditions.

2.5 Waterproofing Admixtures: A calcinated solution of colloidal resonates that increases impermeability, workability, and compressive strength of mortar.
3.0 EXECUTION:
3.1 Preparation: Remove all materials completely, exposing the base surfaces to which the dampproofing materials are to be applied.
3.2 Installation:
3.2.1 Bonding Agent: Apply as required.
3.2.2 Bearing Surface: Parge or apply a coating of the cementitious mixture to the areas to be dampproofed, using a brush or trowel. Minimum thickness shall be 1/4 inch.

Bituminous Vapor Barrier for Roofs

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of bituminous vapor barriers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Asphalt Primer: ASTM D 41.
2.2 Bitumen:
2.2.1 Asphalt: ASTM D 312, Type III, steep asphalt.
2.2.2 Coal-Tar Pitch: ASTM D 450, Type A, for slopes up to and including 1/2 inch per foot.
2.3 Bituminous Cement: Fed. Spec. SS-C-153.
2.3.1 Type I: For use with asphalt saturated felts.
2.3.2 Type II: For use with coal-tar saturated felts.
2.4 Vapor Barrier Membrane:
2.4.1 Asphalt Saturated Organic Felt: ASTM D 226, No. 15, asphalt saturated organic fiber felt weighing approximately 13 pounds per square.
2.4.2 Asphalt Saturated Inorganic Felt: ASTM D 250, No. 15, asphalt saturated asbestos fiber felt weighing approximately 13 pounds per square.
2.4.3 Coated Base Sheet: ASTM D 2626, asphalt saturated organic fiber roofing felt, both faces coated with asphalt including mineral stabilizers and mineral surfacing, weighing not less than 37 pounds per square.
2.4.4 Coal-Tar Saturated Felt: ASTM D 227, No. 15 coal-tar pitch saturated organic felt weighing minimum of 13 pounds per square.
2.4.5 Sheathing Paper: Rosin-sized sheathing paper weighing not less than 5 pounds per square or saturated felt weighing approximately 7-1/2 pounds per square.
2.5 UL Listing: Bituminous vapor barrier materials of roofing systems which have been tested for application and slopes and are listed by Underwriters' Laboratories, Inc. (UL) for Class A or Class B external fire exposure shall be provided. Bituminous vapor barrier materials shall bear the Classification marking (UL) on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-Up Service.
2.6 FM Listing: Bituminous vapor barrier materials of roofing systems that have been evaluated by Factory Mutual System for fire spread, wind uplift, and hail damage are listed in the "Factory Mutual Approval Guide" for Class 1 construction. Bituminous vapor barrier materials bearing FM's examination and follow-up inspection service shall be provided.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Concrete Decks: Prior to installation of vapor barrier, apply asphalt primer at the rate of 1 gallon per square over area to receive vapor barrier. 3.1.2 Precast Concrete Decks: Prior to installation of vapor barrier, cover joints between precast units with a 4-inch to 6-inch wide strip of roofing felt embedded in, and coated with, bituminous cement. Prime deck surface to receive vapor barrier with asphalt primer applied at rate of 1 gallon per square.
3.1.3 Wood Deck: Prior to installation of vapor barrier, apply one layer of sheathing paper over areas to be surfaced with vapor barrier.

3.2 Installation:
3.2.1 Laying Felts: Lay vapor barrier free of wrinkles or bubbles, at right angles to the slope of the deck.
3.2.2 Mopping: Solid mop heated bitumen under and between felts.
3.2.3 Embedment in Bitumen: Broom in felts with 18-inch or 20-inch wide soft fiber type broom.
3.2.4 Nailing Felts: Drive nails and fasteners for securing roofing flush through flat metal disks.•07192
3.2.5 Embedding Vapor Barrier at Roof Edge: Embed vapor barrier felts in 9-inch wide solid coat of bituminous plastic cement.
3.3 Installation to Non-Nailable Deck:
3.3.1 Asphalt Saturated Felt System: Vapor barrier system shall consist of two-ply asphalt saturated felts embedded in solid moppings of asphalt applied at rate of 15 to 20 pounds per square per ply.
3.3.2 Coal-Tar Saturated Felt System: Vapor barrier system shall consist of two-ply coal-tar saturated felts embedded in solid moppings of coal-tar pitch applied at rate of 20 to 30 pounds per square per ply.
3.3.3 Coated Base Sheet System: Vapor barrier system shall consist of two-ply coated base sheet embedded in solid moppings of asphalt applied at rate of 20 pounds per square per ply.
3.4 Installation to Nailable Deck:
3.4.1 Asphalt Saturated Felt System: Vapor barrier system shall consist of two-ply asphalt saturated felt, first ply laid dry and second ply embedded in solid mopping of asphalt applied at rate of 15 to 20 pounds per square.
3.4.2 Coal-Tar Saturated Felt System: Vapor barrier system shall consist of two-ply coal-tar saturated felts, first ply laid dry and second ply embedded in solid mopping of coal-tar pitch applied at rate of 20 to 30 pounds per square.
3.4.3 Coat Base Sheet System: Vapor barrier system shall consist of two-ply coated base sheet. Apply first ply dry. Embed second ply in solid coating of asphalt applied at the rate of 15 to 20 pounds per square.
3.4.4 Attachment to Existing Vapor Barrier Membrane: Install a 25-inch wide strip of vapor barrier felt; lap

Laminated Sheet Vapor Barrier for Roofs

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of laminated sheet vapor barrier for roofs. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Vapor Barrier:
2.1.1 Reinforced Paper Laminate: Two layers of high strength Kraft papers laminated together with asphalt, reinforced with glass fiber, with vapor transmission rating of 0.2 perm or less when tested in accordance with ASTM E 96.
2.1.2 Polyethylene Sheet Laminate: Two layers of high strength Kraft papers, laminated, with polyethylene sheet between, with vapor transmission rating of 0.2 perm or less when tested in accordance with ASTM E 96, Procedure A.
2.2 Adhesive: Water-resistant adhesive with a nontoxic vehicle. Adhesive shall be vapor barrier manufacturer's recommended product and shall be compatible with contact surfaces.
2.3 Asphalt: ASTM D 312, Type III, steep asphalt.
2.4 Vapor Barrier Joint Strips: Vapor barrier material cut into strips, approximately 6 inches wide.
2.5 UL Listing: Laminated sheet vapor barrier materials of roofing systems which have been tested for application and slopes and are listed by Underwriters' Laboratories, Inc. (UL) for Class A or Class B external fire exposure shall be provided. Laminated sheet vapor barrier materials shall bear the Classification marking (UL) on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-Up Service.
2.6 FM Listing: Laminated sheet vapor barrier materials of roofing systems which have been evaluated by Factory Mutual system for fire spread, wind uplift, and hail damage are listed in the "Factory Mutual Approval Guide" for Class 1 construction. Laminated sheet vapor barrier materials bearing FM's examination and follow-up inspection service shall be provided.

3.0 EXECUTION:
3.1 Preparation: Surfaces to receive vapor barrier membrane shall be smooth, with no protruding surfaces that would puncture membrane.
3.2 Installation:
3.2.1 Application of Vapor Barrier with Adhesive: Lay vapor barrier sheet directly on deck in ribbons of adhesive approximately 1/2 inch wide and spaced 6 inches on center.
3.2.2 Application of Vapor Barrier with Asphalt: Lay vapor barrier sheet directly on deck in solid coat of asphalt applied at rate of 15 to 25 pounds per square.
3.2.3 Laps: Side laps shall be not less than 2 inches, and end laps shall be not less than 6 inches.
3.2.4 Nailable Decks: Nail lapped areas, spacing nails maximum of 12 inches on center.
3.2.5 Sealing Joints: Seal joints in vapor barrier system and seal to other surfaces at extremities of coverage with vapor barrier strips.

Polyvinyl Sheet Vapor Barrier for Roofs

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of polyvinyl sheet vapor barriers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Vapor Barrier: Polyvinyl chloride sheet, minimum 4 mils thick, with vapor transmission rating of 0.2 perm or less when tested in compliance with ASTM E 96.
2.2 Adhesive: Water-resistant adhesive with a nontoxic vehicle specially prepared for application of polyvinyl sheet membrane to roof decks.
2.3 Vapor Barrier Tape: Aluminum foil, minimum 1 mil thick, laminated between two sheets of polyester film with pressure-sensitive adhesive on one face, vapor transmission of 0.015 perm or less.
2.4 Vapor Barrier Joint Strips: Vapor barrier material cut into strips, approximately 6 inches wide.
2.5 UL Listing: Polyvinyl sheet vapor barrier materials of roofing systems which have been tested for application and slopes and are listed by Underwriters' Laboratories, Inc. (UL) for Class A or Class B external fire exposure shall be provided. Polyvinyl sheet vapor barrier materials shall bear the Classification marking (UL) on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-Up Service.
2.6 FM Listing: Polyvinyl sheet vapor barrier materials of roofing systems which have been evaluated by Factory Mutual system for fire spread, wind uplift, and hail damage are listed in the "Factory Mutual Approval Guide" for Class 1 construction. Polyvinyl sheet vapor barrier materials bearing FM's examination and follow-up inspection service shall be provided.
3.0 EXECUTION:
3.1 Preparation: Surfaces to receive vapor barrier membrane shall be smooth, with no protruding surfaces that would puncture membrane.
3.2 Installation:
3.2.1 Installation of Basic Membrane: Lay polyvinyl sheet directly on deck in solid covering of approved adhesive.
3.2.2 Nailable Decks. Nail lapped areas, spacing nails maximum of 12 inches on center.
3.2.3 Sealing Joints. Seal joints in vapor barrier system and seal to other surfaces at extremities of coverage with vapor barrier tape or vapor barrier strips.

Bituminous Vapor Barriers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of bituminous vapor barriers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:

2.1 Asphalt Vapor Barrier: Provide one of the following:
2.1.1 A proper-bodied bituminous coating of brush or spray consistency for application to interior masonry walls above or below grade, containing a hydrophilic agent that assures proper adhesion. Compound shall comply with ASTM D 449.
2.1.2 A soft, adhesive "self-healing" hot mop type asphalt that flows readily under the mop and is not susceptible to wide temperature ranges. Compound shall comply with ASTM D 449, Type B. Used with a cold-applied primer complying with ASTM D 41.
2.2 Tar Vapor Barrier: Primer shall be coal-tar pitch complying with ASTM D 43 Type B for use below ground level under uniformly moderate temperature conditions, both during the process of installation and during service. The coal-tar pitch shall be homogeneous and shall comply with the requirements prescribed in Table I, ASTM D 450.
2.3 Reinforcing shall be tar-saturated felt complying with ASTM D 227 or glass mat complying with ASTM D 1668.
3.0 EXECUTION:
3.1 Preparation: Remove all materials completely, exposing the base surfaces to which the dampproofing materials are to be applied.
3.2 Installation: Below grade applications shall receive two coats. Allow 24 hours between coats.
3.3 Reinforcing Method: Reinforce all inside and outside corners, joints, cracks, or places where stresses are likely to occur with no less than 2 plies of felt or glass mat.

Laminated Sheet Vapor Barriers
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of laminated sheet vapor barriers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Bonded Multi-Ply Flexible Core Board:
2.1.1 Board with core plies of polyvinyl chloride shall consist of a core sheet of polyvinyl chloride suspended between two layers of pure-blown, high melt point asphalt and sandwiched between two asphalt saturated felt liners. The felt liners shall be covered with an asphalt weathercoat.
2.1.2 Semi-rigid asphalt board shall consist of an asphalt core sandwiched between two saturated felt liners to which an independent weather-coating is bonded.
2.1.3 Self-adhesive multi-ply flexible board shall consist of a 1/16-inch thick waterproof highly flexible elastomeric material with a release paper on one side. The membrane shall be bonded to a reinforcing carrier sheet, vinyl center sheet, additional bitumen, and a protective weathercoating.
2.2 Bonding Agent:
2.2.1 Hot asphalt for bonding to vertical surfaces or sealing joints shall be a mopping asphalt with a softening point in the range of 180 to 200 F and complying with ASTM D 312, Type III.
2.3 Butt Joint Tape: Elastomeric vapor barrier shall be in 6-inch wide rolls. Tape shall be self-adhesive and require no additional adhesive.
3.0 EXECUTION: Remove all materials completely, exposing the base surfaces to which the dampproofing materials are to be applied.

Plastic Sheet Vapor Barriers
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of plastic sheet vapor barriers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Polyethylene Sheet shall comply with ASTM D 2103.
2.2 Butyl sheet shall be an impermeable butyl rubber membrane 1/16 inch thick having a tensile strength per ASTM D 412 of 1,200 psi minimum and an elongation per ASTM D 412 of 300 percent

minimum. Butyl sheet shall be resistant to ozone and remain flexible to 40 degrees F below zero.

2.3 Neoprene sheet shall be an impermeable, self-extinguishing, ozone-resistant material, 1/16 inch thick. Neoprene shall have a tensile strength per ASTM D 412 of 1,500 psi minimum and an elongation per ASTM D 412 of 250 percent minimum.

2.4 Ethylene Propylene Diene Monomer (EPDM) sheet shall be an impermeable membrane resistant to ozone and ultra-violet radiation. EPDM shall have a tensile strength per ASTM D 412 of 1,400 psi minimum and a elongation per ASTM D 412 of 300 percent minimum.

2.5 Vinyl sheet shall be a heavy-duty polyvinyl chloride sheet complying with ASTM D 3083.

2.6 Primers shall be as required.

2.7 Adhesives:

2.7.1 Adhesive for cold application shall be a non-setting bitumen cutback asphalt.

2.7.2 Adhesive for hot application shall be asphalt complying with ASTM D 312, Type III.

2.8 Butt joint tape shall be an elastomeric vapor barrier in 6-inch wide rolls. Tape shall be self-adhesive and require no additional adhesive.

3.0 EXECUTION:

3.1 Preparation: Remove all materials completely, exposing the base surfaces to which the dampproofing materials are to be applied.

3.2 Installation:

3.2.1 Primer: Apply primer by brushing or spraying uniformly over surface to receive membrane.

3.2.2 Membrane:

3.2.2.1 At footings, shape the membrane to conform to the surface.

3.2.2.2 Apply adhesive to both the footing and to the membrane.

3.2.2.3 On vertical surfaces, apply adhesive to both wall and membrane.

3.2.2.4 Seal joints between adjacent sheets centering 6-inch sealing tape over the joint.

Batt and Blanket Building Insulation

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of batt and blanket building insulation. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Mineral Fiber Insulation shall comply with ASTM C 665, Type II.

2.2 Reflective Insulation shall comply with ASTM C 665, Type III.

2.3 Membrane Covering: All vapor permeable back surface coverings, membrane coverings, or facings affixed to insulation in compliance with ASTM E 84 shall have a flame spread rating not greater than 25 and a smoke developed rating not greater than 50 when tested.

2.4 Separately Applied Vapor Barriers:

2.4.1 General: Separate vapor barrier material shall have a permeability of 1.0 perm or less, in compliance with procedure "A" of ASTM E 96.

2.4.2 Ground cover for crawl spaces: Ground cover for crawl space applications shall have a permeability of 0.5 perm or less, in compliance with ASTM E 154.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Separately Applied Vapor Barriers: All surfaces on which separately applied vapor barrier material is to be applied shall be free of any projections that might puncture the vapor barrier material.

3.1.2 Masonry Wall Applications: Provide wood fastening strips for fastening rigid insulation to masonry walls.

3.2 Installation. Install insulation to a thickness necessary to provide the designated or directed R-value.

3.2.1 Exterior Walls:

3.2.1.1 Insulate each space between framing members completely with batt or blanket type insulation sized to fit the full width of the space.

3.2.1.2 Install insulation having an affixed facing with the facing toward the interior (warm-in-winter)

side of the construction.

3.2.1.3 Install reflective insulation with an air space of not less than 3/4 inch, adjacent to the reflective facing, when insulation thickness permits.

3.2.1.4 Crawl Spaces (Unvented): Contractor shall cut vent openings in exterior walls of crawl spaces, frame as necessary to reinforce the openings, and install wood or aluminum louvers and screening.

3.2.1.5 Crawl Spaces (Vented): Insulate each space between framing members completely with batt or blanket type insulation sized to fit the full width of the space.

3.2.1.6 Ceiling: Insulate each space between framing members completely with batt or blanket type building insulation, sized to fit the full width of the space. Install insulation around, not over, all recessed lighting fixtures in ceiling construction. Install insulation so as to permit air passage from eave vents to air space above insulation.

Loose or Granular Fill Insulation

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of loose or granular fill insulation. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Mineral fiber insulation shall comply with Fed. Spec. HH-I-1030, Type I, Class A or B.

2.2 Perlite insulation shall comply with ASTM C 549, treated for water repellency.

2.3 Vermiculite insulation shall comply with ASTM C 516, Type II, treated for water repellency.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Cavity Applications: Close off all openings in cavities to receive loose or granular fill insulation, except at the top so as to permanently prevent insulation from escaping.

3.1.2 Ceiling Applications: Wherever loose or granular fill insulation is to be applied over dropped soffit or other large cavities exposed to the attic, install fiberboard or other suitable material between framing members over soffit cavity to support insulation.

3.2 Installation:

3.2.1 Install insulation to a thickness necessary to provide the designated R-value.

3.2.2 Install insulation to completely fill all required ceiling and horizontal areas.

Rigid Insulation

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of rigid insulation. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Mineral fiberboard insulation shall comply with Fed. Spec. HH-I-558, Form A, class as specified.

2.2 Polystyrene plastic board insulation shall comply with ASTM C 578, Type II.

2.3 Urethane plastic board insulation shall comply with Fed. Spec. HH-I-530, Type I, Class 2.

2.4 Cellular glass block insulation shall comply with ASTM C 552, Type I.

2.5 Organic fiberboard insulation shall comply with ASTM C 208. Organic Fiberboard Insulation shall be chemically treated to resist decay, fungus growth, and insect attack.

2.6 Corkboard insulation shall comply with ASTM C 640.

2.7 Glass fiberboard insulation shall comply with Mil. Spec. MIL-I-742.

3.0 EXECUTION:

3.1 Preparation: All surfaces to which rigid insulation will be mastic-mounted shall be free from all materials that will prevent proper adhesion. 3.2 Installation: Install insulation to a thickness necessary to provide the designated R-value.

Perimeter Insulation

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of perimeter

insulation. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:
2.1 Polystyrene insulation board shall comply with ASTM C 578, Type I.
2.2 Urethane insulation board shall comply with Fed. Spec. HH-I-530, Type I, Grade 2, Class 1. Urethane insulation board shall have a minimum density of 1.7 pounds per cubic foot.
2.3 Insulation thickness shall be 1 inch, except where otherwise specified or directed.
2.4 Surface Burning Characteristics: Insulation shall have a maximum flame spread index of 25, in compliance with ASTM E 84.
2.5 Plastic cement shall comply with Fed. Spec. SS-C-153.
2.6 Asphalt-saturated felts shall comply with ASTM D 226, Type I.
2.7 Adhesive or mastic for bonding insulation shall comply with applicable fire-resistance requirements for the insulation being installed.
3.0 EXECUTION:
3.1 Preparation: The Contractor shall remove all materials and construction necessary to gain access to the work.
3.2 Installation: Apply insulation to the full thickness required over the entire area to be insulated.
3.3 Reconstruction: Restore existing slabs, construction, and finishes that have been removed for the installation of insulation or damaged to their original condition.
3.4 Restoration of Landscaping: Restore landscaping that is disturbed to its original condition.

Sprayed-on Insulation

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of sprayed-on insulation. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Urethane foamed-in-place insulation shall be a spray-applied two-component material that when mixed together in proper proportions produces a rigid closed cell foam material.
2.1.1 Physical properties of cured foam shall be as follows:
2.1.1.1 Nominal density shall be 1.5 to 2.5 lbs/cu ft (ASTM D 1622).
2.1.1.2 Closed cell content shall be 90 percent minimum.
2.1.1.3 Compressive strength, parallel to rise, shall be 40 psi.
2.1.1.4 Thermal conductivity (k factor) Btuh/psf/F/in. shall be 0.17 when aged 90 days at 14 F dry heat (ASTM C 518).
2.1.1.5 Vapor transmission shall be 3.0 perm-inch.
2.1.1.6 Water absorption shall be 3.0 percent.
3.0 EXECUTION:
3.1 Substrates shall be cleaned prior to application of sprayed-on insulation.
3.2 Openings in roofs to receive foamed-in-place insulation shall be closed sufficiently to prevent escape of insulation.
3.3 Protect installed insulation from harmful weather exposures and possible physical abuses including fire hazards.

Roof Insulation and Underlayment: Cellular Glass

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of cellular glass. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Cellular Glass Block Insulation: ASTM C 552, Type I, rigid, closed cell, noncombustible, foamed

glass blocks. Sizes shall be manufacturer's standard sizes and required thickness, edges square.

2.2 Cellular Glass Board Insulation: ASTM C 552, Type IV, rigid, closed cell, noncombustible, foamed glass boards, with laminated Kraft paper faces.

2.2.1 Board Sizes: Manufacturer's standard sizes and required thickness with 1/4-inch bevel on long edges at bottom of board.

2.2.2 Tapered Unit Sizes: Manufacturer's standard sizes and taper.

2.2.3 Flame Spread Rating: Insulation shall have maximum flame spread rating of 25 when tested in compliance with ASTM E 84.

2.3 UL Listing: Cellular glass roof insulation and underlayment materials of roofing systems which have been tested for application and slopes and are listed by Underwriters' Laboratories, Inc. (UL) for Class A or Class B external fire exposure shall be provided. Cellular glass roof insulation and underlayment materials shall bear the Classification marking (UL) on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-Up Service.

2.4 FM Listing: Cellular glass roof insulation and underlayment materials of roofing systems which have been evaluated by Factory Mutual system for fire spread, wind uplift, and hail damage are listed in the "Factory Mutual Approval Guide" for Class 1 construction. Cellular glass roof insulation and underlayment materials bearing FM approval marking on bundle, package, or container indicating that the material has been subjected to FM's examination and follow-up inspection service shall be provided.

3.0 EXECUTION:

3.1 Installation: Place beveled edge of board units to the deck surface in same direction continuously throughout each course.

3.2 Insulation shall be installed to a thickness necessary to provide the designated R-value.

Roof Insulation and Underlayment: Mineral Fiber

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of mineral fiber. Products shall match existing material and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Insulation board shall be Fed. Spec. HH-I-526, rigid inorganic fiberboard formed with fillers and water-resistant binders. 2.1 Glass Fiberboard: Mineral fiber insulation boards formed of glass fibers shall be bonded together with asphalt and surfaced on top surface with glass-fiber reinforced asphalt mat.

2.2 Mineral Fiberboard: Mineral fiber insulation boards formed of rock or slag processed into fiber shall be bonded together with asphalt and surfaced on top surface with asphalt saturated felt.

2.3 Flame Spread Rating: Insulation shall have maximum flame spread rating of 25 when tested in compliance with ASTM E 84.

2.4 UL Listing: Mineral fiber roof insulation and underlayment materials of roofing systems which have been tested for application and slopes and are listed by Underwriters' Laboratories, Inc. (UL) for Class A or Class B external fire exposure shall be provided. Mineral fiber roof insulation and underlayment materials shall bear the Classification marking (UL) on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-Up Service.

2.5 FM Listing: Mineral fiber roof insulation and underlayment materials of roofing systems which have been evaluated by Factory Mutual system for fire spread, wind uplift, and hail damage are listed in the "Factory Mutual Approval Guide" for Class 1 construction. Mineral fiber roof insulation and underlayment materials bearing FM approval marking on bundle, package, or container indicating that the material has been subjected to FM's examination and follow-up inspection service shall be provided.

3.0 EXECUTION: Install insulation to a thickness necessary to provide the designated R-value.

Roof Insulation and Underlayment: Composite Board

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of composite board. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product

manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Composite board insulation shall consist of two insulation boards chemically bonded together. Top board shall be expanded rigid polyurethane foam board complying with Fed. Spec. HH-I-530; top surface shall be surfaced with one layer of asphalt saturated felt or glass fiber mat. Second layer shall be one of the following materials:

2.1.1 Inorganic Perlite Mineral Aggregate Board: ASTM C 728.

2.1.2 Inorganic Glass Fiberboard: Fed. Spec. HH-I-526.

2.1.3 Mineral Fiberboard: Fed. Spec. HH-I-526.

2.2 Flame Spread Rating: Insulation shall have maximum flame spread rating of 25 when tested in compliance with ASTM E 84.

2.3 Edge Sealant: Mastic sealant of type recommended by insulation manufacturer.

2.4 UL Listing: Composite board roof insulation and underlayment materials of roofing systems which have been tested for application and slopes and are listed by Underwriters' Laboratories, Inc. (UL) for Class A or Class B external fire exposure shall be provided. Composite board roof insulation and underlayment materials shall bear the Classification marking (UL) on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-Up Service.

2.5 FM Listing: Composite board roof insulation and underlayment materials of roofing systems which have been evaluated by Factory Mutual system for fire spread, wind uplift, and hail damage are listed in the "Factory Mutual Approval Guide" for Class 1 construction. Composite board roof insulation and underlayment materials bearing FM approval marking on bundle, package, or container indicating that the material has been subjected to FM's examination and follow-up inspection service shall be provided.

3.0 EXECUTION:

3.1 Installation: Install composite insulation boards with urethane surface up.

3.2 Insulation shall be installed to a thickness necessary to provide the designated R-value.

Roof Insulation and Underlayment: Expanded Perlite Board

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of expanded perlite board. Products shall match existing material and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: Board shall be ASTM C 728, rigid, noncombustible board formed of expanded perlite aggregate and fibers combined with water-resistant mineral binders. Boards shall have integral top surface coating of insulation manufacturer's standard type.

2.2 Flame spread rating: insulation shall have maximum flame spread rating of 25 when tested in compliance with ASTM E 84.

2.3 UL Listing: Expanded perlite board roof insulation and underlayment materials of roofing systems which have been tested for application and slopes and are listed by Underwriters' Laboratories, Inc. (UL) for Class A or Class B external fire exposure shall be provided. Expanded perlite board roof insulation and underlayment materials shall bear the Classification marking (UL) on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-Up Service.

2.4 FM Listing: Expanded perlite board roof insulation and underlayment materials of roofing systems which have been evaluated by Factory Mutual System for fire spread, wind uplift, and hail damage are listed in the "Factory Mutual Approval Guide" for Class 1 construction. Expanded perlite board roof insulation and underlayment materials bearing FM approval marking on bundle, package, or container indicating that the material has been subjected to FM's examination and follow-up inspection service shall be provided.

3.0 EXECUTION:

3.1 Insulation board shall be covered with wood board walkways where transport of materials will

result in damage to the insulation. Remove walkways ahead of roofing operations.

3.2 Insulation shall be installed to a thickness necessary to provide the designated R-value.

Roof Insulation and Underlayment: Fiberboard

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of fiberboard. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: ASTM C 208, Rigid, organic fiberboard derived from wood, cane, or other vegetable fibers, formed with fillers and water-resistant binders. 2.2 Asphalt Impregnation: Insulation board shall be impregnated with asphalt, applied at rate not to exceed 4 percent by weight.

2.3 Bituminous Coating: Insulation board shall be surfaced with manufacturer's standard bituminous coating.

2.4 Flame Spread Rating: Insulation shall have maximum flame spread rating of 25 when tested in compliance with ASTM E 84.

2.5 UL Listing: Fiberboard roof insulation and underlayment materials of roofing systems that have been tested for application and slopes and are listed by Underwriters' Laboratories, Inc. (UL) for Class A or Class B external fire exposure shall be provided. Fiberboard board roof insulation and underlayment materials shall bear the Classification marking (UL) on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-Up Service.

2.6 FM Listing: Fiberboard roof insulation and underlayment materials of roofing systems that have been evaluated by Factory Mutual system for fire spread, wind uplift, and hail damage are listed in the "Factory Mutual Approval Guide" for Class 1 construction. Fiberboard board roof insulation and underlayment materials bearing FM approval marking on bundle, package, or container indicating that the material has been subjected to FM's examination and follow-up inspection service shall be provided.

3.0 EXECUTION: Install insulation to a thickness necessary to provide the designated R-value.

Sprayed-on Fireproofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of sprayed-on fireproofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Products shall be provided that have been tested in accordance with ASTM E 119, UL 263, ANSI A2.1, or NFPA 251 for fire-resistance and rated by UL or other industry-recognized agency for the required resistances.

2.1 Spray-applied Fireproofing: Materials shall conform to the requirements of ASTM E 1042, Type I, Category A. Spray-applied fireproofing materials shall not contain asbestos.

2.1.1 Water shall be clean, fresh, potable, and free from amounts of oils, acids, alkalis, and organic matter that would be injurious to the fireproofing.

2.2 Performance Requirements: Spray-applied fireproofing material shall conform to the following requirements:

2.2.1 Deflection: Spray-applied fireproofing shall not crack, spall, or delaminate when tested in accordance with ASTM E 759.

2.2.2 Cohesion/adhesion: spray-applied fireproofing material shall have a minimum cohesive/adhesive force of 80 psf when tested in accordance with ASTM E 736.

2.2.3 Bond-impact: spray-applied fireproofing material shall not crack, spall, or delaminate when tested in accordance with ASTM E 760.

2.2.4 Compressive Strength: The minimum compressive strength shall be 500 psf based upon the average load of 10 percent deformation or at ultimate load, whichever is less as tested in accordance with ASTM E 761.

2.2.5 Air Erosion: Gain in weight of the collecting filter shall not exceed 0.025 gram per square foot when

tested in accordance with ASTM E 859.

2.2.6 Corrosion Resistance: No evidence of corrosion, after testing in accordance with ASTM E 937, for metal surfaces to be covered.

2.3 Fire Hazard Classification:

2.3.1 Surface Burning Characteristics: Spray-applied fire-proofing material shall have a flame spread of 25 or less, a smoke developed rating of 50 or less, and a fuel contributed rating of 50 or less when tested in accordance with ASTM E 84.

2.4 Fire resistance rating for building elements shall be as indicated and shall conform to the fire rated assemblies as listed in the UL Fire Resistance Directory.

2.5 Substrate Primers: Provide type that is compatible with condition of each substrate to be fireproofed, including shop primers applied by metal fabricators/erectors, and is compatible with bonding adhesives and fireproofing materials.

2.6 Metal Lath: Except as otherwise indicated, provide 3.4-pound (per sq yd) expanded galvanized diamond steel lath, with reinforcing members and clips and other anchorage devices as appropriate for substrate and complying with selection requirements of applicable fire endurance tests. Provide corner beads and other lathing accessories of standard design and weight, where required.

3.0 EXECUTION:

3.1 Surface Preparation: Surfaces to be fireproofed shall be thoroughly cleaned of all dirt, grease, oil, paint, rust, and mill scale or other contaminants that will interfere with the proper bonding of the sprayed fireproofing to the substrate. Ceiling areas to be fireproofed shall be cleared of all obstructions interfering with the uniform application of the spray-applied fireproofing. Hardware such as support sleeves, inserts, clips, hanger attachment devices and the like shall be installed prior to the application of the fireproofing.

3.2 Surface Acceptability: Surfaces to receive sprayed fireproofing shall be inspected prior to application of fireproofing material and certified to be clean and in acceptable condition for application of spray-applied fireproofing.

3.3 Application: Prior to spray application, surfaces not to receive spray-applied fireproofing, including instruments, gauges, and equipment shall be covered to prevent contamination by splatter, rebound, and overspray. Exterior openings in areas to receive spray-applied fireproofing shall be covered prior to and during application of fireproofing with tarpaulins or other approved material. Fireproofing material shall be applied to a thickness as required to obtain the specified fire resistance rating and to provide a fire-protective coating of uniform density and texture. Fireproofing shall be applied in accordance with the procedure recommended by the manufacturer. Fireproofing applied to underside of steel roof deck or steel floor assemblies shall be installed only after respective roof or floor construction is complete. No roof or floor traffic shall be allowed during application and during curing period. Sealer shall be applied to clean, dry fireproofed surfaces in accordance with manufacturer's recommendations.

3.4 Cleanup: Surfaces not indicated to receive fireproofing shall be thoroughly cleaned of all sprayed material.

Asphalt Shingles

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of asphalt shingles. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Nails shall be nonferrous metal or zinc-coated steel long enough to penetrate at least 3/4 inch into the deck sheathing.

2.2 Roll Roofing:

2.2.1 Smooth Surfaced: ASTM D 224, Type II.

2.2.2 Mineral Surfaced: Fed. Spec. SS-R-630 and provided with 2-inch selvage. 2.3 Shingles shall meet requirements of Underwriters' Laboratories, Inc., for Class C wind-resistant shingles by equaling or exceeding the requirements of UL 55A and UL 997. Shingles shall be square-butt strips of uniform

thickness or of thick-butt style, 12 by 36 inches, and either 2-tab or 3-tab design.

2.4 UL Listing: Asphalt and composition shingle materials of roofing systems which have been tested for application and slopes and are listed by Underwriters' Laboratories, Inc. (UL) for Class A or Class B external fire exposure shall be provided. Asphalt shingle materials shall bear the Classification marking (UL) on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-Up Service.

2.5 FM Listing: Asphalt shingle materials of roofing systems which have been evaluated by Factory Mutual system for fire spread, wind uplift, and hail damage are listed in the "Factory Mutual Approval Guide" for Class 1 construction. Asphalt shingle materials bearing FM's examination and follow-up inspection service shall be provided.

3.0 EXECUTION:

3.1 Preparation: Loose, curled, broken, or lifted asphalt shingles shall be nailed down or replaced, if required, to provide a solid nailing base. Protruding or loose nails shall be removed or nailed down.

3.2 Installation:

3.2.1 Application of Roofing When Existing Roofing is Removed:

3.2.1.1 Underlayment: Apply one layer of 15-pound asphalt-saturated felt to roof-deck sheathing.

3.2.1.2 Underlayment: Apply two layers of 15-pound asphalt-saturated felt applied to roof-deck sheathing. A solid coating of bituminous cement shall be applied between the layers of underlayment.

3.2.1.3 Shingles: Apply shingles over underlayment allowing 5-inch butt exposure, and in no case shall there be less than 2-inch head lap.

3.2.1.4 Hips and Ridges shall be formed with 9- by 12-inch individual shingles.

3.2.1.5 Valleys:

3.2.1.5.1 Closed woven-shingle valleys shall have a single layer lining of smooth-surfaced or mineral-surfaced roll roofing, 36 inches wide.

3.2.1.5.2 Roll roofing valley shall be two thicknesses of mineral-surfaced roll roofing.

3.2.2 Application of Roofing Over Existing Asphalt Shingles: Shingles shall be applied over old shingles with butt exposure, except for starter course, equal to old shingles, and in no case shall there be less than 2-inch head lap.

3.2.3 Roof Patching and Replacement: Match existing shingles in design, weight, texture, pattern, and color.

Slate Shingles

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of slate shingles. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Nails shall be large head slater's nails, either hard copper wire nails, cut copper, cut brass, or yellow metal and shall be long enough to penetrate at least 1 inch into the deck sheathing.

2.2 Slate shingles shall comply with ASTM C 406 and shall be of matching or designated size, thickness, color, and texture.

2.3 Asphalt-saturated organic felt shall comply with ASTM D 226.

3.0 EXECUTION:

3.1 Underlayment: Apply one layer of 30-pound asphalt-saturated felt to roof-deck sheathing.

3.2 Slating:

3.2.1 Starter Course: Apply starter course at eave on cornice line with same thickness slate as main roofing material. Slate shall be approximately 3 inches longer than exposure of first course and shall be installed over a 1/4-inch thick treated wood cant.

3.2.2 First and Succeeding Courses: Apply slate over underlayment with 6-1/2 inch butt exposure with minimum 3-inch head lap. Slate shall project 1 inch at eaves and 1/2 inch at gable ends. Each course shall break joints with preceding course by minimum 3 inches.

3.2.3 Nailing: Fasten each slate with two nails. Do not drive far enough to produce a strain on the slate. Exposed nails shall be permissible only in top courses where unavoidable, and exposed nail heads

shall be covered with bituminous cement.

Clay Roofing Tiles

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of clay roofing tiles. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Mortar: Mixture of Portland cement, sand, and pigment.

2.2 Nails: Copper or noncorrosive metal.

2.2.1 Ring Type Nails: Used on plywood sheathing.

2.2.2 Slater's Nails: Minimum of 1-1/2 inches long and shall be used on board sheathing.

2.3 Asphalt-saturated organic felt shall comply with ASTM D 226.

2.4 Roofing tiles shall be a clay or shale product that is burned to a hard dense structure, glazed or nonglazed on exposed surfaces.

3.0 EXECUTION:

3.1 Underlayment: Apply one layer of 30-pound asphalt-saturated felt to roof-deck sheathing.

3.2 Application of Slab Shingle Tiles: Install a 3/4-inch by 1-inch cant strip along eave. On top of cant install under-eave tiles, projecting 1 inch over the rear edge of gutter and flush with the gable edge. Install first course of roofing tiles flush with butt edge of under-eave tile and extend 2 inches over the gable ends. Lay field tiles in straight courses with 2-inch head lap and secure with roofing nails in all holes provided in tiles. Lay all tiles within one foot of hips, ridges, and abutting vertical surfaces in bituminous cement.

3.3 Application of Interlocking Tiles: Install cant strip or under-eave fittings as required by tile configuration. On top of cant or under-eave fitting, install first course of roofing tiles projecting 1 inch over rear edge of gutter. Lay roof tiles with straight butt lines, interlocked into adjoining tiles with a 3-inch headlap and secure with nails in all holes provided in tiles. Provide gable rake fittings at all gables.

3.4 Application of Spanish and Mission Tiles: Install cant strip over eave closure fittings and nailing strips as required by configuration of tiles. Set eave closures back 2 inches from lower edge of eave. Lay tiles in straight vertical lines up roof and with uniform exposure to weather. Give all tiles minimum lap of 3 inches, and extend eave tiles 1 inch over edge of gutters. Fit all tiles properly and secure with nails in all holes provided. Nails shall be long enough to penetrate at least 1 inch into wood base. Cement and nail cover tiles to gable rakes with bituminous cement, all the way up the gables. When eave closures and top fixtures are not required, cement eaves and joint at ridge with mortar.

3.5 Replacing Individual Spanish or Mission Roofing Tiles: Remove broken tiles by cutting nails with a ripper. Insert new tiles of the same color and size as broken one by troweling Portland cement mortar on new tile surface that will be lapped by tile in course above and on surface that will lap tile in course below. Fasten new tile in place with metal strap or wire.

Concrete Roofing Tiles

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of concrete roofing tiles. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Mortar: Mixture of Portland cement, sand, and pigment.

2.2 Nails: Copper or noncorrosive metal.

2.2.1 Ring Type Nails: Used on plywood sheathing.

2.2.2 Slater's Nails: Used on board sheathing.

2.3 Roofing Tiles: Waterproof concrete product reinforced with steel wire. Each tile shall be manufactured with nail holes. Standard rake, closures, hip, and ridge fittings same color as tile,

shall be provided.
2.4 Asphalt-saturated organic felt shall comply with ASTM D 226.
3.0 EXECUTION:
3.1 Underlayment: Apply one layer of 30-pound asphalt-saturated felt to roof-deck sheathing.
3.2 Application of Slab Shingle Tiles: Apply 1-inch by 1/2-inch cant strip 1/2 inch from edge of eave. On top of cant, install a starter strip of tiles projecting 1 inch over rear edge of gutters and 1 inch beyond gable ends. Install the first course of tiles flush with edges of starter strip. Lay field tiles in straight courses with a 2-inch head lap and secure with two large-head roofing nails. Lay all tiles within 1 foot of hips, ridges, and abutting vertical surfaces in bituminous cement.
3.3 Application of Interlocking Tiles: Install cant strip or under-eave fittings as required by tile configuration. On top of cant, or under-eave fitting, install first course of roof tile projecting 1 inch over the rear edge of gutter. Lay roof tiles with straight butt lines interlocked into adjoining tiles with a 3-inch headlap and secure with nails in all holes provided in the tiles. Provide gable rake fittings at all gables.

Preformed Roofing and Siding
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of preformed roofing and siding panels. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Aluminum Roof Panels: Fabricated from roll-formed panels of aluminum alloy in accordance with ASTM B 209, tempered as required for forming operation, with a minimum thickness of 0.032 inch. Thickness of panels shall be the standard thickness as required for roofing span and design loading.
2.1.1 Color-Coated Finish. One of the following standard factory-applied, baked-on coatings:
2.1.1.1 Acrylic Enamel Coating: Epoxy primer and acrylic enamel top coat, dry film thickness not less than 0.2 mil for primer and 0.8 mil for topcoat.
2.1.1.2 Fluoropolymer Coating: Full strength 70 percent polyvinylidene fluoride finish, dry film thickness not less than 1.0 mil over a minimum 0.2 mil baked-on modified epoxy primer.
2.1.1.3 Siliconized Polyester Coating: Epoxy primer and silicone-modified polyester enamel topcoat, dry film thickness not less than 0.2 mil for primer and 0.8 mil for topcoat.
2.1.2 Factory Prime Coating: Factory-applied baked-on epoxy primer coat, not less than 0.2 mil dry film thickness applied after pretreatment.
2.1.3 Natural Finish: Stucco embossed finish, plain mill-finished or special alloy-clad sheet (Alclad), as required.
2.1.4 Corrugated panels shall be standard 7/8 inch deep with corrugation crests at 2.67 inches on centers with either interlocking ribs or overlapping side laps at side joints, as required.
2.1.5 V-Beam panels shall be standard V-shaped ribbed panels, nominally 4-7/8 inches on centers and 1-3/4 inches deep with either interlocking ribs or overlapping side laps at side joints, as required.
2.2 Steel roof panels shall be factory-painted steel metal panels which shall be zinc-coated steel conforming to ASTM A 446, Grade A, G90 zinc coating designation. Roof covering shall be 22 galvanized sheet gauge or thicker. Steel roof panels shall be factory prime-coated and color-coated with one of the color coatings specified for aluminum roof panels.
2.2.1 Corrugated panels shall have similar dimensional and side joint characteristics as specified for aluminum roof panels.
2.2.2 Box rib panels shall be standard units, approximately 1-1/2 inches deep with 1-3/8 inch wide flutes and 5 box ribs at 7-13/64 inches on centers for a 36-inch wide coverage.
2.2.3 Four-inch ribbed panels shall be standard units approximately 1 inch deep with 9 box ribs at 4 inches on centers for a panel width of 37-1/2 inches.
2.3 Standing Seam Roofing:
2.3.1 General: Roof-covering panels shall be fabricated of zinc-coated steel conforming to ASTM A 446, G90 coating designation or aluminum-coated steel conforming to ASTM A 463, Type 2. Roof

covering shall be 24 galvanized sheet gauge or thicker. Panels shall have configurations designed for mechanically formed lock seams for securing adjacent sheets. Sealant for standing seams shall be factory-applied. Width of sheets shall provide not less than 12 inches of coverage in place. Height of standing seam shall be not less than 2-1/2 inches for slopes less than 3 inches in 12 inches, and not less than 1-3/4 inches for slopes 3 inches in 12 inches or greater.

2.3.2 Color Coating: Color finish shall consist of either a synthetic resin base coating applied to a pretreated and primed surface or a dry film coating material bonded to the metal substrate with adhesive. Dry film thickness of color coat shall be not less than 0.8 mil for exterior surface finish.

2.3.3 Accessories shall include flashing, trim, cps, and similar accessories of not less than the minimum thicknesses specified for roofing. Accessories of zinc-coated steel used with aluminum-coated steel shall be painted. Molded closure strips shall be closed-cell or solid-cell synthetic rubber, neoprene, or polyvinyl chloride premolded to match configuration of the covering.

2.3.4 Panel clips shall be of two-piece construction with movable tabs. Clips shall provide for at least 2 inches of panel movement. Tabs shall be designed to be folded into the lock seam.

2.3.5 Fasteners shall be zinc-coated steel or corrosion-resisting steel.

2.3.5.1 Screws shall be not less than No. 14 diameter if self-tapping type and not less than No. 12 diameter if self-drilling and self-tapping type.

2.3.5.2 Blind rivets shall be stainless steel.

2.3.5.3 Bolts shall be not less than 1/4-inch diameter, shouldered or plain shank, as required, with proper nuts.

2.4 Aluminized Steel Roof Panels:

2.4.1 General: Roof panels shall be formed of Type II aluminized sheet in accordance with ASTM A 463. Thickness shall be not less than 22-gauge material.

2.4.2 Aluminized steel corrugated panels shall be similar to standard profiles and dimensional and side joint characteristics as specified for aluminum roof panels and steel roof panels.

2.5 Plastic Roof Panels:

2.5.1 General: Preformed translucent plastic roof panels shall be glass fiber-reinforced polyester plastic panels conforming to ASTM D 3841.

2.5.2 Non-fire rated translucent plastic roof panels shall be manufactured of acrylic modified resins with either a smooth or embossed finish. Glass reinforcement shall be not less than 27 percent by weight and resins approximately 73 percent by weight and shall be of high quality light-stabilized polyester, modified with acrylic monomer.

2.5.3 Low flame spread translucent plastic roof panels shall be manufactured of light-stabilized, fire-retardant polyester approximately 75 percent by weight and modified with acrylic monomer. Glass reinforcement shall be not less than 25 percent by weight. Panels shall be classified by Underwriters' Laboratory with a flame spread of not greater than 25 when tested in accordance with ASTM E 84. Finish shall be smooth or embossed as required.

2.5.4 Corrosion-resistant opaque panels shall be manufactured of resins composed of high quality light-stabilized polyester, modified with acrylic monomer. Where required, panels shall be the fire-retardant type classified by Underwriters' Laboratories, with a flame spread not greater than 25 when tested in accordance with ASTM E 84.

2.5.5 High strength opaque fire-retardant panels suitable for walkable roof service shall be composed of high quality light-stabilized, fire-retardant polyester, modified with acrylic monomer. Glass reinforcement shall be a minimum of 38 percent, composed of woven continuous strand and chopped strand glass. Interior and exterior surfaces shall have a surface veil. Finish shall be embossed. All panels shall be classified by Underwriters' Laboratories, with a flame spread not greater than 25 when tested in accordance with ASTM E 84.

2.6 Aluminum Siding Panels: Aluminum siding panels shall be similar to aluminum roofing panels. Four-inch ribbed panels shall be approximately 1 inch deep with 9 box ribs at 4 inches on centers for a panel width of 37-1/2 inches. 2.7 Steel Siding Panels shall be similar to steel roofing panels, including finish and profiles (except box rib profile). Thickness shall be 24 galvanized sheet gauge or thicker.

2.8 Insulated Siding Panels:

2.8.1 Factory-assembled Sandwich Panels:

2.8.1.1 General: Interior and exterior panels shall be shop-assembled, fabricated of hot-dipped, zinc-coated, roll-formed steel sheet, ASTM A 446, Grade A, except where higher strength is required for performance, and G90 zinc coating. Thickness of interior and exterior panels shall be determined for wall spans and design loading as required.

2.8.1.2 Insulation shall be standard glass fiber blanket insulation complying with ASTM C 665, Type I, with a k-value of 0.27 at 75 F and a density of not less than 1.5 lbs/cu ft.

2.8.1.3 Assembled panel system shall have standard continuous gasket at male legs isolating metal-to-metal contact. Panels shall be factory-caulked.

2.8.1.4 All related closures, flashings, and copings shall be manufactured from same gauge material as exterior face metal panel and shall be properly engineered to job conditions.

2.8.1.5 Finish of exterior panels shall be factory prime-coated and color-coated with one of the color coatings specified for aluminum panels. Finish of interior panels shall be prime coat with a color coat as required.

2.8.2 Field-Assembled Sandwich Panels:

2.8.2.1 Interior wall facing units shall be hot-dipped, zinc-coated, single rib design steel sheet, ASTM A 446, Grade A, G90 zinc coating. Interior wall facing units may be of 0.024 inch or thicker aluminum. Interior units shall be roll-formed in unit widths of 12 inches with 1-1/2 inch ribs or 24 inches with 2-inch ribs. Interlocking joints shall be provided between units. Interior wall units shall present a flush inside wall surface.

2.8.2.2 Insulation: Rigid or semi-rigid board insulation shall con-form to Fed. Spec. HH-I-558, Form A, Class 1 or 2. Blanket insulation shall conform to Fed. Spec. HH-I-558, Form B, Type I, Class 6. Insulation shall have a flame spread not in excess of 25 and a smoke developed rating not in excess of 50 when tested in accordance with ASTM E 84. Insulation shall be of sufficient thickness to provide the designated U-value.

2.8.2.3 Exterior panel materials shall be mill-embossed finished aluminum, galvanized steel, galvanized and painted steel, or stainless steel.

2.8.2.3.1 Aluminum Sheets shall be ASTM B 209. Where required, stucco embossed finish shall be provided. Where required, provide Alclad aluminum alloy-clad sheets where exposed without applied coatings.

2.8.2.3.2 Steel panels shall be metal panels of zinc-coated steel conforming to ASTM A 446, Grade A, G90 zinc coating. Where color coating is required, finish shall be factory prime-coated and color-coated with one of the color coatings specified for aluminum roof panels.

2.8.2.3.3 Stainless steel panels shall be fabricated from ASTM A 167, sheet stock types 302 or 304 stainless steel with No. 2B surface finish. Where exposure to corrosive atmospheres or coastal areas is required, stainless steel panels shall be fabricated from ASTM 167, sheet stock type 316, with No. 2B

surface finish.

2.9 Solid vinyl siding shall comply with ASTM D 3679, Class 2.

3.0 EXECUTION:

3.1 General: Installation shall include all standard fasteners, flashings, sealants, gaskets, closure strips, trim, and insulation associated with roofing and siding. Provide expansion joints where required.

3.2 Field-Assembled Sandwich Panel Siding shall include installation of subgirts. All panels shall be erected with flutes and ribs running vertically.

3.3 Factory-assembled sandwich panels shall be erected by means of standard concealed clip attachments.

3.4 Solid vinyl siding shall include all accessories required for a complete installation.

Asbestos Cement Roofing and Siding

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of asbestos cement roofing and siding. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Wall Covering and Roof Covering: Corrugated asbestos cement panels shall conform to ASTM C 221, Type A, natural gray color.

2.2 Accessories: Accessories of asbestos cement used as supplementary or finishing pieces shall conform to ASTM C 221. Molded closure strips shall be bituminous saturated fiber, closed-cell or solid-cell synthetic rubber or neoprene, or polyvinyl chloride premolded to match the configuration of the covering.

2.3 Fasteners: Fasteners exposed to weather shall be gasketed or have gasketed washers to weatherproof the penetration. Gaskets shall be neoprene, other elastomeric material, or lead approximately 1/8 inch thick. Bolts and drive screws shall be zinc-plated steel. Self-tapping screws shall be cadmium-coated or 300 series corrosion-resisting steel. Bolt clips shall be galvanized steel of standard design appropriate for the application.

2.4 Insulation Materials: Insulation shall be of sufficient thickness to provide the designated roof and wall U-values through the completed construction, when determined for winter conditions in accordance with recognized methods in agreement with the ASHRAE Handbook & Product Directory, Fundamentals. Insulation shall have a facing providing a permeability as required when tested in accordance with ASTM E 96. Facing shall be either of reinforced foil with a vinyl finish or sheet vinyl, except unreinforced foil may be used in concealed locations. Facings and finishes shall be factory-applied. Insulation, including facings and finishes, shall have a flame spread not in excess of 25 and a smoke developed rating not in excess of 50 when tested in accordance with ASTM E 84.

2.4.1 Rigid or semi-rigid board insulation shall conform to Fed. Spec. HH-I-558, Form A, Class 1 or Class 2. Exposed insulation shall have a white non-dusting and non-shedding finish.

2.4.2 Blanket insulation shall conform to Fed. Spec. HH-I-558, Form B, Type I, Class 6.

2.5 Insulation Retainers: Insulation retainers shall be type, size, and design necessary to hold the insulation adequately. Metallic retaining members shall be nonferrous or have a nonferrous coating. Nonmetallic retaining members, including adhesives used in conjunction with mechanical retainers or at insulation seams, shall have a fire resistance classification not less than that permitted for the insulation.

2.6 Wall Liners: Wall liners shall be 0.024-inch or thicker aluminum or 26 galvanized sheet gauge or thicker steel. Wall liners shall be formed or patterned to prevent waviness and distortion and shall extend from the floor to height as required. Matching metal trim shall be provided at the base of wall lining, top of wall liner, around openings in walls and roof and over interior and exterior corners.

2.6.1 Steel wall liners shall be zinc-coated steel conforming to ASTM A 446, G 90 coating designation, or aluminum-coated steel conforming to ASTM A 463, Type 2.

2.6.2 Aluminum wall liners shall conform to ASTM B 209, temper as required for the forming operation.

2.6.3 Sealant shall be as recommended by the roofing and siding manufacturer.

3.0 EXECUTION:

3.1 Wall Covering and Roof Covering: Sheets shall be laid the straight or staggered joint method as required. Wall covering shall be applied with edge corrugations turned in and the longitudinal configurations in the vertical position. Roof covering shall be applied with the edge corrugations turned down and the longitudinal configurations in the direction of the roof slope. End laps shall be made over framing members with fasteners into framing members approximately 3 inches from the end of the overlapping sheet. Side laps and end laps of roof and wall covering and joints at accessories shall be sealed. Holes for fasteners shall be drilled only in the high part of the corrugation. Fasteners shall be driven normal to the surface and to a depth to seat the gasketed washers properly without overdriving and cracking the crests. Automatic end-welded studs shall not be used for applying wall and roof sheets. Cutting of sheets shall be accomplished with a saw equipped with a vacuum or a water jet and in accordance with OSHA 1910.1001 and 1926.103.

3.2 Molded closure strips shall be installed wherever covering sheets terminate in open-end configurations, exclusive of flashings.

3.3 Insulation shall be installed between covering and supporting members. Blanket insulation shall have facing at joints lapped and fastened in a manner that will provide tight joints. Exposed rigid or semi-rigid insulation in ceilings shall be fastened securely without loose joints and unsightly sags.

Insulation retainers shall be fastened securely in place.

3.4 Wall Liners: Additional framing and accessories shall be provided as necessary for the installation of the wall liners.

Built-up Roofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of built-up roofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Primer: Asphalt, ASTM D 41; coal-tar, ASTM D 43.

2.2 Bitumen:

2.2.1 Asphalt: ASTM D 312, Type I on slopes from 1/4 inch per foot up to and including 1/2 inch per foot, Type II or Type III on slopes above 1/2 inch per foot up to and including 1 inch per foot, Type III on slopes above 1 inch per foot and including 3 inches per foot.

2.2.2 Coal-Tar Bitumen for slopes from 1/4 inch per foot up to and including 1/2 inch per foot: ASTM D 450, Type III, unless Type I is approved by the Authorized Member Representative.

2.2.3 Cold-Process Asphalt Emulsion: A mechanical mixture of minute particles of asphalt and special clays suspended in water.

2.3 Cants: Treated fiberboard, ASTM C 208; wood blocking treated with waterborne preservative, AWPB LP-2; or foamglass. Cants shall have maximum 5-1/2 inch face dimensions at a 45 degree incline to roof plane and lengths as long as practical.

2.4 Felt:

2.4.1 Organic-Fiber Felt:

2.4.1.1 Plies: ASTM D 226, Type I, asphalt-saturated; or ASTM D 227, Type I, coal-tar saturated.

2.4.1.2 Asphalt-Saturated Base Sheet: No. 40 felt, ASTM D 2626,Type I or II.

2.4.2 Glass-Fiber Felt:

2.4.2.1 Plies: ASTM D 2178, Type III or IV where average January temperature is above 40 F and Type IV where average January temperature is below 45 F.

2.4.2.2 Asphalt-Impregnated Combination Base Sheet: ASTM D 2178, Type V.

2.4.3 Venting Base Sheet: Asphalt-saturated and coated base sheet with granular surfacing and embossed channels (or grooves) on bottom surface.

2.4.4 Cold-Process System Felts: Coated organic, glass-fiber, or a combination of both.

2.5 Flashings: Bituminous and sheet metal as required.

2.6 Flashing Cement: Bituminous plastic cement complying with Fed. Spec. SS-C-153, Type I for use with asphalt-saturated felts and Type II for use with coal-tar saturated felts.

2.7 Cold-Process Cement: Solvent-based cement that evaporates slowly in cool damp weather, more rapidly in hot dry weather, and is standard with the cold-process glass-fiber reinforced asphalt emulsion roofing system manufacturer.

2.8 Mastic: Solvent-based mastic that evaporates slowly in cool damp weather, more rapidly in hot dry weather, and is standard with the cold-process mastic roofing system manufacturer.

2.9 Nails and Mechanical Fasteners: Industry standard, noncorrosive material, shape and size required for substrate.

2.10 Surfacing Materials:

2.10.1 Aggregate: Crushed stone, gravel, or crushed slag conforming to ASTM D 1863. Subject to approval, other materials may be used when blended to the grading requirements of ASTM D 1863.

2.10.2 Smooth Surfacing:

2.10.2.1 Fibrated, clay-stabilized, water thinned asphalt emulsion with non-asbestos reinforcing, ASTM D 1227, Type IV (clay-type).

2.10.2.2 Reflective Coating: ASTM D 2824, Type I if non-fibrated, Type II if fibrated.

2.10.3 Mineral Surfacing: Mineral surface cap sheet complying with ASTM D 3909.

2.11 Sheathing Paper: ASTM D 549, 5-pound rosin-sized paper.

2.12 Wood Nailers and Edge Blocking: Non-stress graded wood members, treated with waterborne

preservative in compliance with AWFB LP-2.

2.13 Walkway Protection Boards: Mineral surfaced bituminous composition boards, approximately 1/2 inch thick, manufactured specifically for hot bituminous application on built-up roofing as a protection course for foot traffic.

2.14 Roofing Systems:

2.14.1 Nailable Deck, Asphalt/Organic Felt Membrane With Aggregate Surfacing: NRCA Specification Plate No. 31-NAOA, Diagram B for light-weight insulating concrete decks and Diagram A for other nailable decks.

2.14.2 Nailable Deck, Asphalt/Glass-Fiber Felt Membrane:

2.14.2.1 With Aggregate Surfacing: NRCA Specification Plate No. 32-NAGA, Diagram B for lightweight insulating concrete decks and Diagram A for other nailable decks.

2.14.2.2 With Smooth Surfacing: NRCA Specification Plate No. 32-NAGA except for substitution of smooth surfacing for aggregate surfacing.

2.14.2.3 With Mineral Surfacing: NRCA Specification Plate No. 32-NAGA except for deletion of one ply of felt and substitution of mineral surfacing for aggregate surfacing.

2.14.3 Nailable Deck, Coal-Tar/Organic Felt Membrane with Aggregate Surfacing: NRCA Specification Plate No. 33-NCOA, Diagram B for light-weight insulating concrete decks and Diagram A for other nailable decks.

2.14.4 Insulated Deck, Asphalt/Organic Felt Membrane with Aggregate Surfacing: NRCA Specification Plate No. 41-IAOA; Diagram B for insulation substrate of composite board, polyisocyanurate foam board, or polyurethane foam board; Diagram A for other insulation substrates.

2.14.5 Insulated Deck, Asphalt/Glass-Fiber Felt Membrane:

2.14.5.1 With Aggregate Surfacing: NRCA Specification Plate No. 42-IAGA; Diagram B for insulation substrate of composite board, poly-isocyanurate foam board, or polyurethane foam board; Diagram A for other insulation substrates.

2.14.5.2 With Smooth Surfacing: NRCA Specification Plate No. 42-IAGA except for addition of one ply of felt and substitution of smooth surfacing for aggregate surfacing.

2.14.5.3 With Mineral Surfacing: NRCA Specification Plate No. 42-IAGA except for substitution of mineral surfacing for aggregate surfacing.

2.14.6 Insulated Deck, Coal-Tar/Organic Felt Membrane with Aggregate Surfacing: NRCA Specification Plate No. 43-ICOA; Diagram B for insulation substrate of composite board, polyisocyanurate foam board, or polyurethane foam board; Diagram A for other insulation substrates.

2.14.7 Concrete Deck, Asphalt/Organic Felt Membrane with Aggregate Surfacing: NRCA Specification Plate No. 51-CAOA, Diagram A or B as directed.

2.14.8 Concrete Deck, Asphalt/Glass-Fiber Felt Membrane:

2.14.8.1 With Aggregate Surfacing: NRCA Specification Plate No. 52-CAGA, Diagram A or B as directed.

2.14.8.2 With Smooth Surfacing: NRCA Specification Plate No. 52-CAGA except for addition of one ply of felt and substitution of smooth surfacing for aggregate surfacing.

2.14.8.3 With Mineral Surfacing: NRCA Specification Plate No. 52-CAGA except for substitution of mineral surfacing for aggregate surfacing.

2.14.9 Concrete Deck, Coal-Tar/Organic Felt Membrane with Aggregate Surfacing: NRCA Specification Plate No. 53-CCOA; Diagram A or B as directed.

2.14.10 Temporary Roofing: NRCA Specification 10-TR; Diagram TR-N for nailable decks, Diagram TR-C for non-nailable decks (except steel) and Diagram TR-SI for steel decks.

2.14.11 Cold-Process Built-Up Membrane Roofing:

2.14.11.1 Glass-Fiber Reinforced Asphalt Emulsion System: Minimum two layers of coated ply felts with smooth surfacing (asphalt emulsion).

2.14.11.2 Mastic System: Coated ply felts (three plies on slopes less than 1 inch per foot and two plies on slopes greater than 1 inch per foot) embedded into a spray application of mastic with embedded mineral granule surfacing.

2.15 UL Listing: Built-up roofing systems and component materials of roofing systems that have been tested for application and slopes and are listed by Underwriters' Laboratories, Inc. (UL) for Class A or Class B external fire exposure shall be provided. Roof covering materials shall bear the Classification marking (UL) on bundle, package, or container indicating that materials have been

produced under UL's Classification and Follow-Up Service.

2.16 FM Listing: Built-up roofing systems and component materials of roofing systems that have been evaluated by Factory Mutual system for fire spread, wind uplift, and hail damage are listed in the "Factory Mutual Approval Guide" for Class 1 construction. Built-up roofing systems and component materials bearing FM approval marking on bundle, package, or container indicating that the material has been subjected to FM's examination and follow-up inspection service shall be provided.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Mineral Surfaced Cap Sheet: Cut sheet in 12- to 18-foot lengths and leave to flatten prior to application.

3.1.2 Temporary Roofing: Remove temporary roofing completely prior to installation of permanent roofing.

3.1.3 Weather Limitations: Do not apply roofing when it is excessively windy, wet, or when the ambient temperature is less than 40 F.

3.1.4 Heating Bitumen: Asphalt shall not be heated above 475 F. Coal tar shall not be heated above 400 F. Application temperatures shall be measured at the mop bucket and/or mechanical applicator.

3.2 Application:

3.2.1 NRCA-Specified Roofing Systems shall be applied in accordance with the NRCA specifications.

3.2.2 Smooth Surfacing: Glaze-coat entire surface of completed built-up roof membrane with hot mopping of Type III asphalt, applied at same rate and concurrent with interply moppings. Allow asphalt coating to age a minimum of 7 days, then apply top coating of asphalt emulsion at an average rate of 2.5 gallons per square. If roof is to receive reflective coating, it shall be applied promptly after application and initial cure (next day) of emulsion coating at an average rate of 1.25 gallons per square.

3.2.3 Mineral Surfacing: Promptly after completion of ply-sheet membrane (same day where possible), apply one lapped course of cap sheet. Set cap sheet in uniform mopping of same hot bitumen used in ply-sheet courses, at an average rate of 15 lbs per square. Lap ends a minimum of 6 inches.

3.2.4 Cold-Process Roofing Systems:

3.2.4.1 Glass-Fiber Reinforced Asphalt Emulsion: Nail or spot-mop the first ply felt. Apply additional plies with cold-process cement brushed, sprayed, or rolled on at the rate of approximately 1-1/2 gallons per square. If precipitation is expected within 48 hours, a solid mopping of hot asphalt shall be used instead of cold-process cement. Over the base sheet assembly, the asphalt emulsion shall be spray-applied with a three-nozzle gun that has a glass fiber cutter that disperses glass fibers 3/4 inches long into the emulsion as it is spray-applied. Reinforced asphalt emulsion shall be sprayed at the rate of approximately 9 gallons of emulsion and 3 pounds of glass-fiber reinforcement per square. If the roof is designated to receive a reflective coating, it shall be applied as soon as the asphalt emulsion membrane is firm enough to support roof traffic without indentations forming in the film.

3.2.4.2 Mastic System: Embed ply felts in mastic sprayed at a rate of approximately 2-1/2 gallons per square per coat. Embed mineral surfacing in top coat of mastic.

3.3 Accessories and Flashings: Install flashings as recommended by the NRCA Roofing and Waterproofing Manual and the SMACNA Architectural Sheet Metal Manual. Set walkways in additional pour-coat of hot bitumen after aggregate surfacing of built-up roofing membrane.

3.4 Surface Maintenance of Existing Aggregate Surfaced Roofs:

3.4.1 Preparation: Sweep surface and remove all loose and poorly embedded existing aggregate before applying new surface materials.

3.4.2 Primer: Apply thin coat of asphalt primer over affected areas. Allow to dry thoroughly before applying flood coat.

3.4.3 Flood Coat: Apply hot bitumen of type compatible with existing roofing materials, at a rate of 60 pounds per square for Type III asphalt and 75 pounds per square for coal tar.

3.4.4 Aggregate Surfacing: While bitumen is hot, embed clean surfacing aggregate of type to match existing, applied at a rate of 400 pounds per square for gravel, 300 pounds per square for slag, and 400 pounds per square for crushed stone.

3.5 Maintenance and Repair Patching (Hot-Applied Roofing):

3.5.1 Blisters: Make two cuts at right angles to each other, extending cuts 12 inches beyond edge of defective areas and to substrate surface. Fold back cut areas and allow substrate and membrane to dry. Wet insulation shall be removed and replaced with dry insulation matching the original. When dry, apply solid bitumen mopping over opened area and fold cut sections of membrane into bitumen. Totally embed membrane in bitumen.

3.5.2 Splits: Cut out membrane at least 12 inches on each side and extending 18 to 24 inches on each side and extending 18 to 24 inches beyond each end of split area. Dry lay a 6-inch wide strip of roofing felt, cemented over split area. Apply uniform coat of bitumen over dry felt, extending to embedded aggregate in all directions.

3.5.3 Disintegrated and Damaged Felts: Cut and remove disintegrated, damaged, and loose felts to extent necessary to provide sound materials. Cut out wet felts and allow wet surfaces to completely dry before in-stalling patch materials. Replace removed felts with equal plies of felt. Felts shall be solidly mopped into place in hot bitumen and shingled into existing plies to extent possible.

3.5.4 Additional Plies: Finish defective areas by applying at least two additional plies of roofing felt, embedded in hot bitumen. Extend edges of first ply a minimum of 9 inches beyond affected area on all sides and second ply 18 inches beyond affected area on all sides.

Polymer-modified Asphalt Built-up Roofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of a class "A" fire rated 12 Year Built Up Roofing System conforming to a manufacturer's standard, prefabricated, reinforced polymer-modified fiberglass sheets (base sheet & 3 plies), SEBS asphalt, gravel ballast with insulation, flashing, and accessories as specified and indicated. The manufacturer shall have a minimum of 10 years experience in manufacturing of the proposed roofing system for similar applications. Roofing Contractor shall warrant workmanship for a period of two (2) years from date work is accepted in additional to all manufacturer's or supplier warranties. Demolition and removal of materials shall be as specified and as required to support the work. Work shall conform to NRCA, SMACNA industry standards and material manufacturer's recommendations.

2.0 PRODUCTS:

2.1 Primer: Asphalt, ASTM D 41.

2.2 Bitumen:

2.2.1 Asphalt: Modified-Asphalt (SEBS), ASTM D 312, Type III for slopes up to 25 percent (1/4 inch per foot vertical/horizontal) and Type IV for slopes up to 50 percent (1/2 inch per foot vertical/horizontal) or as specified by roof material manufacturer.

2.2.2 Mastic: Cement shall conform to ASTM D 4586 and as recommended by roof materials manufacturer.

2.3 Cants: Treated fiberboard, ASTM C 208; wood blocking treated with waterborne preservative, AWPA C9 listed in AWPA P5. Cants shall have maximum 5-1/2 inch face dimensions at a 45 degree incline to roof plane and lengths as long as practical. Field cut ends of wood cants shall be field treated with AWPA M4.

2.4 Felts:

2.4.1 Fiberglass Felts:

2.4.2 Plies: ASTM D 2178, Type IV Sheets shall be a polymer modified asphalt of styrene butadiene styrene (SBS); or SBS which has been further modified with styrene ethylene butadiene styrene (SEBS). Sheets shall be reinforced with fiber made from glass, polypropylene, or polyester. as recommended by the manufactured by Allied Signal, Manville, GAF Corporation, Siplast or equal.

2.5 Flashing:

2.5.1 Base Flashing: Flashing shall be White, SBS/SEBS polymer modified asphalt, mineral surfaced cap ply as recommended by material manufacturer.

2.5.2 Metal Flashing: Metal flashing as specified and as required.

2.5.3 Flashing Cement: MBR type only (asbestos free), compatible for use with SBS/SEBS polymer modified built-up roof system.

2.5.4 Cap Flashing Underlayment Membrane: Protective underlayment, SBS/SEBS modified asphalt flashing material with polyester face, paper backed, with adhesive. TAMKO, Moisture Guard Plus or

equal.

2.6 Nails and mechanical Fasteners:

2.6.1 Roof Nails: Galvanized or non-ferrous type, size as required to suite application and as recommended by roof materials manufacturer.

2.6.2 Mechanical Fasteners for Flexible Flashing: Masonry, specially heat treated, stress relived, I-1/4 inch; Masonry nails manufactured by Simplex Nails, Inc. or equal. Wood blocking, high carbon, zinc coated steel, annular threaded shank nails; with minimum 1 inch x 30 gauge metal disk; Roofing nails manufactured by Simplex Nails, Inc or equal.

2.6.3 Mechanical Fasteners for Insulation to Steel Deck: #14 screw with corrosive resistant coating (able to pass 30K cycles) with compatible disk; sufficient screw shank length to penetrate steel deck in accordance with manufacturer's instruction for base layer of insulation. Plastic disks shall have provision for recessed fastener head.

2.6.4 Mechanical Fasteners for Metal Flashing: As recommended by materials manufacturer.

2.7 Surfacing Materials: Surfacing shall be light colored, crushed stone or gravel conforming to ASTM D 1863.

2.8 Adhesive: Adhesive shall be approved type recommended by the roofing membrane manufacturer.

2.9 Walkway Surfaces: Walkways shall be mineral asphalt planks, Minimum inch thick, ASTM D517 as specified or as recommended by roof membrane manufacturer.

2.10 Wood Nailers and Edge Blocking: As specified and as required, Non-stress graded wood members, treated with waterborne preservative in compliance with AWFB LP-2.

2.11 Insulation: As specified and as required, insulation shall be compatible with roof membrane as recommended by material manufacturer and installed in accordance with FM I-90, NRCA and manufacturer recommendations.

2.12 Metal Flashing, Gravel Guards, Gutters, and Downspouts and accessories: As specified and as required.

2.13 Coating: As specified; aluminum coating shall conform to ASTM D 2824 Type I or III, or shall be as recommended by roof membrane manufacturer.

2.14 Pitch Pan: As specified and indicated; Pitch pans shall have rain cap and shall be filled with a 2 part pourable sealant. Sealant shall conform to ASTM D 529, Firestone Rubber-guard sealer S-10 or equal.

3.0 EXECUTION

3.1 Preparation Requirements: The substrate construction of any bay or section of building shall be clean before roofing work is begun thereon. Vents and other items penetrating the roof shall be secured in position and properly prepared for flashing. Nailers, curbs and other items attached to roof surface shall be in place before roofing is begun.

3.2 Installation of Cants: Cants shall be installed in the angles formed between the roof and walls or other vertical surfaces. Cants shall be laid in a solid coat of bituminous cement just prior to laying the base sheet or membrane. Cants shall be continuous, and shall be installed in lengths as long as practicable.

3.3 Condition of Surfaces: Surfaces shall be inspected and approved immediately prior to application of roofing and flashing. The roofing and flashing shall be applied to a smooth and firm surface free from ice, frost, visible moisture, dirt, projections, and foreign materials. Prior to application of primer on pre-cast concrete decks, joints shall be covered with 4 inch strip of roofing felt, embedded in and coated with bituminous cement.

3.4 Application of Roofing System: Application shall be in accordance with NRCA specifications and roofing materials manufacturer recommendations and warranties.

3.5 Mechanical Application Devices: Mechanical application devices shall be mounted on pneumatic-tired wheels, and shall be designed and maintained to operate without damaging the insulation, roofing membrane, or structural components.

3.6 Priming: Concrete, masonry and metal surfaces to receive bitumen shall be uniformly coated with primer at a rate of not less than 0.4 liters per square meter, 1 gallon per square and allowed to dry.

3.7 Heating of Asphalt: Asphalt shall not be heated higher than 75 degrees F above EVT or 50 degrees F below the flash point or 525 degrees F (maximum) whichever is lower. EVT and flash point

temperatures of asphalt in the kettle shall be conspicuously posted on the kettle. Heating kettle shall be provided with automatic thermostatic control and an accurate thermometer. Kettle operator shall be in attendance at all times during the heating to ensure that the maximum temperature specified is not exceeded. An asphalt tanker shall be treated as a kettle.

3.8 Asphalt Application: Asphalt shall be applied within 25 degrees F below or above the EVT, or 400 degrees F, whichever is higher. Application temperatures shall be measured at the mop bucket or mechanical applicator. Bitumen at a temperature below the recommended temperature shall be returned to the kettle.

3.9 Application of Base Sheet: Base sheet shall be applied, shingle fashion, in a continuous operation, with side laps in accordance with manufacturer's printed instructions. End laps shall be not less than 6 inches and staggered a minimum of 24 inches. Base sheets shall be applied at right angles to the slope (except on curved or steep deck) and laps shall be face down the slope. Venting base sheet shall be mechanically fastened in conformance with manufactured printed instructions. Non vented base sheet on insulation shall be applied in hot mopping of not less than 20 pounds nor more than 35 pounds of modified asphalt per square and shall be embedded in the hot asphalt with squeegee or broom to eliminate air pockets and ensure complete adhesion. Operator shall avoid heavy application of squeegee to glass-fiber sheets.

3.10 BUR Felts Application: Felt plies shall be installed as recommended by the membrane manufacturer. Each sheet in each ply shall be fully adhered to the underlying surface. Sheet edges shall lie flat, with no fish-mouths or wrinkles. Installation shall begin at the low point of the roof and progress to the high point with each sheet installed in shingle fashion. Each sheet shall be unrolled to provide 4 inch side laps and 6 inch end laps. End laps shall be staggered not less than 24 inches. Laps shall not coincide with laps of base layer except at lines of permanent termination. Sheets shall be adhesive-bonded in SBS/SEBS asphalt as specified in manufacturer's approved written instructions.

3.11 Termination at Perimeters: The BUR felts shall extend up abutting surfaces at least 4 inches or 2 inches above top of the cant.

3.12 Mechanical Fastening of Insulation: Nails and fasteners for securing base or membrane sheet to wood nailers or deck shall be flush driven through disk. Screw fasteners with disk as specified by the membrane manufacturer shall be used on concrete or metal deck. Nailers and fasteners shall be spaced to meet I-90 wind uplift requirements and within tolerance specified by the manufacturer. Penetration of nails and fasteners will not be permitted through the exposed surface of the membrane.

3.13 Protection of Applied Roofing: At end of day's work or whenever precipitation is imminent, the terminated edge of the roofing shall be sealed with two full width strips of roofing felt set in and coated with bitumen cement or hot mopped asphalt. One half-width of strip shall be extended up and over the finished roofing and other half-width extended out and onto the bare roof deck or existing membrane. Sealing strips shall be removed before continuing installation of the roofing. To facilitate sealing, termination edges may be straightened with pieces of insulation board and shall be removed when work is resumed.

3.14 Flashing: Flashing shall be provided over cants, in the angles formed at walls and other vertical surfaces, and where required to make work watertight. All penetrations shall receive flashing as required. Polymer mineral surfaced flashing shall be used, except where metal flashing is required or specified. Metal cap flashing shall have peal and stick rubber membrane (ice dam) flashing applied between cap wall and metal flashing.

3.15 Walkways: Walkways shall be mineral-surfaced asphalt planks, back mopped and embedded in the flood coat prior to aggregate surfacing and shall be located as indicated are as required.

3.16 Surfacing: After roofing membrane has been laid and flashing installed, the roof surface, except cants, shall be flood coated uniformly with 60 pounds SBS/SEBS hot asphalt per square, and while asphalt is still hot, aggregate surface material shall be spread on the hot bitumen at the rate of 400 pounds per square.

3.17 Inspection: The Contractor and applicator shall establish and maintain an inspection procedure to assure compliance of the installed roofing system. The materials manufacturer shall certify, inspect and issue written warranties. Any work found not in compliance shall be promptly removed or

repaired in an approved manner. Inspection shall include, bit not limited to, the following:

3.17.1 Observation of environmental conditions; number and skill level of roofing workers; start and end time of various tasks; condition of substrate.

3.17.2 Verification of compliance of materials before, during and after installation.

3.17.3 Inspection of condition of equipment and accuracy of thermometers and metering devices.

3.17.4 Inspection of flashing, cants, and curbs.

3.17.5 Inspection of membrane placement, widths of starter sheets, laps, proper use of squeegee, and mechanical fastening.

3.17.6 Inspection of application of bitumen, aggregate, and walkways.

3.17.7 Inspection of embedded of aggregate for required weight and coverage.

3.17.8 Sampling and analysis as directed.

3.17.8 Inspection of all metal work to include flashing, gutters and downspouts.

3.17.9 Final inspection that roof system is watertight and complete.

Single Ply Roofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of single ply roofing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Roll Roofing: ASTM D 371, Type II, for mineral surfaced; ASTM D 224, Type II, for smooth surfaced.

2.2 Elastic Sheet Roofing: Elastic sheet material shall be EPDM, hypalon, neoprene, polyvinyl chloride, chlorinated polyethylene, polyisobutylene, or modified bitumen (reinforced or unreinforced), as required. Provide products that are fully compatible with indicated substrates or provide separation materials as required to eliminate contact between incompatible materials. The elastic sheet roofing shall meet the following requirements based on type of installation.

2.2.1 For Loose-Laid Ballasted System: Manufacturer's standard thickness but not less than 45 mils, 1,400 psi minimum tensile strength (ASTM D 412), 250 percent elongation (ASTM D 412), vapor permeable, ultraviolet and ozone resistant, low temperature brittleness of -40 F (ASTM D 746).

2.2.2 For Mechanically Fastened System: Manufacturer's standard thickness but not less than 60 mils, 1,600 psi minimum tensile strength (ASTM D 412), minimum tear resistance of 150 lbs/lin in (ASTM D 624), 300 percent elongation (ASTM D 412), ultraviolet and ozone resistant, low temperature brittleness of –40 F (ASTM D 746), standard color.

2.2.3 For Fully Adhered System: Manufacturer's standard thickness but not less than 60 mils, 1,400 psi minimum tensile strength (ASTM D 412), 250 percent minimum elongation (ASTM D 412), ultraviolet and ozone resistant, low temperature brittleness of -40 F (ASTM D 746), standard or special color, as required.

2.3 Fluid-Applied Roofing: Fluid-applied materials shall be sprayed-in-place urethane roofing with two-coat elastomeric silicone rubber protective coating.

2.3.1 Urethane Foam:

PROPERTY	ASTM TEST METHOD	VALUE
Density, pcf overall	D 1622	2.5 min., 3.5max.
Compressive Strength psi parallel to rise	D 1621	40.0 min.
Thermal Conductivity (k factor) Btu/hr/ sq ft/degrees F/in.	C 177	new 0.11 max. aged 0.15 max. (6 months)

2.3.2 Elastomeric Protective Coating: Two-coat silicone rubber system, bonded to urethane foam:

PROPERTY	ASTM TEST METHOD	VALUE
Tensile Strength, psi	D 412	500-600
Elongation, percent	D 412	100-150
Hardness	D 2240	45

2.4 Roofing Installation Accessories:
2.4.1 Roll Roofing:
2.4.1.1 Roofing nails shall be 12-gauge galvanized with minimum 3/8-inch diameter head and 7/8-inch long shank.
2.4.1.2 Cement shall be cold process asphalt as recommended by material manufacturer.
2.4.2 Elastic Sheet Roofing:
2.4.2.1 Ballast for loose-laid ballasted systems shall be washed round riverbed gravel, ranging in size from 3/4 inch to 1-1/2 inches in diameter.
2.4.2.2 Mechanical fasteners used with mechanically fastened system shall be screws, nails, battens, accessory components, and adhesives as appropriate for the substrate.
2.4.2.3 Adhesive for fully adhered system shall be compatible with substrate and project conditions and formulated to withstand a minimum 60 psf uplift force.
2.4.2.4 Protective color coat as required for mechanically fastened and fully adhered systems shall be ozone-resistant, liquid-applied hypalon.
2.4.2.5 Flashing material shall be compatible with the membrane.
2.4.2.6 Membrane seaming system shall be of manufacturer's standard materials for sealing lapped joints, including edge sealer to cover exposed spliced edges.
2.4.2.7 Cant strips and flashing accessories shall be compatible with membrane, including adhesive tapes, flashing cements, and sealants.
2.4.2.8 Slip sheet for protection of membrane from incompatible substrate shall be as recommended by membrane manufacturer.
2.4.2.9 Walkway protection boards, where required, shall be prefabricated concrete pavers containing no asphalt or coal-tar derivatives, suitable for use without cracking or breaking.
2.4.3 Fluid-Applied Roofing: Ceramic granules shall be No. 11 screen size dry and free from dust.
2.5 UL Listing: Single ply roofing systems and component materials that have been tested for application and slopes and are listed by Underwriters' Laboratories, Inc. (UL) for Class A or Class B external fire exposure shall be provided. Single ply roof covering materials shall bear the Classification marking (UL) on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-Up Service.
2.6 FM Listing: Single ply roofing systems and component materials that have been evaluated by Factory Mutual System for fire spread, wind uplift, and hail damage are listed in the "Factory Mutual Approval Guide" for Class 1 construction. Single ply roofing systems and component materials bearing FM approval marking on bundle, package, or container indicating that the material has been subjected to FM's examination and follow-up inspection service shall be provided.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Roll Roofing: Clean wood deck completely. Ensure that all nails are driven flush with or below deck surface. Surface must be dry before placing any roofing material.
3.1.2 Elastic Sheet Roofing: Clean of dust, debris, or other substances detrimental to work. Remove sharp projections. Prime substrate as required.
3.1.3 Fluid Applied Roofing: Clean all debris from roof surface, new or existing. On existing roof, repair any roof damage to provide a clean smooth surface.
3.2 Installation:
3.2.1 Roll Roofing: Install in accordance with the National Roofing Contractors Association Steep Roofing Manual application instructions.
3.2.2 Elastic Sheet Roofing and Fluid Applied Roofing: Install in accordance with manufacturer's instructions.

Inverted Roof Systems

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of inverted roof systems. Materials shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to

support the work.

2.0 PRODUCTS:

2.1 Asphalt Primer: ASTM D 41.

2.2 Fiberglass Base Sheet: Glass fiber mat coated with weathering grade asphalt to provide a nonporous ply.

2.3 Fiberglass Felt: ASTM D 2178, Type IV.

2.4 Sheathing Paper: Single ply 5 lb/100 sq ft, rosin-sized sheathing paper.

2.5 Base for built-up membrane applied over steel deck shall be one of the following with mechanical attachment:

2.5.1 Mineral Fiberboard: ASTM C 726, 3/4 inch thick.

2.5.2 Wood Fiberboard: Organic fiberboard roof insulation in accordance with ASTM C 208, 1 inch thick.

2.5.3 Gypsum Wallboard: 1/2 inch thick, ASTM C 36.

2.6 Steep Asphalt: ASTM D 312, Type III.

2.7 Extruded Rigid Polystyrene Insulation: ASTM C 578, Type IV, 24-inch by 48-inch standard size, with drainage channel on bottom of each board.

2.8 Galvanized Roofing Nails: 11 gauge, barbed, galvanized with 7/16-inch to 5/8-inch diameter heads or other approved type.

2.9 Fabric for Application Above Insulation: 3 oz/sq yd black polyester or 3 oz/sq yd black polypropylene approved by inverted roof system manufacturer.

2.10 Ballast: Gravel or crushed stone shall be in accordance with ASTM D 448, Gradation No. 57.

2.11 UL Listing: Inverted roof systems and component materials that have been tested for application and slopes and are listed by Underwriters' Laboratories, Inc. (UL) for Class A or Class B external fire exposure shall be provided. Inverted roof systems and component materials shall bear the Classification marking (UL) on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-Up Service.

2.12 FM Listing: Inverted roof systems and component materials that have been evaluated by Factory Mutual system for fire spread, wind uplift, and hail damage are listed in the "Factory Mutual Approval Guide" for Class 1 construction. Inverted roof systems and component materials bearing FM approval marking on bundle, package, or container indicating the material has been subjected to FM's examination and follow-up inspection service shall be provided.

3.0 EXECUTION:

3.1 Installation on Various Deck Materials:

3.1.1 On lightweight insulating concrete decks, prime concrete surface with asphaltic primer.

3.1.2 On poured gypsum decks, lay one ply of approved fiberglass base sheet with edges lapped and nailed with nails approved for use with gypsum deck materials.

3.1.3 On precast concrete plank deck or precast concrete tee deck, prime concrete surfaces with asphalt primer. Prior to applying built-up roof membrane, apply 18-inch wide slip sheet of 2-ply dry-applied fiberglass felt to cover end joints where concrete planks or tees meet.

3.1.4 On wood decks, cover the deck with sheathing paper lapping and mechanically fastening each sheet to the deck. Over sheathing paper, apply one ply of approved fiberglass base sheet, lapping joints and nailing, using galvanized roofing nails driven through flat metal disks not less than 1 inch in diameter.

3.2 Built-up Roof Membrane Installation:

3.2.1 Starting at low point of roof, uniformly mop the surface of the nailed fiberglass base sheet or primed deck surface with steep asphalt at the rate recommended for substrate (25 +/- 5 to 30 +/- 5 lbs per square). While hot, embed 3 plies of approved fiberglass felts in shingle fashion, lapping each sheet 24-2/3 inches.

3.2.2 Interply moppings shall be continuous and applied at the rate listed above for substrate. Complete embedment of felts is required and is accomplished by dragging a broom or squeegee over the felt; no more pressure is required than that exerted by the weight of the "brooming" utensil. During cold weather, effective brooming is essential to eliminate voids and to ensure adhesion. As the work progresses, full mop the top surface of the membrane using a minimum coverage of 25 +/- 5 lbs per square. A second flood coat shall be applied at the rate of 45 lbs per square.

3.2.3 At no time shall felts be left exposed overnight or in inclement weather. All mopping bitumen shall

be steep asphalt (Type III, 185-205 F softening point).

3.2.4 Bitumen temperature at the kettle shall be controlled so as not to exceed the bitumen manufacturer's recommendations. The roof membrane shall not be staged. Temporary membranes are not acceptable as a part of a completed membrane. Install completed membrane in final form on a day-to-day basis.

3.3 All flashing shall be completed in each area prior to installing roof insulation. Details and installation shall conform to standard inverted roof system specifications.

3.4 Unadhered Insulation Installation:

3.4.1 General: Rigid polystyrene insulation shall be placed on the membrane as the membrane is completed to provide immediate protection. Flood coats of steep asphalt shall be allowed to cool completely prior to rigid insulation installation to ensure unadhered foam.

3.4.2 Rigid polystyrene insulation shall be placed directly on membrane with channel side down. End joints shall be staggered and all boards shall be tightly abutted. The maximum acceptable opening between boards shall be 3/8 inch. Install insulation to within 3/4 inch of all projections and cant strips. For multilayer installations, install subsequent layers unattached over the unadhered first layer. Stagger all joints in relation to underlying layer. The bottom layer shall be as thick or thicker than the top layer and must be a minimum of 2 inches thick.

3.4.3 Fabric Installation: Place fabric over rigid insulation, unadhered and unattached. Fabric shall be wetted to hold it in place until ballast is installed. Edges shall be overlapped a minimum of 1 foot. Install so that there are no parallel joints within 6 feet of the perimeter. Extend fabric 2 to 3 inches above the stone at perimeter and penetrations.

3.4.4 Thickness of Insulation: Installed thickness shall provide a U-value through completed roof structure, air-to-air, not in excess of that required by job location, as determined for winter conditions in accordance with recognized methods in agreement with ASHRAE Handbook Fundamentals.

3.5 Ballast Installation:

3.5.1 General: Fabric shall be covered with gravel or crushed stone ballast as the fabric is being installed. The stone top covering shall be 3/4 inch with not less than 10 percent nor more than 60 percent of fines smaller than 1/2 inch. 3.5.2 Stone or Gravel Ballast shall be applied at a minimum average rate of 1,000 lbs per square and shall be approximately 1-1/4 inches thick. Around roof perimeter and at penetrations and drains, 20 lbs/sq ft of stone ballast over a 4 foot wide area shall be applied. A continuous row of pavers constituting 22 lbs/lin ft can be substituted for the extra ballast around perimeter, penetrations and drains. Pavers shall be used in high traffic areas near roof and equipment access areas.

Modified Bitumen Roofing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of a Class "A" Fire rated 12 Year modified bitumen roofing system conforming to a manufacturer's standard, prefabricated, reinforced polymer-modified bitumen membranes (base sheet, 1 or 2 ply heavy weight plies and cap sheet), SEBS asphalt, with insulation, flashing, and accessories as specified and indicated. The manufacturer shall have a minimum of 10 years experience in manufacturing of the proposed modified bitumen sheet roofing for similar applications. Roofing Contractor shall warrant workmanship for a period of two (2) years from date work is accepted in additional to all manufacturer's or supplier warranties. Demolition and removal of materials shall be as specified and as required to support the work. Work shall conform to NRCA, SMACNA industry standards and material manufacturer's recommendations.

2.0 PRODUCTS:

2.1 Primer: Asphalt, ASTM D 41.

2.2 Bitumen:

2.2.1 Asphalt: Modified-Asphalt (SEBS), ASTM D 312, Type III for slopes up to 25 percent (1/4 inch per foot vertical/horizontal) and Type IV for slopes up to 50 percent (1/2 inch per foot vertical/horizontal) or as specified by roof materials manufacturer.

2.2.2 Mastic: Cement shall conform to ASTM D 4586 and as recommended by roof materials manufacturer.

2.3 Cants: Treated fiberboard, ASTM C 208; wood blocking treated with waterborne preservative, AWPA C9 listed in AWPA P5. Cants shall have maximum 5-1/2 inch face dimensions at a 45 degree incline to roof plane and lengths as long as practical. Field cut ends of wood cants shall be field treated with AWPA M4.

2.4 Felts:

2.4.1 Fiberglass Felts:

2.4.2 Plies: ASTM D 2178, Type IV or VI as recommended by the manufacturer.

2.4.3 Modified Bitumen Base Sheet: ASTM D 4897, Type II for vented sheets or ASTM D 4601, Type II for non-vented sheets. Sheets shall be a bitumen modified asphalt with styrene butadiene styrene (SBS); or SBS that has been further modified with styrene ethylene butadiene styrene (SEBS). Sheets shall be reinforced with fiber made from glass, polypropylene, or polyester manufactured by Allied Signal, Johns Manville, GAF Corporation, Siplast or equal.

2.5 Flashing:

2.5.1 Base Flashing: Flashing shall be White or Metal Clad finish as specified, SEBS modified Bitumen cap ply as recommended by material manufacturer.

2.5.2 Metal Flashing: Metal flashing as specified and as required.

2.5.3 Flashing Cement: MBR type only (asbestos free), compatible for use with SEBS modified bitumen roof system.

2.5.4 Cap Flashing Underlayment Membrane: Protective underlayment, SEBS modified asphalt flashing material with polyester face, paper backed, with adhesive. TAMKO, Moisture Guard Plus or equal.

2.6 Nails and mechanical Fasteners:

2.6.1 Roof Nails: Galvanized or non-ferrous type, size as required to suite application and as recommended by roof materials manufacturer.

2.6.2 Mechanical Fasteners for Flexible Flashing: Masonry, specially heat treated, stress relived, I-1/4 inch; Masonry nails manufactured by Simplex Nails, Inc. or equal. Wood blocking, high carbon, zinc coated steel, annular threaded shank nails; with minimum 1 inch x 30 gauge metal disk; Roofing nails manufactured by Simplex Nails, Inc or equal.

2.6.3 Mechanical Fasteners for Insulation to Steel Deck: #14 screw with corrosive resistant coating (able to pass 30K cycles) with compatible plastic disk; sufficient screw shank length to penetrate steel deck in accordance with manufacturer's instruction for base layer of insulation. Plastic disks shall have provision for recessed fastener head.

2.6.4 Mechanical Fasteners for Metal Flashing: As recommended by materials manufacturer.

2.7 Surfacing Materials: Surfacing shall factory applied granules requiring no further coating.

2.8 Adhesive: Adhesive shall be approved type recommended by the roofing membrane manufacturer.

2.9 Walkway Surfaces: Walkways shall be mineral asphalt planks, minimum inch thick, as specified or as recommended by roof membrane manufacturer.

2.10 Wood Nailers and Edge Blocking: As specified and as required, Non-stress graded wood members, treated with waterborne preservative in compliance with AWFB LP-2.

2.11 Insulation: As specified and as required, insulation shall be compatible with roof membrane as recommended by material manufacturer and installed in accordance with FM I-90, NRCA and manufacturer recommendations.

2.12 Metal Flashing, Gravel Guards, Gutters, and Downspouts and accessories: As specified and as required.

2.13 Coating: As specified; aluminum coating shall conform to ASTM D 2824 Type I or III, or shall be as recommended by roof membrane manufacturer.

2.14 Pitch Pan: As specified and required; Pitch pans shall have rain cap and shall be filled with a 2 part pourable sealant. Sealant shall conform to ASTM D 529, Firestone Rubberguard pourable sealer S-10 or equal.

3.0 EXECUTION

3.1 Preparation Requirements: The substrate construction of any bay or section of building shall be clean before roofing work is begun thereon. Vents and other items penetrating the roof shall be secured in position and properly prepared for flashing. Nailers, curbs and other items attached to roof surface shall be in place before roofing is begun.

3.2 Installation of Cants: Cants shall be installed in the angles formed between the roof and walls or

other vertical surfaces. Cants shall be laid in a solid coat of bituminous cement just prior to laying the base sheet or membrane. Cants shall be continuous, and shall be installed in lengths as long as practicable.

3.3 Condition of Surfaces: Surfaces shall be inspected and approved immediately prior to application of roofing and flashing. The roofing and flashing shall be applied to a smooth and firm surface free from ice, frost, visible moisture, dirt, projections, and foreign materials. Prior to application of primer on pre-cast concrete decks, joints shall be covered with 4 inch strip of roofing felt, embedded in and coated with bituminous cement.

3.4 Application of Roofing System: Application shall be in accordance with NRCA specifications and roofing materials manufacturer recommendations and warranties.

3.5 Mechanical Application Devices: Mechanical application devices shall be mounted on pneumatic-tired wheels, and shall be designed and maintained to operate without damaging the insulation, roofing membrane, or structural components.

3.6 Priming: Concrete, masonry and metal surfaces to receive bitumen shall be uniformly coated with primer at a rate of not less than 0.4 liters per square meter, 1 gallon per square and allowed to dry.

3.7 Heating of Bitumen: Asphalt shall not be heated higher than 75 degrees F above EVT or 50 degrees F below the flash point or 525 degrees F (maximum) whichever is lower. EVT and flash point temperatures of asphalt in the kettle shall be conspicuously posted on the kettle. Heating kettle shall be provided with automatic thermostatic control and an accurate thermometer. Kettle operator shall be in attendance at all times during the heating to ensure that the maximum temperature specified is not exceeded. An asphalt tanker shall be treated as a kettle.

3.8 Bitumen Application: Asphalt shall be applied within 25 degrees F below or above the EVT, or 400 degrees F, whichever is higher. Application temperatures shall be measured at the mop bucket or mechanical applicator. Bitumen at a temperature below the recommended temperature shall be returned to the kettle.

3.9 Application of Base Sheet: Base sheet shall be applied, shingle fashion, in a continuous operation, with side laps in accordance with manufacturer's printed instructions. End laps shall be not less than 6 inches and staggered a minimum of 24 inches. Base sheets shall be applied at right angles to the slope (except on curved or steep deck) and laps shall be face down the slope. Venting base sheet shall be mechanically fastened in conformance with manufactured printed instructions. Non vented base sheet on insulation shall be applied in hot mopping of not less than 20 pounds nor more than 35 pounds of modified asphalt per square and shall be embedded in the hot asphalt with squeegee or broom to eliminate air pockets and ensure complete adhesion. Operator shall avoid heavy application of squeegee to glass-fiber sheets.

3.10 Modified Bitumen Membrane Application: Membrane shall be three plies as recommended by the membrane manufacturer. Each sheet in each ply shall be fully adhered to the underlying surface. Sheet edges shall lie flat, with no fishmouths or wrinkles. Installation shall begin at the low point of the roof and progress to the high point with each sheet installed in shingle fashion. Each sheet shall be unrolled to provide 4 inch side laps and 6 inch end laps. End laps shall be staggered not less than 24 inches. Laps shall not coincide with laps of base layer except at lines of permanent termination. Sheets shall be adhesive-bonded as specified in manufacturer's approved written instructions.

3.11 Termination at Perimeters: The modified bitumen membrane shall extend up abutting surfaces at least 4 inches or 2 inches above top of the cant.

3.12 Mechanical Fastening: Nails and fasteners for securing base or membrane sheet to wood nailers or deck shall be flush driven through disk. Screw fasteners with disk as specified by the membrane manufacturer shall be used on concrete or metal deck. Nailers and fasteners shall be spaced to meet I-90 wind uplift requirements and within tolerance specified by the manufacturer. Penetration of nails and fasteners will not be permitted through the exposed surface of the membrane.

3.13 Protection of Applied Roofing: At end of day's work or whenever precipitation is imminent, the terminated edge of the roofing shall be sealed with two full width strips of roofing felt set in and coated with bitumen cement or hot mopped asphalt. One half-width of strip shall be extended up and over the finished roofing and other half-width extended out and onto the bare roof deck or

existing membrane. Sealing strips shall be removed before continuing installation of the roofing. To facilitate sealing, termination edges may be straightened with pieces of insulation board and shall be removed when work is resumed.

3.14 Flashing: Flashing shall be provided over cants, in the angles formed at walls and other vertical surfaces, and where required to make work watertight. All penetrations shall receive flashing as required. Modified bitumen flashing shall be used, except where metal flashing is required or specified. Metal cap flashing shall have peal and stick rubber membrane (ice dam) flashing applied between cap wall and metal flashing.

3.15 Walkways: Walkways shall be mineral-surfaced asphalt planks, back mopped and embedded in the flood coat prior to aggregate surfacing and shall be located as indicated or as required.

3.16 Surfacing: Surface material shall be mineral surfaced or metal clad as specified.

3.17 Inspection: The Contractor and applicator shall establish and maintain an inspection procedure to assure compliance of the installed roofing system. The materials manufacturer shall certify, inspect and issue written warranties. Any work found not in compliance shall be promptly removed or repaired in an approved manner. Inspection shall include, bit not limited to, the following:

3.17.1 Observation of environmental conditions; number and skill level of roofing workers; start and end time of various tasks; condition of substrate.

3.17.2 Verification of compliance of materials before, during and after installation.

3.17.3 Inspection of condition of equipment and accuracy of thermometers and metering devices.

3.17.4 Inspection of flashing, cants, and curbs.

3.17.5 Inspection of membrane placement, widths of starter sheets, laps, proper use of squeegee, and mechanical fastening.

3.17.6 Inspection of application of bitumen, aggregate, and walkways.

3.17.7 Inspection of embedded of aggregate for required weight and coverage.

3.17.8 Sampling and analysis as directed.

3.17.8 Inspection of all metal work to include flashing, gutters and downspouts.

3.17.9 Final inspection that roof system is watertight and complete.

Wood Traffic Topping

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of wood traffic topping. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Lumber: Standard grade or No. 2 grade, nonstress grade lumber. Lumber and material sizes shall conform to requirements of the rules or standards under which produced.

2.1.1 Species of Nontreated Wood: Walkway members shall be fabricated of cypress or redwood.

2.1.2 Preservative Treated Wood: Walkway members shall be fabricated of preservative treated lumber, treated by pressure method in compliance with AWPB LP-2 and so marked in compliance with AWPB standard. Preservative treated members shall be air-dried or kiln-dried and marked "DRY." Treated wood that is cut after treatment shall be brush-coated with preservative used in original treatment.

2.1.3 Bitumen: Type used in roofing system.

2.1.4 Bituminous Cement: Fed. Spec. SS-C-153, bituminous plastic cement.

2.1.5 Type I: For use with asphalt roofing system.

2.1.6 Type II: For use with coal-tar roofing system.

2.1.7 Premolded Filler Strip: ASTM D 1751, minimum 3/8 inch thick.

2.1.8 Cap Sheet: Fed. Spec. SS-R-630, asphalt saturated roofing felt, coated with strip asphalt both sides and surfaced on weathering side with mineral granules. Cap sheet shall weigh not less than 70 pounds per square.

2.1.9 Prepared Roll Roofing: ASTM D 249, No. 90 asphalt saturated organic fiber felt, coated on both sides with asphalt and surfaced on weathering side with mineral granules.

3.0 EXECUTION:

3.1 Preparation:
3.1.1 Membrane Roofing:
3.1.1.1 Bitumen Coating: Before installing walkways, areas to be covered shall be coated with 40-inch wide continuous path of bitumen used for roofing system.
3.1.1.2 Cap Sheet Protection Course: Embed cap sheet strips in solid coat of roofing cement. Set strips at right angles to direction of walkway and 48 inches apart.
3.1.1.3 Premolded Filler Strip: Embed premolded filler strip in solid coat of roofing cement. Set filler at right angles and direction of walkway and 48 inches on center.
3.1.1.4 Sloping Roofs: Cover areas to be covered with wood walkways with one continuous ply of prepared roll roofing material, embedded in steep asphalt applied at rate of 25 pounds per square. Roofing sheet shall be of width to extend minimum of 4 inches beyond both sides of walkway area.
3.2 Installation:
3.2.1 Installation of Walkways on Flat Surfaces:
3.2.1.1 Wood Bases: Nominal 2-inch by 6-inch wood base members, maximum of 32 inches long, shall be set into solid uniform layer of bituminous cement, 12 inches wide and spaced 48 inches apart. Apply cement over protection course or premolded filler when applied.
3.2.1.2 Securing in Place: Fasten runners to wood base members with metal angle braces or nail in place. Fasteners shall not penetrate through base units into roofing material. Runners shall be 12 feet minimum length, and joints shall occur over wood bases.
3.2.1.3 Walkways: Nail 1-inch by 4-inch boards, spaced maximum 1/2 inch apart, to 2-inch by 4-inch wood runner members standing on edge, spaced maximum 26 inches apart. Walkway boards shall extend maximum of 4 inches over runners at each side. Nail walkway boards to runner with minimum two nails per board.
3.2.1.4 Roof Surfacing: Apply roof surfacing material to roof surface after wood bases are installed and before walkways are fastened in place. Do not apply surfacing material over wood bases, only between and around.
3.2.2 Installation of Walkways on Sloped Surfaces:
3.2.2.1 Runners: Run nominal 2-inch by 4-inch runners, spaced 24 inches apart maximum, directly over prepared roofing strip, and fasten to roof deck with angle fasteners or nailed directly into deck.
3.2.2.2 Walkway Boards: Nail nominal 1-inch by 4-inch boards to runners. Space walkway boards 6 inches on center, nail flush with outside edge of runners, and fasten to each runner with two nails.

Composition Traffic Topping
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of composition traffic topping. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Composition Panels: ASTM D 517.
2.2 Adhesive: ASTM D 2822, asphaltic roofing cement.
2.3 Bitumen: Type used in roofing system.
3.0 EXECUTION:
3.1 Preparation: Cut panels at the project site only when necessary to obtain sizes of panels different from those furnished.
3.2 Installation:
3.2.1 Spaced Panels: Space panels maximum of 6 inches apart.
3.2.2 Butted Panels: Butt panels together to form continuous walkway areas.

Precast Concrete or Tile Traffic Topping
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of precast concrete or tile traffic topping. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required

to support the work.
2.0 PRODUCTS:
2.1 Precast Concrete Tiles:
2.1.1 Compressive Strength: Precast concrete tiles shall have a strength of 3,000 pounds per square inch at 28 days.
2.1.2 Quality Assurance: Absorption shall not exceed 8 percent by weight when tested in compliance with cold water absorption tests specified in ASTM C 1195.
2.2 Quarry Tile: ANSI A137.1.
2.3 Drainage Bed: ASTM D 1863, crushed stone, maximum size 1/2 inch.
2.4 Mortar Materials:
2.4.1 Portland cement: ASTM C 150, Type I, low alkali content.
2.4.2 Sand: ASTM C 144.
2.4.3 Hydrated Lime: ASTM C 207, Type S.
2.4.4 Setting Bed Mortar Mix: One part Portland cement, three parts damp sand.
2.4.5 Pointing Mortar: One part Portland cement, two parts fine graded sand, 1/5 part lime.
2.5 Sealant: Fed. Spec. TT-S-00227, Type I, two-component elastomeric type compound.
3.0 EXECUTION:
3.1 Preparation: Prior to installing any roof traffic tiles, coat areas to receive tiles with a solid application of bitumen used in roofing system.
3.2 Installation:
3.2.1 Drainage Bed: In areas to receive traffic roof tiles, install 1-1/2 inch thick drainage bed.
3.2.2 Tiles: Lay tiles in 1-inch thick mortar bed. Provide 3/16-inch to 1/4-inch wide joints between tiles.

Sheet Metal

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of sheet metal. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Materials and fabrication shall comply with applicable recommendations and details of SMACNA Architectural Sheet Metal Manual.
2.1 Shop- and Job-Fabricated Sheet Metal Items may include the following:
a. Downspouts with clips, anchors, straps, and leaders.
b. Edge strip.
c. Flashings, including base, cap, eave, stepped, valley, apron, collar, through-wall and coping flashings.
d. Gravel stops and fasciae, extruded or formed.
e. Gutters, with continuous cleats, hangers, and cover plates.
f. Louvers.
g. Pitch pans.
h. Reglets.
i. Scuppers.
j. Splash pans.
k. Roofing, including batten seam, flat seam, standing seam, and bermuda seam types.
2.2 Aluminum:
2.2.1 Mill Finished Sheets: ASTM B 209, Alloy 3003, temper H14.
2.2.2 Colored Sheets: ASTM B 209, alloy Alclad 3003, temper H14.
2.3 Brass: ASTM B 36, copper alloy No. 260, rolled half-hard temper.
2.4 Copper: ASTM B 370, light cold-rolled temper, mill finish.
2.5 Lead Coated Copper: Cold-rolled sheet copper complying with ASTM B 370, coated with not less than 0.06 pounds per square foot of lead per side. Lead coating shall comply with ASTM B 101, Type I.
2.6 Stainless Steel: ASTM A 167, corrosion-resistant steel, annealed, AISI Type 301, No. 1 finish.
2.7 Copper Clad Stainless Steel: ASTM B 506, stainless steel sheet metal, coated with metallurgically-bonded cladding of copper on each face amounting to 10 percent of thickness (80 percent stainless

steel, 20 percent copper). Core shall comply with ASTM A 176, AISI Type 430. Copper cladding shall have mill finish.

2.8 Lead-Coated Copper Clad Stainless Steel: ASTM B 506, copper clad stainless steel sheet metal, coated on one side with 0.06 pounds per square foot of lead complying with ASTM B 101, Type I.

2.9 Terne-Coated Stainless Steel: Stainless steel core complying with ASTM A 167, AISI Type 304, with terne coating of 20 percent tin and 80 percent lead on both faces.

2.10 Terne-Coated Steel: Fed. Spec QQ-T-201, Type 1 commercial quality steel sheet core with 1.45 ounces coating of 20 percent tin and 80 percent lead on both faces.

2.11 Galvanized Steel: ASTM A 526, commercial quality carbon steel sheets with minimum 0.20 percent copper content, hot-dipped galvanized to comply with ASTM A 525, G 90 coating designation. Galvanized steel designated to be finished shall be mill phosphatized and coated with manufacturer's standard baked-on finish.

2.12 Zinc-Alloy: ASTM B 69, containing not less than 0.6 percent copper and 0.14 percent titanium, standard temper.

2.13 Lead Sheet: Fed. Spec. QQ-L-201, Grade B, formed from common desilverized pig lead, complying with ASTM B 29.

2.14 Fasteners:

2.14.1 General Use Fasteners: Same material as sheet metal to which attached, or as recommended by sheet metal manufacturer.

2.14.2 Fasteners for Copper Items: Bronze, brass, or copper types.

2.14.3 Fasteners for Aluminum:

2.14.3.1 Rivets: ASTM B 316, alloy 1100, temper H14, minimum shank diameter of 0.187 inch, length as required to form a head.

2.14.3.2 Screws and Bolts: ASTM B 211, alloy 6061, temper as appropriate for particular use.

2.14.3.3 Washers: Alloy 1100, temper H18 or same aluminum alloy as aluminum sheet or fasteners being used.

2.14.3.4 Noncorrosive Fasteners: Stainless steel, AISI Type 304.

2.14.3.5 Cleats: Formed of same material and thickness as sheet metal being installed, minimum 2 inches wide and long enough to be fully incorporated into work.

2.15 Solder: ASTM B 32, of type best suited for intended purpose.

2.16 Welding Electrodes:

2.16.1 Aluminum: Welding electrodes and filler alloy of type best suited for alloy of aluminum being welded. Paste flux shall be used in welding aluminum.

2.16.2 Stainless Steel: Type recommended by stainless steel producer for type of metal sheet furnished.

2.17 Burning Rods for Lead shall be same composition as lead sheet.

2.18 Miscellaneous Materials:

2.18.1 Felt: ASTM D 226, No. 15 asphalt-saturated organic felt, unperforated.

2.18.2 Sheathing Paper: Rosin-sized paper weighing not less than 6 pounds per square.

2.18.3 Bituminous Plastic Cement: Fed. Spec. SS-C-153, Type I for use with asphaltic roofing materials and Type II for use with coal-tar roofing materials.

2.18.4 Bituminous Coating: Fed. Spec. TT-C-494, Type II, cold-applied solvent type bituminous mastic coating for application in minimum dry film thickness of 12 mils per coat.

2.18.5 Primer Paint: Fed. Spec. TT-P-645, alkyd type zinc chromate.

2.18.6 Zinc Dust Paint: Mil. Spec. MIL-P-21035 galvanized sheet metal touchup paint.

2.18.7 Sealants: Non-drying mastic type as recommended for particular joint being sealed and anticipated movement within joint. One-part sealant shall be Fed. Spec. TT-S-00230, Type II, Class A. Two-component sealant shall be Fed. Spec. TT-S-00227, Type II, Class A.

2.18.8 Wood Nailers and Edge Blocking: Non-stress graded wood members, moisture-resistant, treated with waterborne preservative in compliance with AWPB LP-2 standard. Nominal dimensions of nailers shall be 1 inch by 3 inches, unless otherwise required.

2.18.9 Nonmetallic Through-Wall Flashing: Nonreinforced, homogeneous, waterproof, impermeable elastomeric sheeting having not less than 1,000 psi tensile strength nor more than 7 percent tension set at 50 percent elongation when tested in accordance with ASTM D 412. Sheeting shall resist exposure without visible deterioration when tested not less than 400 hours in accordance

with ASTM D 822. Sheeting shall not crack or flake when exposed to low temperatures.

2.18.10 Miscellaneous Sheet Metal Roofing Materials:

2.18.10.1 Wood Batten Strips shall be non-stress graded wood members of nominal 2 inches by 2 inches, pressure-treated with waterborne preservatives in compliance with AWPB LP-2, or other material that is compatible with sheet metal.

2.18.10.2 Polyethylene Underlayment shall be a minimum of 6 mil chlorinated polyethylene film.

3.0 EXECUTION: Installation of sheet metal materials shall comply with applicable recommendations and details of SMACNA Architectural Sheet Metal Manual.

3.1 Nailing Strips and Edge Blocking: When deck surface is non-nailable, nailing strips and edge blocking shall be installed over surface of deck for anchorage of sheet metal materials.

3.2 Substrate Conditions: Surfaces to receive sheet metal materials shall be even, smooth, sound, thoroughly clean and dry, and free from defects that might affect application.

3.3 Fasteners shall be concealed wherever possible in exposed work.

3.4 Dissimilar Surfaces:

3.4.1 Separate dissimilar metals by painting each metal surface in areas of contact with bituminous coating, or provide a layer of waterproof sheathing paper or asphalt-coated felt between contact surface.

3.4.2 Separate metal items from treated wood and cementitious materials with bituminous coating, applied either to substrate or metal.

3.4.3 Aluminum shall not be used when it will be in contact with copper or where it will contact water that flows over copper surfaces. Protect aluminum surface in contact with wet or pressure treated wood, cementitious materials, or ferrous metals from galvanic or corrosive action by applying one coat of zinc chromate primer and one coat of aluminum paint, or by placing layer of nonabsorptive tape or gasket between adjoining surfaces.

3.4.4 Where asphalt-saturated felt has been applied under sheet metal that will be soldered or welded, cover felt with one layer of sheathing paper before installing sheet metal.

3.5 Sheet Metal Roofing:

3.5.1 Removing Existing Sheet Metal Roofing: Remove sheet metal roofing in full sections or cut damaged sections where possible to make watertight joints between existing roofing and new materials to be installed.

3.5.2 Preparing Existing Surfaces: Bent or raised portions of existing roofing shall be nailed down and repaired to extent necessary to provide smooth surface for sheet metal roofing.

3.5.3 Application of Underlayment:

3.5.3.1 Felt Underlayment: Apply one layer of asphalt-saturated roofing felt over deck surface and cover with one layer of sheathing paper. Underlayment plies shall be installed with mechanical fasteners spaced 6 inches in center at laps or adhesives as appropriate for substrate conditions.

3.4.3.2 Polyethylene Film Underlayment: Install one layer of polyethylene film underlayment over deck surface with adhesive. Cover polyethylene film with one layer of sheathing paper applied with adhesive. Mechanical fasteners shall be installed only where deck surface presents nailable conditions.

3.5.4 Coating Backside of Metal Sheets:

3.5.4.1 Bituminous Coating: Coat back side of metal roofing with bituminous coating wherever metal will be in contact with wood, ferrous metal, or cementitious construction.

3.5.4.2 Painting: Paint back side of metal roofing with zinc chromate type primer, minimum 2-mil dry film thickness.

3.5.5 Expansion Seams: Provide loose lock or slip seams, as designated. Seams shall allow 1/2-inch for expansion and shall be sealed with sealant.

3.5.6 Penetrations through roofing shall be flashed with sheet metal material to match roofing material.

Roof Accessories

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of heat and smoke vents, roof hatches, gravity ventilators, prefabricated curbs and equipment supports, and curb-set expansion joints. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product

manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Comply with SMACNA Architectural Sheet Metal Manual details for fabrication of units, including flanges and capflashing to coordinate with type of roofing indicated.

2.1 Zinc-Coated Steel: Commercial quality with 0.20 percent copper, ASTM A 525, G90 hot-dip galvanized, mill phosphatized.

2.2 Stainless Steel: AISI Type 302/304, ASTM A 167, 2D annealed finish except as otherwise indicated, tempered as required for forming and performance.

2.3 Aluminum Sheet: ASTM B 209, Alloy 3003, tempered as required for forming and performance; AA-C22A41 clear anodized finish, except mill finish prepared for painting where designated for field painting.

2.4 Extruded Aluminum: Alloy 6063-T52; 0.078 inch minimum thicknesses for primary framing and curb member legs, 0.062 inch for secondary legs; AA-C22A41 clear anodized finish on exposed members, except as otherwise designated.

2.5 Insulation: Rigid or semi-rigid board of glass fiber.

2.6 Wood Nailers: Softwood lumber, pressure-treated with water-borne preservatives for above ground use, complying with AWPB LP-2; not less than 1-1/2 inches thick.

2.7 Fasteners: Same metal as metals being fastened, or nonmagnetic stainless steel or other noncorrosive metal. Match finish of exposed fasteners with finish of material being fastened. Where removal of exterior exposed fasteners affords access to building, provide non-removable fastener heads.

2.8 Gaskets: Tubular or fingered design of neoprene or polyvinyl chloride, or block design of sponge neoprene.

2.9 Bituminous Coating: Fed. Spec. TT-C-494 or SSPC-Paint 12, solvent type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coating.

2.10 Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.

2.11 Elastomeric Sealant: Type that is compatible with joint surfaces; Fed. Spec. TT-S-00227, TT-S-00230, or TT-S-001543.

2.12 Roofing Cement: ASTM D 2822, asphaltic.

2.13 Prefabricated Heat/Smoke Vents: Provide units that have been tested, listed, and labeled by UL (Class A) or FM, as designated. Except as otherwise designated, fabricate for 40 lbs/sq ft external loading and 20 lbs/sq ft internal loading pressure. Fabricate framing of the following materials as designated, with manufacturer's standard welded or sealed mechanical corner joints, including cap flashing:

a. Formed or extruded aluminum.

b. Zinc-coated steel.

c. Formed or extruded aluminum or zinc-coated steel.

2.13.1 Hatch-Lid Type Units: Fabricate with single or double aluminum covers with 1 inch integral insulation and gaskets. Equip units with automatic self-lifting mechanisms and fusible links or other heat-sensitive or smoke-sensitive release devices as indicated, and with complete hardware including hold-open devices and independent manual release devices for inside and outside operation of covers.

2.13.2 Fusible-Dome Type Units: Provide manufacturer's standard shrinkback/drop-out polyvinyl chloride sheet dome unit for 210 F activation; with light transmittance of 40 percent, proven 10-year weather resistance, exterior acrylic protective coating, and maximum flame spread rating of 25 (UL 723). Equip each unit with external safety grid capable of supporting 200 pound loading. Provide glazing system for easy replacement of activated domes and for drainage of condensation to exterior.

2.14 Prefabricated Roof Hatches: Fabricate units as single leaf type unless otherwise directed, for 40 lbs/sq ft external loading and 20 lbs/sq ft internal loading pressure. Frame with 9-inch high integral-curb double-wall construction with 1-1/2 inch insulation, cant strips, and cap flashing, with welded or sealed mechanical corner joints. Provide double-wall cover construction with 1 inch insulation core. Equip units with complete hardware set including hold-open devices, interior padlock hasps, and both interior and exterior latch handles. Provide gasketing. Fabricate units of

following materials as designated:
a. Aluminum sheets and extrusions.
b. Zinc-coated steel sheets.
c. Zinc-coated steel sheet curbs and aluminum covers.
d. Aluminum or zinc-coated steel, or in combination.

2.15 Louvered Penthouse Gravity Ventilators: Provide units fabricated with weatherproof aluminum extrusion louvered walls with mitered or boxed corner construction; with aluminum sheet cover and 1 inch insulation adhesively applied on underside; and with extruded aluminum base and cap flashing for mounting on curbs which are not integral with units. Equip units with manual dampers designed for operation from floor directly below ventilator unit. Equip unit with bird or insect screens as directed, located internally to discourage nesting.

2.16 Prefabricated Vertical-Type Gravity Ventilators: Provide units fabricated from the following materials and including the following features, as designated:
a. Zinc-coated steel sheet, prime painted.
b. Aluminum sheet, prime painted.
c. Aluminum sheet, mill finish.
d. Equip with bird screens.
e. Equip units with dampers, with manual operation device extended to 6 ft 6 in above floor.

2.17 Prefabricated Curbs/Equipment Supports: Comply with loading and strength requirements designated where units support other work. Coordinate dimensions with rough-in sheets or shop drawings of equipment to be supported. Fabricate of structural quality sheet steel (ASTM A 570) that has been prepared for painting, factory-primed, and painted with 2-mil thickness of baked-on synthetic enamel, after fabrication. Fabricate with welded or sealed mechanical corner joints and with cant strips and base profile coordinated with roof insulation thickness. Except as otherwise designated or required for strength, fabricate units of minimum 14-gauge metal and to minimum height of 12 inches.

2.18 Curb-Set Expansion Joints: Provide extruded aluminum expansion joint units designed for installation on raised curbs. Equip with curb cap, cap flashing, and waterproof bellows of 30- or 60-mil elastic flashing sheet of neoprene, EPDM, butyl rubber, or chlorinated polyethylene. Provide mineral-fiber insulation, concealed under curb cap between curbs, to form a waterproof, airtight, insulated, expansion joint system. Provide units in styles required for roof-to-roof, roof-to-wall, and wall-to-wall applications as required; complete with prefabricated corner and intersection units as required; equipped with special field-splice provisions to ensure permanent continuous waterproof installation of expansion joint system.

3.0 EXECUTION: Anchor units securely to supporting structural substrates, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures. Except as otherwise designated, install roof accessory items in accordance with construction details of NRCA Roofing and Waterproofing Manual.

3.1 Isolation: Where metal surfaces of units are to be installed in contact with noncompatible metal or corrosive substrates, including wood, apply bituminous coating on concealed metal surfaces or provide other permanent separation.

3.2 Flange Seals: Except as otherwise directed, set flanges of accessory units in a thick bed of roofing cement to form a seal.

3.3 Cap Flashing: Where cap flashing is required as component of accessory, install to provide adequate waterproof overlap with roofing or roof flashing. Seal with thick bead of mastic sealant, except where overlap is required to be left open for ventilation.

Plastic Skylights

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of plastic skylights. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Single thickness plastic skylights shall be formed to a standard dome profile.
2.2 Double thickness plastic skylights shall have an average 1-inch minimum air space between sheets formed to a standard dome profile, with a standard hermetic edge seal.
2.3 Color: Exterior sheets shall be colorless transparent sheet or bronze tinted transparent sheet, 25-30 percent light transmittance in accordance with ASTM D 1003. Interior sheets shall be colorless transparent sheet.
2.4 Glazing frame, dome retainers, and trim shall be extruded aluminum.
2.5 Curb frame shall be extruded aluminum including cap flashing to receive roofing counterflashing.
2.5.1 Curb-mounted units shall be designed for installation on nominal 1-1/2 inch thick wood curbs.
2.5.2 Insulated curb units shall be self-flashing units with integral, self-supporting double wall formed or extruded or combination aluminum curb 0.040-inch minimum sheet thickness enclosing minimum 1-inch glass fiberboard or equivalent insulation and with minimum 3-inch roof flanges; welded or sealed mechanical joints at corners.
2.5.3 Curb height shall be 9 inches minimum above line of roofing or custom height as required. For decks that slope 1/4 inch per ft., tapered curb heights shall match slope to provide a level installation of domes.
2.6 Glazing systems of neoprene, closed cell sponge neoprene, PVC gasketing, partially vulcanized butyl tape, or liquid-applied elastomeric sealant shall be provided.
2.7 Condensation control on inside of domes shall be provided using fabricated units with integral internal gutters and nonclogging weeps.
2.8 Plastic for skylights shall be cast acrylic with abrasion-resistant coating on exterior surface, for 2 percent maximum haze increase of 100 revolutions on 500 g Taber abraser in accordance with ASTM D 1044; 14,500 psi flexural strength; 180 F continuous service temperature or cast polycarbonate with 13,500 psi flexural strength; 240 F continuous service temperature; 16 ft-lb IZ0D impact strength. Skylights shall meet AAMA 1601.1 recommendations for thickness of plastic domes to maintain 40 psf loading (for support of ice and snow only).
2.9 Bituminous coating shall be in accordance with Fed. Spec. TT-C-494 solvent type bituminous mastic, nominally free of sulphur, compounded for 15-mil dry film thickness per coating.
2.10 Roofing cement shall be asphaltic complying with ASTM D 2822.
2.11 Mastic sealant shall be polyisobutylene; non-hardening, non-skinning, non-drying, non-migrating sealant.
3.0 EXECUTION:
3.1 Installation of skylights shall be coordinated with installation of roof deck or other substrates and with vapor barriers, roof insulation, roofing, and flashing as required to ensure that combined elements are waterproof and weathertight. Units shall be anchored securely to supporting structural substrates to withstand lateral and thermal stresses including inward and outward loading pressures.
3.2 Isolation: Where metal surfaces of units are required to be installed in contact with noncompatible metal or corrosive substrates, including wood, apply bituminous coating on concealed metal surfaces, or provide other permanent separation.
3.3 Flange Seals: Where required, set flanges of accessory units in a thick bed of roofing cement to form a seal.
3.4 Cap Flashing: Where cap flashing is required, install to provide adequate waterproofing overlap with roofing or roof flashing (as counter flashing). Seal with thick bead of mastic sealant, except where overlap is indicated to be left open for ventilation.
3.5 Cleaning: Clean exposed metal and plastic surfaces.

Metal-framed Skylights

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of metal-framed skylights. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:

2.1 Metal-framed skylight panels shall be 2-1/4 inch thick double-faced panels consisting of glass fiber reinforced polymer, with interior and exterior faces bonded under controlled heat and pressure to a mechanically interlocked aluminum grid core. Exterior face shall have a special erosion protective surfacing.
2.1.1 Panel Performance Characteristics:
2.1.1.1 Color Stability from Weathering: Exterior face shall not change more than 3.5 adams units (Delta E by ASTM D 2244) as determined by an average of three samples after a minimum of outdoor exposure of 60 months in south Florida at 7 degrees facing south.
2.1.1.2 Interior fire resistance characteristics shall be in accordance with ASTM E 84, with flame spread of 45 maximum and a smoke developed rating of 350 maximum. Burn extent shall be 1 inch or less by ASTM D 635.
2.1.1.3 Exterior face impact resistance shall be 60 ft-lb minimum.
2.1.1.4 Coefficient of linear expansion shall be 1.24 x 10-5 in./in./F.
2.1.2 Laminate adhesive shall be heat and pressure resin type. Minimum strength shall be 750 psi tensile strength by ASTM C 297 after two exposures to six cycles each of aging conditions prescribed by ASTM D 1037 and 500 psi shear strength average by ASTM D 1002 after five prescribed exposures.
2.1.3 Grid Core shall be 6063-T6 aluminum I-beams with 7/16-inch flange width, mechanically interlocked to ensure even muntin to muntin intersection.
2.1.4 Aluminum frame shall be 6063-T5 aluminum with mill finish or corrosion-resistant finish as required with mitered and heli-arc welded corners. Clamp fasteners shall be stainless steel.
2.1.5 Panel U-values determined by ASTM C 236 shall be as designated.
2.2 Pre-engineered self-supporting roof systems shall be one of the following standard types as required:
2.2.1 Continuous vaulted type shall be semi-circular.
2.2.2 Pyramid type shall be self-supporting.
2.2.3 Grid type shall be 4-foot minimum width by 16-foot maximum length as required.
2.2.4 Preformed Acrylic
2.2.5 Structural roof design loads shall be based on location of installation. Joint and structural systems shall be manufacturer's standard types or special designed systems as required. Roof systems shall be fastened to supports as recommended by the roof system manufacturer.
2.2.6 Flashings shall be aluminum, 0.040 inch thick minimum.
2.3 Optional face sheet material for metal-framed skylight panels shall be 1/8-inch thick clear acrylic panels assembled in accordance with manufacturer's recommendations. Panel assemblies shall be limited to 4-foot by 4-foot modules composed of 12 inches by 24 inches or 8 inches by 20 inches nominal grid size as required.
2.4 Panels may be 1-9/16 inch thickness where required.
3.0 EXECUTION: (Section not used.)

Sealants

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of sealants. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Oil-Based Caulking Compound shall conform to Fed. Spec. TT-C-00598, Type I.
2.2 Two-component polyurethane sealant shall be an elastomeric type compound conforming to Fed. Spec. TT-S-00227, Type II, Class A or B as required. The compound shall be supplied in pre-measured kit form for on-the-job mixing.
2.3 Butyl rubber sealant shall conform to Fed. Spec. TT-S-001657, Type I or II as required.
2.4 Single-component polysulfide sealant shall be an elastomeric type compound conforming to Fed. Spec. TT-S-00230, Type II, Class A or B as required.
2.5 Polyisobutylene-Based or Isoprene-Isobutylene-Based Pressure-Sensitive Tape or Bead: When applied between two clean, dry surfaces of specified thicknesses and under conditions of continuous pressure that will be encountered in use, the sealant shall seal the joint from water and

shall be weather-resistant. The material shall be nonbleeding at 160 F and below, shall withstand temperature ranges from minus 30 F to 200 F without loss of adhesion and without slipping, and shall have properties allowing the compound to move with the expansion and contraction of structure. The tape or bead shall be plain or contain a cloth or fiber insert. The tape or bead shall be supplied in rolls with a removable paper for cloth backing.

2.6 Silicone rubber based sealant shall be an elastomeric type compound conforming to TT-S-001543, Class A or B as required.

2.7 Preformed Strip Sealants:

2.7.1 Preformed butylene strip sealant shall be foamed-urethane strip saturated with a butylene waterproofing material.

2.7.2 Preformed asphalt impregnated strip shall be asphalt-impregnated foamed-polyurethane strip.

2.8 Acoustical Sealant: Synthetic rubber or polymeric-based material shall conform to the following:

2.8.1 Consistency: ASTM D 217, 190 to 310.

2.8.2 Aging: Slightly tacky at 160 F after 50 days.

2.8.3 Accelerated Aging: No significant change after 260 hours in weathermeter.

2.8.4 Nonstaining.

2.8.5 Solids Content: Approximately 80 to 90 percent.

2.8.6 No Oil Migration.

2.9 Silicone RTV foam firestop sealant shall be a medium-density two-part product supplied as liquid components. When components are thoroughly mixed in a one-to-one ratio by either weight or volume the sealant shall expand and cure to a foamed elastomer at room temperature in 1 to 3 minutes. Sealants for fire-rated penetration seal designs shall bear UL classification for 1, 2, or 3-hour fire-rating, as required to match rating of the penetrated construction.

2.10 Sealer: Sealer for use with oil-based caulking compound shall be aluminum paint.

2.11 Primer: Primer for two-component polyurethane sealant, butyl rubber sealant, and single-component polysulfide sealant shall be as recommended by the sealant manufacturer. Primer shall have been tested for durability with the sealant to be used and on samples of the surfaces to be sealed.

2.12 Backstop Material: Backstop material shall be resilient urethane or polyvinyl-chloride foam, closed-cell polyethylene foam, closed-cell sponge of vinyl or rubber, polychloroprene tubes or beads, polyisobutylene extrusions, preformed neoprene, neoprene rod, oilless dry jute, or rope yard. Backstop material shall be nonabsorbent, nonstaining, and compatible with the sealant used. Tube or rod stock shall be rolled into the joint cavity. Preformed support strips for ceramic and quarry tile control joint and expansion joint work shall be polyisobutylene or polychloroprene rubber.

2.13 Bond-preventive materials shall be pressure-sensitive adhesive polyethylene tape, aluminum foil, or wax paper. Backstop material with bond-breaking characteristics may be installed in lieu of bond-preventive materials specified.

3.0 EXECUTION:

3.1 General Surface Preparation: The surfaces of joints to be sealed shall be dry. Oil, grease, dirt, chalk, particles of mortar, dust, loose rust, loose mill scale, and other foreign substances shall be removed from all joint surfaces to be sealed. Oil and grease shall be removed with solvent and surfaces shall be wiped with clean cloths.

3.2 Concrete and Masonry Surfaces: Where surfaces have been treated with curing compounds, oil, or other such materials, the materials shall be removed by sandblasting or wire brushing. Laitance, efflorescence, and loose mortar shall be removed from the joint cavity.

3.3 Steel Surfaces: Steel surfaces to be in contact with sealant shall be sandblasted or, if sandblasting would not be practical or would damage adjacent finish work, the metal shall be scraped and wire brushed to remove loose mill scale. Protective coatings on steel surfaces shall be removed by sandblasting or by a solvent that leaves no residue.

3.4 Aluminum Surfaces: Aluminum surfaces of windows and door frames in contact with sealants shall be cleaned of temporary protective coatings. When masking tape is used for a protective cover, the tape and any residual adhesive shall be removed just prior to applying the sealant. Solvents used to remove protective coatings shall be as recommended by the manufacturer of the aluminum work and shall be nonstaining.

DIVISION 8-OPENINGS

Hollow Metal Doors and Frames

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of hollow metal doors and frames. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: All hollow metal doors and frames shall comply with Recommended Specifications: Standard Steel Doors and Frames (SDI-100), Steel Door Institute.

2.2 Hollow Metal Doors: Doors shall be SDI-100 standard types, styles, and sizes as designated. Doors shall be reinforced to receive builder's hardware in compliance with the requirements of ANSI A115. Provide glazing beads and stops for glass panels and sightproof louvers as required. Doors shall be galvanized. Doors to be field-finished shall receive a shop prime coat. A baked-on finish coat shall be provided for factory-finished doors.

2.3 Hollow Metal Frames: Hollow metal frames for doors, transoms, side lights, borrowed lights, and other openings shall be SDI-100 standard types, styles, and sizes as designated. Frames shall be provided with mitered corners and welded construction for exterior applications and knocked down for field assembly for interior applications. Frames shall be reinforced to receive builder's hardware in compliance with the requirements of ANSI A115. Provide plaster guards or mortar boxes where required. Finish shall be as specified for doors.

2.4 Fire-Rated Assemblies: Fire doors and frames shall be identified with recognized testing laboratory labels indicating the applicable fire rating. The constructed and installed assemblies shall comply with the requirements of NFPA 80.

2.5 Soundproofing Metal Doors: Soundproofing metal doors shall be identified with recognized testing laboratory labels indicating the applicable STC soundproofing rating. Soundproofing rating shall be STC 45 or as required.

2.6 Hollow Metal Combination Storm and Screen Doors: Doors shall be flush foam insulated panels capable of receiving removable screen or glass inserts. Doors shall be not less than 20-gauge steel, minimum 1-3/8 inch thick, and minimum 3-1/2 inch stiles and rails. Screen insert shall be aluminum wire-cloth screening. Glazing shall be 1/4 inch thickness. Doors shall be reinforced to receive, and shall be provided with a spring-loaded chain door stop, a latch with a night lock, a hydraulic closer, 1-1/2 pair butts, door pull, and an adjustable sweep with a vinyl seal. Doors shall be finished as specified for hollow metal doors.

3.0 EXECUTION:

3.1 Frame Installation: Installation of frames shall comply with the provisions of SDI-105, Recommended Erection Instructions for Steel Frames. Provide three wall anchors per jamb at hinge and strike levels. Fire-rated frames shall be installed in compliance with NFPA 80.

3.2 Door Installation: Hollow metal doors shall be fit accurately in frames within clearances specified in SDI-100. Fire-rated doors shall be installed within clearances specified in NFPA 80.

3.3 Soundproofing Metal Door and Frame:

3.3.1 Frames shall be set plumb and true and fully insulated. The floor under the sill, if poured, shall be level and smooth.

Aluminum Doors and Frames

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of hinged aluminum doors and frames. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Glazed aluminum stile-and-rail doors and frames shall be manufacturer's standard type. Adjacent

glass enclosures, transoms, and/or sidelights shall be of the same style and design as the doors and frames.

2.1.1 Screws, nuts, washers, rivets, and other miscellaneous fastening devices shall be of hardened aluminum, stainless steel, or other corrosion-resistant material.

2.1.2 Nominal wall thickness for doors shall be not less than 0.125 inch except that the molding shall be not less than 0.05 inch.

2.1.3 Frames shall be extruded tube or open channel shapes not less than 0.125 inch thick for frames 1-3/4 inches by 4 inches and not less than 0.093 inch thick for frames 1-3/4 inches by 4-1/2 inches. Doors shall have extruded aluminum snap-in glass stops with vinyl insert.

2.2 Flush Aluminum Doors:

2.2.1 Doors shall be constructed of tubular frame members, fabricated with reinforced mechanical or welded joints. Limit frame exposure to 3/4 inch maximum width on door faces.

2.2.2 Core shall be resin-impregnated Kraft paper with honeycomb, rigid closed-cell polyurethane insulation, or rigid noncombustible mineral insulation board.

2.2.3 Faces shall be of aluminum sheet of 0.064-inch minimum thickness, mechanically interlocked with frame members or laminated to core and framing with waterproof glue to form door thickness of 1-3/4 inches.

2.2.4 Lights (glazed openings in doors) shall have aluminum moldings and stops, with inside removable stops.

2.2.5 Frames shall be of tubular and channel frame assemblies, with either welded or mechanical joints, reinforced as necessary to support required loads and door hardware.

2.3 Aluminum combination storm and screen doors: Doors shall consist of a master frame with two intermediate horizontal rails, one fixed metal panel, and two glass and two screen removable insert panels. Master frame shall be a minimum 1 inch thick and stiles shall be a minimum 2-3/4 inches wide. Doors shall have a mill finish and shall be provided with a springloaded chain door stop, a latch with a night lock, a hydraulic closer, and an adjustable door sweep with a vinyl seal. Screen inserts shall have aluminum wirecloth screening secured with a vinyl spline.

2.4 Weatherstripping: Weatherstripping shall be door manufacturer's standard applied to stiles, heads, and bottoms of exterior doors and shall be easily replaced without special tools.

2.5 Finishes: Aluminum surfaces shall be provided with one of the following finishes. The coating shall have a minimum film thickness of 0.0004 inch with a minimum weight of 17 milligrams per square inch when tested in accordance with ASTM B 137. Coating shall be sealed with hot water.

2.5.1 Anodic Coating (0.4 mil to 0.7 mil): AA-M12-C22-A31, Architectural Class II, Clear-Anodized or AA-M12-C22-A32, AA-M12-C22-A34, Architectural Class II, Color-Anodized.

2.5.2 Organic Coating (minimum 0.8 mil): AAMA 603.8, Baked-Enamel finish.

2.6 Special Finishes:

2.6.1 Anodic Coating (minimum 0.7 mil): AA-M12-C22-A41, AA-M12-C22-A42, or AA-M12-C22-A44, Architectural Class I, Color-Anodized.

2.6.2 Organic Coating (minimum 1.2 mil): AAMA 605.2, High-Performance finish.

3.0 EXECUTION: Aluminum surfaces in contact with dissimilar materials shall be backpainted with alkali-resistant paint before erection.

Wood Doors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of wood doors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: Top and bottom edges of doors shall be sealed prior to shipment. Each door shall bear a stamp, brand, or other identifying mark indicating quality and construction of the door.

2.2 Flush Doors: Solid core and hollow core flush doors shall conform to NWWDA I.S.1. For stain or natural finish, doors shall be of Good Grade veneer in accordance with NWWDA I.S.1. For paint finish, doors shall be Standard Grade in accordance with NWWDA I.S.5 or Sound Grade or hardboard-faced in accordance with NWWDA I.S.1. Unless otherwise required for fire safety, solid

core doors shall have wood block core or mat-formed particleboard core conforming to NWWDA I.S.1. Hollow core and mat-formed particleboard solid core doors shall have lock blocks. Openings in exterior doors shall be weatherproof.

2.3 Paneled doors shall conform to NWWDA I.S.5 or FHDA/7. For stain or natural finish, doors shall be Premium Grade in accordance with NWWDA I.S.5 or Selected Grade in accordance with FHDA/7. For paint finish, doors shall be Standard Grade in accordance with NWWDA I.S.5. When laminated panels are furnished, they shall not be less than three ply. Flat panels shall have a minimum finished panel thickness of 5/8 inch. Raised panels shall have a minimum finished panel thickness of 3/4 inch.

2.4 Fire Doors: Fire doors shall be constructed of materials and in a manner that will conform to the requirements of Underwriters' Laboratories. Doors shall bear the identifying label of Underwriters' Laboratories for the desired resistance rating.

2.5 Storm doors shall be manufacturer's standard solid core door not less than 1-3/4 inches thick with 5-inch minimum stiles and top rail. Upper panel shall be arranged to receive removable glass and screen inserts. Screen insert shall be aluminum wire-cloth screening. Glazing shall be 1/4 inch thickness. Door shall be provided with 1-1/2 pair butts, a latchset with a night lock, a spring-loaded chain door stop, a hydraulic closer, and an adjustable door sweep with a vinyl seal.

2.6 Screen doors shall be manufacturer's standard solid wood door not less than 1-3/8 inch thick with 3-1/2 inch minimum stiles, mid-rail and top rail, and 7-1/2 inch bottom rail. Screen shall be aluminum wire-cloth screening secured with wood stops and vinyl splines. Doors shall be provided with 1 pair butts, 1 pull, 1 hook and eye, and 1 spring closer.

2.7 Preservative Treatment: Exterior softwood doors shall be water-repellent preservative treated and so marked at the plant in accordance with NWWDA I.S.4.

2.8 Adhesives: Adhesives shall be in accordance with NWWDA I.S.1, using requirements for Type I doors for exterior doors and requirements for Type II doors for interior doors. Adhesive for doors to receive a natural finish shall be nonstaining.

2.9 Accessories: All doors shall have cutouts, stops, beads, or other accessories as required to receive builder's hardware, glazing, louvers, or other design specialties and penetrations.

3.0 EXECUTION: Installation and operation characteristics of fire doors shall conform to NFPA 80, 80A, and 101.

Aluminum and Wood Sliding Glass Doors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of sliding glass doors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Aluminum sliding glass doors shall be complete units with safety glass, weatherstripping, hardware, and integral tracks and rollers for smooth operation and installation. Sliding glass door panels shall conform to AAMA 101. Classification of sliding glass doors shall be AAMA type SGD-A3 (monumental grade) provided for high performance (HP) designation.

2.2 Wood sliding glass doors shall consist of wood frame sliding and fixed safety glass panels and casings of selected West Coast hardwood treated with water repellent and factory-primed for exposed wood exterior frame parts and door panels. Sill facing shall be extruded anodized aluminum with PVC thermal barrier. Operating door track shall have stainless steel cap. Each unit shall include door panels, head and sill, track rollers (ball-bearing sheaves), weatherstripping, glazing channels, hardware, and accessories.

2.3 Hardware shall include door pulls and keyless locking with interior locking lever on operating door panel.

2.4 Glazing in door panels shall be safety glass in compliance with ANSI Z97.1.

2.5 Screen doors shall be manufacturer's standard furnished with sliding doors. Insect screen shall be 18 x 16 mesh aluminum wire conforming to Fed. Spec. RR-W-365 or glass fiber screen conforming to Fed. Spec. L-S-125.

3.0 EXECUTION: Installation of door units shall be complete with all necessary anchors, inserts, and hardware.

Sliding Fire Doors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of sliding fire doors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Composite sliding fire doors shall be standard steel face sheets bonded to and supported by rigid, dimensionally stable inorganic core, with steel reinforced edges. Finish shall be factory-primed.

2.2 Hollow metal (sheet metal) sliding fire doors shall be standard flush design with not less than 20-gauge steel faces over steel stiffeners or honeycomb core materials. Finish shall be factory-primed.

2.3 Tin-clad sliding fire doors shall be standard design wooden core construction with 14-inch by 20-inch maximum size, 30-gauge galvanized steel sheets not over 48 inches wide with venting as required by NFPA 80. Finish shall be galvanized.

2.4 Horizontal sliding steel doors shall be standard design consisting of two thicknesses of 24-gauge galvanized corrugated sheet steel with an asbestos core and framed with galvanized structural steel shapes. Sheets shall be applied with exposed face corrugations vertical and wall side corrugations horizontal. Finish shall be galvanized.

2.5 Vertical lift sliding steel doors shall be standard design consisting of two thickness of 24-gauge galvanized corrugated sheet steel with an asbestos core and framed with galvanized structural steel shapes. Sheets shall be applied with exposed face corrugations vertical and wall side corrugations horizontal. Door shall be uprising on vertical tracks. Finish shall be galvanized.

2.6 Metal-clad (Kalamein) doors shall be standard horizontal sliding metal covered wood core or stiles and rails and insulated flush panels covered with steel. Finish shall be factory-primed.

2.7 Fire door assemblies shall be provided as complete units produced by one manufacturer.

2.7.1 Fire doors, frames, and fire door hardware shall be types that have been fire-tested and rated in accordance with ASTM E 152. Doors shall bear labels of the Underwriters' Laboratories, Incorporated or Factory Mutual Laboratories as evidence of rating.

2.7.2 Components for rated door assembly shall be listed in UL Building Materials Directory or Factory Mutual Approval Guide.

2.8 Finish: Galvanized finish shall be hot-dip galvanized minimum 0.6 ounce per square foot and shall not be factory-primed.

2.9 Fire Door Hardware: Hardware shall be labeled, automatic closing type sliding fire door assemblies complete with adjustable roller guides, binders, floor stops, cables, sheaves, counterweight, and fusible links. Fusible links shall be UL listed, 165 F for ordinary temperature classification.

2.10 Accessories: The following items shall conform to the requirements of NFPA 80: Astragal, chafing strips, bumper shoes, rear binder, stay rolls, wedge, and automatic closer.

3.0 EXECUTION:

3.1 Installation: Fire doors shall be installed in accordance with NFPA 80.

3.2 Temporary Fire Protection: During the execution of this work, temporary fire barriers, alarms, or watchmen shall be provided to the degree of opening protection required by the local authority until the permanent work is completed and operational.

Coiling (Rolling) Doors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of coiling doors, coiling grilles, and coiling counter shutters. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Doors shall be the manufacturer's standard type. Doors shall be spring counterbalanced, overhead coiling type; coiling grilles shall be overhead or side coiling type. Door

shall be complete with all guides, tracks, hardware, fastenings, operating mechanisms, and accessories. Guides at jambs shall be set back a sufficient distance to provide a clear opening when doors are in the open position.

2.1 Roller Shaft: The roller shaft shall be constructed of steel pipe or commercial welded steel tubing of proper diameter and thickness for the size of the curtain. Deflection shall not exceed 0.03 inch per foot of span. Ends of roller shall be closed with cast-iron plugs, machined to fit the pipe. An oil-tempered, helical, counter-balancing steel spring, capable of producing sufficient torque to ensure easy operation of the door curtain from any position, shall be installed within the roller. Spring shall be easily adjustable.

2.2 Brackets: Brackets shall be fabricated of heavy cast iron or steel, designed to close the ends of roller-shaft housing and to form a supporting ring for hood. The bracket hubs or shaft plugs shall be equipped with prelubricated ball bearings, shielded or sealed.

2.3 Hoods: Each hood shall be constructed of steel not lighter than No. 24-gauge, formed to fit the contour of end bracket gear assembly and reinforced with steel rods or rolled beads at top and bottom edges. A weather baffle shall be provided at the lintel.

2.4 Gears: Gears shall be of the best grade gray iron, cast iron teeth machine-molded from machine-cut patterns, enclosed and protected by the hood and brackets.

2.5 Guides: The guides shall consist of steel shapes not less than 2-1/2 inches deep and not less than 3/16-inch thick and shall form a channel pocket of sufficient depth to retain the curtain in place under the wind pressure specified. Provisions for removal of the door shall be included in the design.

2.6 Head Track: Head track for side coiling grilles shall be of extruded aluminum and shall be provided with adjustable hangers spaced not more than 2 feet-6 inches on center.

2.7 Floor Track: Floor track for side coiling grilles shall be of extruded aluminum with replaceable bronze strips, flush with finish floor and shall provide a floor slot with a maximum width of 1/4 inch.

2.8 Bottom Rail: The curtain shall have a rolled-steel bottom bar consisting of two angles of equal weight, one on each side, fastened to the bottom of the curtain.

2.9 Endlocks and Windlocks: The ends of each slat shall have malleable iron endlocks of the manufacturer's standard design. The door shall have windlocks at the ends of each slat. Windlocks shall prevent curtain from leaving the guide as a result of deflection from wind pressure or other forces.

2.10 Weatherstripping: Doors exposed to weather shall have manufacturer's standard weatherstripping on jambs, top, and sill for weathertight installation.

2.11 Curtains:

2.11.1 Curtains for coiling service doors shall be formed of insulated interlocking galvanized steel slats of No. 20- gauge minimum thickness or of flat steel interlocking slats. The curtains shall be designed to resist designated wind pressure without damage. The curtains shall roll up on a drum supported at the head of the opening on brackets and be balanced by helical springs.

2.11.2 Curtains for coiling grilles shall consist of 5/16-inch diameter mill finish aluminum, galvanized steel, or stainless steel rods spaced 2 inches on center to form brick pattern grille, with interlocking links to form a network of vertical and horizontal lines. Links shall be 9 inches apart.

2.12 Counter Doors (Roll-Up Shutters): Integral counter shutter/frame shall be manufacturer's standard. Curtains shall be aluminum, minimum 22-gauge galvanized steel, or stainless steel, minimum 22-gauge Type 302 No. 4 finish as designated. Frame shall be fully welded into a single assembly, complete with anchors; the jambs and head shall be minimum 16-gauge stainless steel or plain steel, and the sill shall be formed of 14-gauge stainless steel No. 4 finish.

2.13 Fire Doors: Doors, frames, hardware, and other accessories shall be in accordance with NFPA 80.

2.14 Operation:

2.14.1 Push-Up Operation: Doors shall have one lifting handle on each side of the door and shall be counter balanced to provide ease of operation while raising or lowering the curtain by hand. The maximum exertion or pull required shall not exceed 25 pounds. Doors over 7 feet high shall be provided with pull down straps or pole hooks.

2.14.2 Chain-Gear Operation: Chain shall be galvanized, endless type, operating over a sprocket and shall extend to within 3 feet of floor. Gears shall be high grade gray iron, cast from machine-cut

patterns. Gear reduction shall be calculated to reduce chain pull required to not exceed 35 pounds.

2.14.3 Crank-Gear Operation: Crank shall be removable and located approximately 34 inches above the floor. Gears shall be of high grade gray iron, cast from machine-cut patterns. Gear reduction shall be calculated to reduce pressure exerted on crank to not over 35 pounds.

2.14.4 Motorized Operation: Electric power-operated doors shall be complete with electric motors, operators, controls, switches, and safety devices. Control equipment shall comply with NEMA ICS 2.

2.15 Finish:

2.15.1 Galvanizing: Curtain and bottom rail shall be hot-dipped galvanized with a zinc coating not less than 1.25 ounces total per square foot of flat metal, coating class 1.25 in accordance with ASTM A 525. Hood shall have either class 1.25 galvanizing as described above or be fabricated from electrolytic zinc-coated sheets conforming to ASTM A 591. Hardware items shall be galvanized according to ASTM A 153. Items galvanized after assembly shall comply with ASTM A 123.

2.15.2 Pretreatment: All zinc-coated surfaces shall be given a phosphate coating prior to application of prime paint.

2.15.3 Shop-Applied Prime Paint: All ferrous surfaces, including galvanized curtain, hood, and slats, but excluding wearing surfaces, shall be given one shop-applied prime coat of the manufacturer's standard primer in accordance with Fed. Spec. TT-P-86. Primer shall be compatible with the specified finish paint and shall not contain lead. Non-galvanized surfaces shall be wire brushed to bare metal prior to primer application.

3.0 EXECUTION: Guides shall be securely attached to adjoining construction. Doors shall be installed with all anchors and inserts for brackets, tracks, hardware, and other accessories located accurately. Upon completion, door shall be weathertight and shall be lubricated and adjusted to operate freely.

Folding Doors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of folding doors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Door shall be full pantograph or "x-accordion" type with flexible fabric panels. Materials shall have a flame spread rating of 25 or less, fuel contributed rating of 10 or less, and a smoke developed rating of 5 or less, in compliance with ASTM E 84. Each new door unit shall be a complete unit produced by one manufacturer including hardware, accessories, mounting, and installation components.

2.2 Framework for door including posts, pantographs, hinges and hinge plates, and support rods shall be ferrous metal. All enclosed metal shall be galvanized ASTM B 633, or cadmium-plated ASTM B 766. Posts and exposed metal items shall have phosphate treatment complying with Fed. Spec. TT-C-490.

2.3 Folding Mechanism:

2.3.1 Flexible panels shall be fabricated with not less than 16-gauge metal. Provide one row at top for doors up to 12 feet high, two rows at top for doors over 12 feet high, single row at bottom, and intermediate rows not over 4 feet center to center. Provide vertical rods of a minimum 3/16-inch diameter for connecting hinges in non-rigid type panels.

2.3.2 Rigid panels shall be fabricated with not less than 14-gauge metal, pantograph top and bottom.

2.4 Lead Posts and Jamb Posts shall be fabricated of not less than 16-gauge steel ASTM A 525 for doors up to 10 feet high and not less than 14-gauge for doors over 10 feet high.

2.5 Carriers: Carriers shall be nylon, ball-bearing, wheeled type.

2.6 Door Covering: Covering shall be attached to frame in a manner that will permit onsite removal and repair. Covering shall be treated to be flame-resistant and shall not peel, craze, crack, or fade. Fabric covering shall be vinyl-coated fabric complying with Fed. Spec. CCC-W-408, 30 ounces per linear yard, 54 inches wide.

2.7 Acoustical-rated door shall be manufacturer's standard construction complying with ASTM E 90 to provide a STC rating of 40. Door assembly shall include perimeter seal sweep strips for each side,

top, and bottom, and sound liner of door manufacturer's standard for door panels. Door shall have light and sound seal at door lead posts and jamb posts.

2.8 Track: Track shall be steel with factory-applied corrosion-resistant finish. Track shall be recess mounted with necessary sub-channel or trim units to form pocket for ceiling mounting. Sections shall be provided in the maximum lengths practicable.

2.9 Accessories shall be provided as follows: Center stop for bi-parting doors, track switches for door operation, and ceiling contact guard for sound-rated door units.

2.10 Hardware:

2.10.1 Components shall be heavy-duty metal pulls and latches of brass or steel with dull chromium-plated finish.

2.10.2 Latch shall be operable from both sides of closed door.

2.10.3 Deadlock shall be provided to receive cylinder, operable from both sides.

2.10.4 Miscellaneous Items shall be provided as follows: pendant pull in lead post, upper draw latch with grip handle, center molding or strike for bi-parting door, and foot bolts on lead post.

3.0 EXECUTION: (Section not used.)

Accordion Folding Doors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of accordion folding doors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Vinyl Covering: Fed. Spec. CCC-W-408, Type II or III, wood grain or textured.

2.2 Plastic Laminate: NEMA LD 3, 1/16-inch minimum thickness, wood grain, patterned, or solid color finish.

2.3 Wood Veneer: Good grade, premium grade, or book matched hardwood, as designated.

2.4 Framework including posts, pantographs, hinges, hinge plates, and support rods shall be either extruded aluminum or ferrous metal. Ferrous metal shall be either cadmium-plated or zinc-coated, except posts at the option of the door manufacturer shall have phosphate treatment and manufacturer's shop finish paint.

2.5 Pantographs: The frames on doors requiring pantographs shall be arranged for horizontal pantograph action with pantographs located at top and bottom of the frame. Intermediate pantographs spaced not over 4 feet center-to-center shall be provided for doors more than 8 feet in height. An intermediate pantograph shall be provided at the center of doors less than 8 feet high unless the door has vertical metal reinforcing. The pantographs shall operate smoothly with positive folding action and shall have a control device to prevent flattening of the folds when the panel is fully extended.

2.6 Hardware: Units shall be complete with grip handles, a positive latching system, and an upper latch with extended pulls if unit is over 11 feet high. Hardware shall be anodized aluminum with a natural finish or chrome plated brass.

2.7 Sweep strips shall be vinyl or other material that will not crack or craze with severe usage.

2.8 Track shall be recessed or surface-mounted and of extruded aluminum or enamel finish steel, not less than 16-gauge steel or 14-gauge aluminum. Track sections shall be provided in the maximum lengths practicable, not less than 6 feet long except for narrow doors and at ends of runs where short length is required. Suitable joint devices such as interlocking keys shall be provided at each joint to provide permanent alignment of track.

2.9 Metal soffit shall be provided when track is recessed. Soffit shall be of metal of adequate thickness to protect the ceiling from damage by door operation and shall be provided with the door manufacturer's standard neutral-color applied finish. Soffits may be integral elements of ceiling track.

2.10 Fire Hazard Classification: Vinyl coverings, plastic laminates, and wood veneers shall have a fire hazard classification as determined by ASTM E 84. Provide materials with the following fire hazard classifications: Flame spread not more than 25. Smoke developed not more than 50.

3.0 EXECUTION: (Section not used.)

Flexible Doors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of flexible doors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 General: Each new door unit shall be a complete unit produced by one manufacturer including hardware, accessories, mounting, and installation components.
2.2 Door Panels: Door panels shall be constructed of the following materials.
2.2.1 Heavy-Duty, Abrasive-Resistant Rubber, 60 durometer, roto-cured process, 2,200 psi tensile strength. Panel thickness shall be 1/2 inch.
2.2.2 Flexible Polycarbonate transparent panels 1/2 inch thick.
2.2.3 Flexible Polyvinylchloride (PVC) transparent panels 0.196 inch (5mm) thick.
2.2.4 Flexible Polyvinylchloride (PVC) opaque panels 0.196 inch (5mm) thick.
2.3 Door Panels shall be single or double-acting, as required.
2.4 Panel Frame: Framing materials to which door panels shall be secured shall be galvanized steel, ASTM A 525, 11 gauge. Door panels shall be suspended between L-shaped rolled formed rails and stiles by removable bolt and nut connectors.
2.5 Hardware shall conform to the requirements of ASTM B 633, ASTM B 766, or ASTM A 123, as required.
2.5.1 Hinges shall be adjustable spring-type gravity self-lubricating hinges.
2.5.2 Magnetic catch shall be provided at door overlap at pair of door panels to give positive closure.
2.5.3 Header and jamb seals shall be door mounted PVC seals at head and jamb.
2.5.4 Bumpers shall be center or bottom bumpers.
2.5.5 Jamb guards shall be formed steel guards to enclose and protect lower hinge hardware and closures.
2.6 Door jamb shall be constructed of steel tube, ASTM A 500, with integral wall anchors, galvanized in compliance with ASTM A 386 or stainless steel bent plate, Type 304, with integral wall anchors, as required.
2.7 Finish: All ferrous metal parts shall be finish-coated with polyurethane paint.
2.8 Fire Hazard Classification: All door panel materials shall have a fire hazard classification as determined by ASTM E 84. Provide materials with the following fire hazard classifications: Flame spread not more than 25. Smoke developed not more than 50.
3.0 EXECUTION: (Section not used.)

Overhead Doors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of overhead doors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Doors shall conform to the requirements of NAGDM 102 and shall be metal or wood overhead or vertical lift sectional type flush panel doors as indicated or required and shall be the products of a recognized manufacturer of the doors and accessories specified.
2.2 Door assemblies shall be furnished with operating mechanisms, tracks, hardware, and all other necessary accessories required for complete installation and perfect operation.
2.3 Exterior doors shall be metal sandwich construction filled with foamed-in-place insulation of sufficient density to attain the designated U-value or R-value. Doors shall have flexible neoprene weatherstripping at jambs, top, and sill.
2.4 Door locks where required shall be five-pin cylinder locks and locking devices and shall be keyed as directed. Chain operators shall have standard devices for securing chain.

2.5 Fire Rated Doors: Where designated, doors, frames, hardware, and accessories shall bear the identifying label of the Underwriters' Laboratories, Inc., or a nationally recognized testing agency qualified to perform certificate programs indicating that units conform to the requirements of the Underwriters' Laboratories, Inc. Certificates of inspection shall be submitted in accordance with the requirements of NFPA 80 and 80A for fire doors exceeding the sizes for which label service is offered by Underwriters' Laboratories, Inc.

2.6 Manual Operation:

2.6.1 Push-Up Operation: Doors shall have one lifting handle on each side of the door and shall be counterbalanced to provide ease of operation while raising or lowering the curtain by hand. The maximum exertion or pull required shall not exceed 25 pounds. Doors over 7 feet high shall be provided with pull down straps or pole hooks.

2.6.2 Chain-Gear Operation: Chain shall be galvanized, endless type, operating over a sprocket and shall extend to within 3 feet of floor. Gears shall be high-grade gray iron, cast from machine-cut patterns. Gear reduction shall be calculated to reduce chain pull required to not exceed 35 pounds.

2.6.3 Crank-Gear Operation: Crank shall be removable and located approximately 34 inches above the floor. Gears shall be of high-grade gray iron, cast from machine-cut patterns. Gear reduction shall be calculated to reduce pressure exerted on the crank to not over 35 pounds.

2.7 Motorized Operation:

2.7.1 Electric Operators: Operators shall be furnished complete with electric motor, reduction gears, magnetic brake, friction clutch, emergency release for manual operation, heavy-duty roller chain, controls, limit switches, and other accessories.

2.7.2 Motor: Motor shall be totally enclosed, constant duty type, instantly reversible, capable of moving door at not less than 3/4 foot per second and designed for high frequency operation.

2.7.3 Controls: Each door motor shall have an enclosed reversing across-the-line type magnetic starter having thermal overload protection, solenoid-operated brake, limit switches, and one or more remote-control switches as required. The starter shall conform to NEMA ICS 2. Remote-control switches shall be of the three-button type with the buttons marked "OPEN", "CLOSE", and "STOP." CLOSE buttons shall be momentary-contact type requiring constant pressure to maintain motion of the door.

2.7.4 Safety Device: The bottom edge of electrically operated doors shall have a safety device that will immediately reverse the door movement upon contact with an obstruction. The safety device shall be installed across the entire width of the door and shall not substitute for a limit switch.

2.8 Hot-dipped galvanized sheet steel surfaces shall be finished according to the requirements of ASTM A 525, G-90. Hardware items shall be galvanized according to ASTM A 153. Items galvanized after assembly shall comply with ASTM A 123.

2.9 Shop prime coat of rust-inhibiting paint shall comply with Fed. Spec. TT-P-86.

2.10 Tracks for overhead doors shall be designed to accommodate 2-inch or 3-inch diameter galvanized steel rollers. Tracks shall be fabricated of 13-gauge galvanized steel. Track shall have springs at the end of track to cushion the door at the end of the opening motion.

2.11 Track supports shall be angle iron, galvanized, and installed with cross-bracing to form a rigid construction.

2.12 Counterbalance shall be torsion-spring type for standard counter-balancing with tempered spring wire and continuous steel shaft. Provide cast aluminum and smooth cable drums with galvanized steel lift cables. Entire counterbalance assembly shall be mounted on ball bearings.

3.0 EXECUTION: Panels and frames that are field repaired shall be cleaned sufficiently for good paint adherence then primed to prevent further deterioration. Galvanized coatings that are damaged shall be repaired by the application of a high zinc dust content paint formulated for regalvanizing welds in galvanized steels.

Sound Retardant Doors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of material for sound retardant doors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to

support the work.
2.0 PRODUCTS:
2.1 General:
2.1.1 Each door location shall be complete with frame and integral acoustical type hardware accessories, mounting, and installation components.
2.1.2 Door unit shall conform to ASTM E 90 to achieve the required Sound Transmission Classification (STC).
2.2 Steel Sound Retardant Doors: Door assembly shall conform to SDI-100 and ANSI A115.
2.3 Wood Sound Retardant Doors: Door assembly shall conform to NWWDA I.S.1, ASTM E 90, AWI.
3.0 EXECUTION: Door units shall be installed complete with all necessary anchors and inserts, hardware, and other accessories. Upon completion of installation, doors shall be free from warp, twist, or distortion.

Aluminum Safety Glass Doors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of aluminum safety glass doors. Products shall match existing materials and/or as shall be directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Aluminum safety glass doors shall be manufacturer's standard and shall comply with the requirements of ANSI Z97.1, Fed. Spec. DD-G-1403, and the Safety Glazing Certification Council (SGCC) standards for heat strengthened and fully tempered safety glass.
2.2 Safety glass doors shall have clear tempered safety glass and shall be manufacturer's stock design in standard sizes. Glazing for door tolerance shall be dimension plus 1/16 inch, minus 1/8 inch. All door glazing shall be set in aluminum frames of sufficient strength to withstand heavy duty use.
2.3 Finish for aluminum frames shall be anodized AA-C22A 41RIX or AA-M21C22A 42RIX, as required, minimum 0.7 mil thickness with clear methacrylate lacquer coating, minimum 0.5 mil thick.
2.4 Hardware shall be manufacturer's standard finish to match aluminum frame door stiles and rails. Push-pull set shall be manufacturer's stock design flat plate units, approximately 6 inches by 10 inches, engraved with "push" and "pull." Custom designed push-pull (handles) set and required fittings shall be provided where required.
2.4.1 Lockset with deadbolt in lower rail engaging cut-out in threshold shall be keyed from both sides. Where required, provide a lockset with deadbolt in lock side of glass door, keyed from both sides.
2.4.2 For pairs of doors, provide a deadbolt in lower rail of each door that will engage a cut-out in the threshold and key from both sides.
2.4.3 Where floor recessed checking floor hinges are required, provide top pivot hardware. Where overhead closers are required, provide bottom pivot hardware. Provide checking floor hinges with sealed floor box, finished cover plate, separate adjustment screws for checking speed, and hold open device.
2.5 Threshold shall be manufacturer's standard, finished to match door rails and sized to suit door opening.
2.6 Anchorages and fastenings shall be manufacturer's standard concealed. Finish heads of exposed fasteners shall match finish of adjacent metal surfaces. 2.7 Locate and Provide Holes and Cutouts to receive hardware before tempering safety glass. Do not permit any cutting, drilling, or other glass alterations after tempering operation.
3.0 EXECUTION: (Section not used.)

Wood Safety Glass Doors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of wood safety glass doors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:
2.1 Safety glass shall be clear, heat-strengthened, and fully tempered plate or float glass in compliance with the requirements of ANSI Z97.1 and the Safety Glazing Certification Council. Provide tinted or reflective tempered safety glass as required.
2.2 Wood for door frame, stiles, and rails shall be Douglas fir, redwood, cedar or select hardwood. Exposed wood surfaces shall be sanded, cleaned, and factory-primed ready for final finish coat. PVC clad wood safety glass doors shall be provided as required.
2.3 Provide factory-primed and finish-painted wood surfaces when no other field painting is required.
2.4 Hardware shall be manufacturer's standard style and designed for the door swing, door size, glass thickness, door weight, and area for access and egress. Hardware fittings of door shall match the hardware finish of the adjacent area.
2.4.1 Provide heavy-duty hardware in heavy pedestrian or high traffic areas.
2.4.2 Door push-pull sets or handles and hardware accessories shall be manufacturer's standard design. Provide floor closer with selective hold-open feature. Locks and deadbolts shall be keyed from both sides of bottom door rail or strike side of door stile.
2.4.3 Where aluminum hardware finish is required, aluminum finish shall be anodized.
2.4.4 Panic exit devices or electric strikes shall be furnished where required.
3.0 EXECUTION: (Section not used.)

Screen and Storm Doors
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of screen and storm doors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 The manufacturer shall be a recognized producer of screen and storm doors. See Hollow Metal Doors and Frames, Aluminum Doors and Frames, and Wood Doors.
2.2 All work performed shall meet the requirements of local codes and regulations.
3.0 EXECUTION: (Section not used.)

Entrances
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of entrance assemblies. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Entrance shall be a complete unit produced by one manufacturer recognized as producer of glass entrance panels with glass doors, weatherstripping, and hardware on operating door panel.
2.1.1 Finishes Class I finish AA-M10C2231 or AA-M10C2241 for clear (natural) anodized, Class II finish AA-M10C2244 for color anodized, coating finish shall be fluoropolymer coatings contain at least 70% by weight Kaynar 500 resin (polyvinylidene fluoride)
2.2 Extrusions for door construction shall be AA 6063-T5 alloy with clear anodized 204-R1-A1 finish and 22,000 psi ultimate tensile strength. Main member extrusions shall be not less than 0.125 inch in wall thickness.
2.3 Aluminum sheet material for door construction shall be plain flat sheet for exposed faces of flush and panel doors of not less than 0.062-inch thickness.
2.4 Fasteners shall be aluminum, stainless steel, or other non-corrosive metal fasteners compatible with the framing material. Exposed fasteners shall be Phillips flat-head screws matching fastened material.
2.5 Steel reinforcement and brackets shall be manufacturer's special formed units with 2.0 ounce hot-dip zinc coating complying with ASTM A 153, applied after fabrication. 2.6 Frames shall be extruded tube sections manufactured from AA 6063-T5 alloy with clear anodized 204-R1-A1 finish, not less

than 0.125 inch in thickness. Frames to receive fixed glass shall have removable glass stops and beads.

2.7 Door shall be fabricated from extruded aluminum seamless tubular shapes. Top and bottom rails shall be welded to stiles with corner reinforcement. Joints shall be milled to hairline watertight fit. Welding shall be done on concealed surfaces and shall not blemish exposed surfaces. Door shall have extruded aluminum snap-in type glass stop with integral vinyl glazing insert.

2.8 Weatherstripping shall be manufacturer's standard compression type neoprene gasket. Weatherstripping shall be easily replaced without special tools. Weatherstripping at meeting rails of pairs of doors shall be adjustable. Weatherstripping shall be applied to stiles, heads, and bottoms of doors.

3.0 EXECUTION: Entrance assemblies shall be installed or repaired by the manufacturer or an authorized representative.

Revolving Doors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of revolving doors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Door units shall be fabricated from extruded aluminum tube sections of AA 6063-T5 alloy, clear 204-RI-A1 anodized finish. Door framing members shall be 0.375-inch minimum wall thickness. Enclosure framing members shall be 0.125-inch minimum wall thickness. Snap-in type glass stops shall be minimum 0.050-inch thickness.

2.1 Fabricate assembly with welded and mechanical construction; concealed, reinforced joints; and corners with flush hairline joints.

2.2 Provide weatherstripping at stiles, head, and bottom of door wings.

2.3 Door wings shall be arranged to collapse and fold to the emergency exit position when a pressure of not less than 100 pounds nor more than 140 pounds is applied to the outer door stile at the push bar height of 3 feet, 10 inches. No visible external braces or collapsing plates will be permitted.

2.4 Door unit shall be provided with a mechanical floor-mounted speed control sealed unit to control the revolving door up to a maximum of 12 revolutions per minute.

2.5 All work performed shall meet the requirements of local codes and regulations.

3.0 EXECUTION: Doors shall be installed or repaired by the manufacturer or an authorized representative.

Metal Windows

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of steel, stainless steel, and bronze windows. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Fixed Windows, Hopper Vent: Window units shall comply with SWI-01, The Specifier's Guide to Steel Windows, for standard intermediate windows with bottom hinged, swing-in type ventilator hopper sash. Bottom rails of ventilators shall have an outside drip. Hardware shall be manufacturer's standard type for each window. Ventilator shall have one pair of hinges or pivots, two stay arms, and a cam-type lever handle latch. Sash and hardware shall be designed to permit easy removal of sash from inside the building.

2.2 Fixed Windows: Fixed windows shall comply with the requirements of SWI-01, for standard antermediate windows.

2.3 Projected Windows: Projected windows shall comply with the requirements of SWI-01, for commercial projected windows, with project-out type ventilators, top-hinged.

2.4 Continuous Top-Hinged Windows: Continuous windows shall comply with SWI-01 continuous type

with manual operation.

2.5 Casement Windows: Casement windows shall comply with SWI-01, for standard intermediate windows. Hardware for operative sash shall provide for cleaning of both sides of the sash from the inside. Operating devices shall include underscreen type rotary operators of the worm-gear type with adjustable operating arms. A continuous drip molding shall be provided above operable sash. Abutting units or combination units shall have manufacturer's stock standard mullion.

2.6 Awning Windows: Awning windows shall comply with the SWI-01, for architectural awning intermediate type frame and ventilator members. Ventilators in same frame shall operate in unison. Hardware for operative sash shall provide for cleaning of both sides of the sash from the inside. Operating devices shall include underscreen type rotary operators of the worm-gear type, with adjustable operating arms. The operator shall securely close the ventilators without using additional locking devices. Ventilators shall be designed to close and be weathertight to adjoining ventilators or frame. Window frame shall be designed with rebate to receive screens.

2.7 Reversible Windows: Reversible horizontal pivoted windows shall comply with SWI-01, for commercial type.

2.8 Hinged Emergency Windows: Hinged emergency type windows shall comply with SWI Recommended Specifications for Steel Windows, for commercial type, with manual operation side- or hinged for swing-out emergency exit, pivots or hinges for 90 degrees swing-out. Window shall be equipped with push-release type lever operator on window latch, complying with the requirements of local regulations for "panic hardware".

2.9 Double/Single Hung Windows: Double and single hung windows shall comply with SWI Recommended Specifications for steel windows for commercial type. Two spiral type removable sash balances shall be provided for each sash. Balances shall be adjustable without removing sash from frame and without use of special tools. Each window 40 inches wide or less shall be provided with one sweep sash lock. Each window over 40 inches wide shall be provided with two sweep sash locks. Lower sash shall have one continuous integral lift at the bottom of the sash. The upper sash shall have a continuous integral pull down member on the meeting rail.

2.10 Operating Hardware: Hardware shall be provided for all operable, ventilating sash units of manufacturer's standard for the function of each individual window type specified. All operable sash shall have a latch or locking device. Hardware shall be securely attached to the window with noncorrosive bolts or machine screws.

2.11 Miscellaneous hardware shall comply with ANSI A156.16. All metal hardware for stainless steel windows shall be non-corrodible. All hardware items for bronze windows shall match window finish.

2.12 Screens: Insect screens shall be full size of the operable unit. Screens shall comply with SWI-01 and shall have removable splines of steel or vinyl. Screening shall be 18 x 14 mesh, complying with Fed. Spec. RR-W-365 for wire fabric or Fed. Spec. L-S-125, Type II.

2.13 Weatherstripping shall be the standard type for use with the window unit supplied and shall be easily replaceable.

2.14 Materials for steel windows shall comply with the requirements of the following:
a. Sheet steel: Fed. Spec. QQ-S-700.
b. Zinc-coated steel: ASTM A 90 or A 123.
c. Zinc-coating on hardware: ASTM A 153.
d. Corrosion-resistant steel: Fed. Spec. QQ-S-766.

2.15 Materials for stainless steel windows shall comply with the requirements of ASTM A 167.

2.16 Materials for bronze frames shall comply with the requirements of ASTM B 96, ASTM B 100, ASTM B 150 or ASTM B 169.

3.0 EXECUTION: Window units shall be installed complete with all necessary anchors, hardware, and other accessories and shall be plumb, square, and level in alignment, and braced and stayed properly to prevent distortion and misalignment.

Aluminum Windows

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of aluminum windows. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product

manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Windows shall be furnished as a complete assembly including frame, sash, hardware, mullions, and anchorage devices. Windows indicated to have screen or storm units shall be designed to accommodate the items to be furnished. Aluminum extrusions shall be not less than 22,000 psi ultimate tensile strength and not less than 0.062 inch thickness at any location for main frame and sash members. Window sash and frames shall be designed for outside glazing of vision glass. Weatherstripping shall be easily replaceable. All operable sashes shall have a latch or locking device. Hardware shall be securely attached to the window with noncorrosive bolts or machine screws. Hardware finishes shall match window finishes. Where operating hardware is located 6 feet-6 inches or more above the floor, poles and pole-operated handles shall be provided to operate the windows.

2.2 Aluminum prime windows shall be fabricated and assembled in compliance with AAMA 101.

2.3 Double glazed windows shall have a minimum condensation factor in accordance with AAMA 1503.1-98.

2.4 Awning windows shall conform to AAMA 101, Commercial Grade. Hardware for top ventilators shall be designed to drop sash down in such a manner to permit cleaning of the outside glass from inside the building. All operating hardware except ventilator arms and rotary operators shall be concealed within frame and sill. Ventilator arms shall be concealed when unit is closed.

2.5 Basement windows shall conform to AAMA 101, Commercial Grade, single project-in at top vent.

2.6 Casement windows shall conform to AAMA 101, Commercial Grade. Each side hinge ventilator shall have non-friction type extension hinges, underscreen type rotary operator, and locking handles. Rotary operators shall be heavy-duty worm-gear type with machine cut case hardened steel gears.

2.7 Double-hung and single-hung Windows shall conform to AAMA 101, Commercial Grade.

2.8 Fixed windows and semi-circular head windows shall conform to specification P-A2, without ventilator sections.

2.9 Horizontal-sliding windows shall conform to AAMA 101, Commercial Grade.

2.10 Projected windows shall conform to AAMA 101, Commercial Grade. Where screens are specified, underscreen operators shall be provided for ventilators that open out.

2.11 Top-hinged windows shall conform to AAMA 101, Commercial Grade.

2.12 Vertically-pivoted windows shall conform to AAMA 101 Commercial Grade.

2.13 Storm windows shall be triple-track, self-storing, combination storm-and-screen type, conforming to AAMA 1002.10. Storm units shall be designed for the type of windows with which they will be used and shall provide a rigid unit in place, to permit all sashes to be removed from the inside and to lock into the open and closed positions. An interlocking scribe piece of the same material as the frame shall be provided at bottom edge. Units shall be complete with all mounting and operating accessories required to provide a weathertight installation.

2.14 Insect screens shall be provided for sash or ventilators of designated windows. Screens shall conform to AAMA 101. Insect screens shall be designed for the type of window with which they will be used and shall be interchangeable with other units of the same size and type. Screens for hopper ventilators shall be stationary type attached directly to the outside of the window unit.

2.15 Forced-entry resistant windows shall be in accordance with the recommendations specified in AAMA 1032.5.

2.16 High performance windows shall be in accordance with the requirements of AAMA 101.

2.17 Window cleaning anchors shall be of stainless steel and shall conform to ASME A39.1. Windows shall be reinforced for the reception of window cleaning anchors, if necessary to provide the required strength. Window frames shall be reinforced as may be required to receive the window cleaning anchors, and the window frames shall be anchored securely to the wall construction at point of application of the window cleaning bolts.

2.18 Finish: All exposed members shall be free of scratches and other serious surface blemishes. Prime windows shall have anodized finish or paint finish. Anodized finish shall be AA-M12C22A31 clear in accordance with AA Designation System for Aluminum Finishes. Paint finish shall conform to AAMA 603.8. Storm windows shall be mill finish or paint finish, white. Window unit finishes, cleaning, and

chemical treatments shall comply with the requirements of NAAMM Metal Finishes Manual and AAMA 603.8.

3.0 EXECUTION: Final adjustment for proper operation of ventilating unit shall be made after glazing. Where aluminum surfaces are in contact with or fastened to dissimilar materials, except stainless steel or zinc, the aluminum surface shall be protected from dissimilar materials as specified in the Appendix of AAMA 101. Surfaces in contact with sealants after installation shall not be coated with any type of protective material.

Wood Windows

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of wood windows, general. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Awning replacement window units shall comply with NWWDA I.S.2.

2.2 Single hung replacement window units shall contain one fixed sash and one balanced vertically-sliding sash and shall comply with NWWDA I.S.2.

2.3 Double hung replacement window units shall contain two balanced vertically-sliding sashes and shall comply with NWWDA I.S.2.

2.4 Horizontal-sliding replacement window units shall comply with NWWDA I.S.2.

2.5 Fixed replacement window units shall consist of sashes complying with NWWDA I.S.2 and frames complying with NWWDA I.S.1, or NWWDA I.S.2.

2.6 Window, screen, and storm sash units shall be manufactured from kiln-dried ponderosa pine, Idaho white pine, Northern white pine, or sugar pine.

2.7 Preservative Treatment: All wood parts shall be water repellent preservative-treated in compliance with NWWDA I.S.4. 2.8 Weatherstripping shall be manufacturer's standard nonferrous spring metal or vinyl gasket.

2.9 Insect Screens: Frames shall be manufacturer's standard formed aluminum or extruded aluminum frames. Insect screening shall be either nonferrous metal or plastic-coated fibrous glass insect screen cloth complying with Fed. Spec. L-S-125, Type II.

2.10 Window operations shall meet or exceed the minimum operating requirements as specified in NWWDA I.S.2. Each window unit shall be supplied with all operating devices required for easy operation and with suitable locks or latches.

2.11 Window Classification (Grade): Window units shall comply with Class A requirements as specified in NWWDA I.S.2.

2.12 Fabrication:

2.12.1 Sizes and profiles shall match existing work and shall be coordinated with actual measurements of window openings.

2.12.2 The scope of each replacement window unit, except as otherwise indicated, shall include the sash or sashes, frame, sill (including undersill or nosing, if any), exterior and interior trim, integral mullion and muntins (if any), hardware, and accessories.

2.12.3 Removable insect screens shall be provided for each operating sash.

2.12.4 Glazing stops (beads) shall be provided, nailed or snap-on, and coordinated with glass selection and glazing system as indicated.

2.13 Finishes:

2.13.1 Painting: Shop prime coat shall comply with Fed. Spec. TT-P-25, color white.

2.13.2 Vinyl cladding shall be manufacturer's standard bonded vinyl cladding with permanent paintable finish.

2.13.3 Aluminum cladding shall be manufacturer's standard formed sheet or aluminum cladding with baked-on acrylic coating.

2.14 Woven glass cloth shall weigh not less than 2.0 oz./sq. yd. and shall withstand 120 lbs. of pull per square inch. Resin and hardener catalyst shall be as recommended by the manufacturer of the resin.

3.0 EXECUTION: (Section not used.)

Finish Hardware

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of finish hardware. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Labeled fire doors shall have fire rated hardware, including smoke seals where required by code, in accordance with NFPA 80. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Hardware finishes shall conform to those identified under ANSI/BHMA A156.18. Finish of fasteners shall match finish of hardware items on which they are applied.

2.1 Locks and Latches: To the maximum extent possible, locksets, latchsets, and deadlocks shall be the products of a single manufacturer. Mortise type locks and latches for doors 1-3/4 inches thick and over shall have adjustable bevel fronts or otherwise conform to the shape of the door. Lock fronts for double-acting doors shall be rounded. Mortise locks shall have armored fronts. Strikes for wood frames and pairs of wood doors shall be furnished with wrought boxes. Trim for mortise locks and latches shall be escutcheon, minimum 7 inches by 1-3/4 inches or sectional, as required, with wrought knob and cast shank and shall conform to the requirements for wrought trim in accordance with ANSI A156.2. Manufacturers' standard plain design shall be used. Keying system shall match remainder of building system (if applicable) or shall be as specified.

2.1.1 Cylinder Locks: Cylinder shall have either six or seven pins with paracentric keyway, as required. Cylinders and the locks in which they are used shall be the product of the same manufacturer. Cylinders shall be provided with removable type single key cores, where required.

2.1.2 Deadlocks: ANSI A156.5, mortise type, cylinder-operated, E16000 series.

2.1.3 Interconnected Locks and Latches: ANSI A156.12, Grade 1 or 2.

2.1.4 Locksets and latchsets shall conform to the following types, as required: ANSI A156.2, series 1000, Grade 2; 2000, Grade 1; 4000, Grade 1; A156.13, Operational Grade 1 or 2; and Security Grade 1, 2, 3, or 4. 2.1.5 Locksets for Lead-Shielded Doors shall be provided with factory-installed lead linings. Lead linings shall not be less than the thickness of the lead in the door in which the lockset is required.

2.1.6 Cipher Locks: Cipher locks shall be mechanically operated push button units, with or without master key bypass capability, and changeable by authorized access key.

2.1.7 Padlocks: ASTM F 883.

2.2 Door Trim: ANSI A156.6.

2.2.1 Armor plates shall be category J100, plastic, aluminum, brass, or stainless steel, as required, 40 inches in height, 2 inches less in width than the width of the door for single doors, and 1 inch less for pairs of doors. Edges of metal plates shall be beveled where required. Where the door has a louver panel, the armor plate shall be omitted if top of louver frame is more than 20 inches above the bottom of the door.

2.2.2 Arm pulls shall be Category J400, double base, aluminum, brass, or stainless steel.

2.2.3 Combination push-pull plates shall be Category J300, 1/8 inch minimum, aluminum, brass, or stainless steel beveled four edges.

2.2.4 Drop ring pulls shall be Category J400, aluminum, brass, or stainless steel.

2.2.5 Kick plates shall be Category J100, plastic, aluminum, brass, or stainless steel. Width of plates shall be 2 inches less than door width for single doors and 1 inch less for pairs of doors. Height shall be 10 inches, except where the bottom rail is less than 10 inches, the plate shall extend to within 1/2 inch of the panel mold or glass bead. Edges of metal plates shall be beveled, where required.

2.2.6 Armor plates and mop plates shall be Category J100, plastic, aluminum, brass, or stainless steel. Width of plates shall be 2 inches less than door width for single doors and 1 inch less for pairs of doors. The height of mop plates shall be 4 inches. Edges of metal plates shall be beveled, where required.

2.2.7 Push and pull bars shall be Category J500, aluminum, brass or stainless steel, where required. Edges of mounting plates shall be beveled.

2.2.8 Push plates shall be Category J300, aluminum, brass, stainless steel, or plastic, in color as required,

size as required. Edges of metal plates shall be beveled, where required.

2.2.9 Sectional door pulls for metal or Kalamein doors shall be Category J400 brass, thru-bolted type of plain modern design. Door pulls on plates for wood doors shall be Category J400 aluminum, brass, or stainless steel with beveled edges, as required.

2.3 Exit Devices and Exit Device Accessories: ANSI A156.3.

2.3.1 Door coordinator shall be Type 21 and shall be provided for each pair of doors with closers and equipped with an overlapping astragal.

2.3.2 Removable mullions shall be Type 22 of the box type and shall be used only with those exit devices for which the mullions were manufactured. Mullions shall be furnished with mullion stabilizers of the same manufacturer.

2.4 Door Controls: Overhead holders conforming to ANSI A156.8.

2.5 Auxiliary hardware, including door surface bolts, door holders, door stops, and roller latches, of the types required, shall conform to ANSI A156.16.

2.5.1 Lever Extension Flush Bolts: Type L14081, installed at the top and bottom of the inactive leaf of pairs of doors, and mortised in the lock edge of the door.

2.5.2 Dust-Proof Strikes: Type L04011.

2.5.3 Garment Hooks: Type L03111.

2.5.4 Hand Rail Brackets: Type L03061, L03081, L03091, or L03101.

2.5.5 Garment Rods: Type L03131 or L03141.

2.5.6 Coat Hook: Type L03111.

2.5.7 Door Stop, Adjustable Hinge Type: Type L02223.

2.5.8 Door Stop, Wall Type Flexible, 3 inch: Type L02051, L02052, L02053.

2.5.9 Door Stop, Wall Type Flexible, 4 inch: Type L02061, L02062, L02063.

2.5.10 Door Stop, Floor Mounted, Type L02143.

2.6 Hinges: ANSI A156.1. Hinges used on metal doors and frames shall also conform to ANSI A156.7.

2.6.1 Hinges for reverse bevel doors with locks shall have pins that are made nonremovable by means such as a set screw in the barrel, or safety stud, when the door is in the closed position.

2.6.2 Hinges with anti-friction bearings may be furnished in lieu of ball bearing hinges, where required. Fire door hinges shall be in accordance with NFPA 80.

2.7 Door Closing Devices: ANSI A156.4.

2.7.1 Surface type closers shall be Series C01000, C02000 Standard Cover, C02000 Full Cover with option PT-4C, or C03000 with options PT-4A and PT-4D, where required. Mounting details for the type closers to be used shall be in accordance with manufacturer's standards. Closers for screen and storm doors shall be Type C09353. Closers for outswinging exterior doors shall have parallel arms or shall be top jamb-mounted. Closers for interior doors close to a wall shall be of narrow projection so as not to strike the wall at the 90 degree open position or shall have parallel arms.

2.7.2 Floor closers and pivots shall have cement boxes. Floor closers and pivots used on the same door shall be the product of one manufacturer only. Floor plates are not required where thresholds cover the closer cement box. Setting tools shall be furnished for use in installing floor closers.

2.8 Smoke Detectors and Magnetic Holders: ANSI A156.15. Door closers with integral holders connected to a separate detection device or closers with integral holders and detector units, sensing particles of combustion that when activated will release the holder mechanism causing the closer to close the door may be used in lieu of separate closers, detectors, and magnetic holders. Closers shall be listed or labeled by a nationally recognized independent testing laboratory.

2.9 Key Control Storage System: ANSI A156.5, type and capacity as required, properly labeled for key identification.

2.10 Metal Thresholds: Thresholds for exterior metal doors with weatherstripping shall be extruded aluminum or bronze, flat type with fluted top and shall provide proper clearance and an effective seal with specified weatherstripping. Thresholds for use with floor closers shall conform to ANSI A156.4. Latching thresholds shall conform to ANSI A156.3, Type 26, and of such height that the bottom of the door shall be 1/8 inch over the tread of the threshold and 1/8 inch below the top of the stop.

2.11 Door Silencers: Molded rubber, ANSI A156.16, Type L03011 for metal doors and Type L03021 for wood doors.

2.12 Exit Control or Exit Locks: ANSI A156.5, activated by arm and push plate or paddle. Outside key control shall be provided where required. Units shall be battery-powered. Alarm horns or mechanical bell, when set by inside key, shall sound when door is opened. Units shall have dead bolts or protected latches with either surface or mortised strike. Where required, furnish with silent alarm for indication at a remote panel or a low voltage system. Exit control locks or exit locks shall be as follows.

2.12.1 Single Door: Type E 0421.

2.12.2 Double Door: Type E 0421 (One leaf to have top and bottom bolt activated by cross bar. Other leaf to have Type E 0431 exit lock.)

2.13 Electric Strikes: ANSI A156.6. Rim-mounted strikes shall be Type E09312 for use with rim latches or rim or surface vertical rod exit devices. Mortised strikes shall be Type E 09322 for use with locks not having dead bolts and with mortise exit devices, all with or without auxiliary dead latch.

2.14 Bored Auxiliary Deadlocks: ANSI A156.5. Dead locking latch bolts operated by key from either side shall be Type E2141.

2.15 Mortised Deadlocks: ANSI A156.5. Dead bolts operated by key from either side shall be Type E16061.

2.16 Weatherstripping: Provide only those units where resilient or flexible seal strip is easily replaceable and readily available from stocks maintained by manufacturer. Provide fasteners that are exposed when door is either open or closed to match finish of stripping and seals.

2.16.1 Weatherstripping at Jambs and Heads of Doors:

2.16.1.1 Bumper-type Resilient Inserts and Metal Retainer Strips: Surfaced-applied unless required to be mortised or semi-mortised; anodized retainer strips; resilient bumper material to be neoprene or vinyl. Adjustable insert of extruded metal and captive adjustment screws designed to act as combination door stop and seal.

2.16.1.2 Spring-Metal Type Stripping: Bronze, 0.009 inch minimum thickness for sliding compression, 0.006 inch minimum thickness for direct compression; aluminum, 0.008 inch minimum thickness; stainless steel, 0.005 inch minimum thickness.

2.16.1.3 Self Adhesive Strips: Ribbed sponge neoprene. Adhesive shall be reinforced with glass fibers. Strip size shall be 3/16 inch by 3/8 inch minimum.

2.16.2 Astragal Stripping On One Active Leaf:

2.16.2.1 Metal Astragal Bar: Not less than 1/8 inch x 1-3/4 inches, for exposed flat-head screw mounting one leaf of extruded aluminum, anodized finish.

2.16.2.2 Closed-Cell Neoprene Astragal Bar: Approximately 3/8 inch x 1-1/4 inches with metal retainer strip for mounting on one leaf of extruded aluminum, 0.094 inch, anodized finish.

2.16.3 Meeting Seals, Both Leaves Active:

2.16.3.1 Metal Housing Strips (Door Centers): With adjustable insert plunger strips retained in housing with captive screws; mortised, semi-mortised, or surface-mounted, as required; double units applied to both leaves and single units applied to only one leaf; extruded aluminum, 0.062 inch thick, anodized finish. Seal materials shall be metal faces on both adjustable inserts or metal face on one adjustable insert, pile insert on the other. Provide pile insert of wool, polypropylene, or nylon pile with aluminum strip backing complying with AAMA 701.2.

2.16.3.2 Metal Strips: To retain hollow extrusions or sheets forming flexible plastic seals; extruded aluminum, 0.062 inch thick, anodized finish. Seal materials shall be one of the following:

a. Heavy neoprene sheet, light grey.
b. Light neoprene sheet, light grey, filled with soft cellular plastic or neoprene backing.
c. Heavy neoprene sheet, black, complying with Mil. Spec. MIL-R-6855, Class II, Grade 40.
d. Heavy flexible vinyl plastic sheet, light grey.
e. Heavy, fabric-reinforced rubber, black.

2.16.3.3 Surface-Mounted Metal Strips: To retain flexible seal strips acting as sweeps or wipers; extruded aluminum, 0.062 inch thick, anodized finish; seal material to be extruded neoprene wiper or sweep, flexible vinyl wiper or sweep, flexible vinyl bulb, or wool or polypropylene pile wiper or sweep.

2.16.3.4 Pile-Type Stripping: Wool, polypropylene, or nylon woven pile with aluminum stripbacking, complying with AAMA 701.2, mounted in manufacturer's standard aluminum housing (non-

adjustable type) in edge rail. Mount units in meeting edges of both leaves of pairs of doors or in meeting edge of only one leaf of pairs of doors.

2.16.3.5 Spring-Metal Type Stripping: Mounted in meeting edges of only one leaf of pairs of doors; formed of spring bronze, 0.009 inch thick or spring stainless steel, 0.008 inch thick, as required.

2.16.4 Automatic Door Bottoms:

2.16.4.1 Door sill protection shall be weatherproof automatic door bottoms. Plunger shall automatically seal with delayed action when door closes and shall retract when door opens. Automatic door bottoms shall be surface-mounted, fully mortised, or semi-mortised types.

2.16.4.2 Metal: Extruded aluminum, 0.070 inch thick, anodized finish.

2.16.4.3 Seal: Sponge neoprene, Mil. Spec. MIL-R-6130, Type II, Grade A, B, or C, as required.

2.16.5 Door Bottom Sweeps: Retainer of extruded aluminum, 0.070 inch thick, anodized finish; seal of solid neoprene, Mil. Spec. MIL-R-6855, Class II, Grade 40, soft, oil-resistant, which shall remain flexible down to -60 F.

2.17 Automatic Entrance Door Operators: ANSI A156.10 and UL 325. Size shall be as recommended by manufacturer's published data for door size, weight, movement, and condition of exposure for operation under normal traffic load for the type of occupancy as required. Exposed housing for operators shall be extruded or formed aluminum, 0.062 inch minimum thickness, with provisions for maintenance access, and with fasteners concealed in door when door is in closed position. Operators shall be fully adjustable for opening, closing, and checking speeds, as well as length of time door remains open without removal of doors. Operators in hazardous areas shall have explosion-proof motors, operators, and control devices. Door operators shall be provided that will open and close doors and maintain them in fully closed position when subjected to a wind velocity or equivalent inward pressure differential of 20 mph.

2.17.1 Swing Door Operators: Hydraulic, pressurized unit, with separate cylinders for power and checking. Provide spring action for closing under normal operation and provide emergency release for manual swing-out action on swing-in doors, which are indicated to function as exits. Operator actions such as swing-in, swing-out, double swing, or pairs shall be as required. Provide overhead concealed, surface-mounted, or floor-recessed operators, self-contained with connections for power and control wiring, where required.

2.17.2 Sliding Door Operators:

2.17.2.1 Hydraulic door operators for sliding doors shall be a pressurized unit with hydraulic cylinder power opening and either power or spring closing with safety release clutch for obstructed closing and with hydraulic checking for both opening and closing cycles. Provide for manual sliding when power is off. Operator actions such as single slide, bi-parting, and emergency break-away swing feature shall be as required. Provide overhead concealed operators where required. Provide self-contained units, where required, with connections for power and control wiring. Provide remote unit, where required, with interconnecting tubes and connections at power unit for power and control wiring.

2.17.2.2 Pneumatic door operators for sliding doors shall be air-opened and either air- or spring-closed with safety release clutch for obstructed closing and with pneumatic checking in both cycles. Provision shall be made for manual sliding when power or air pressure is off. Operator actions such as single slide, bi-parting and emergency breakaway features shall be as required. Provide overhead concealed operators where required. Power unit shall be remote compressor unit.

2.17.3 Door Operator Controls and Accessories:

2.17.3.1 Floor Mat Control Panels: Provide units complete with extruded aluminum mat, frames, recessed to fit flush with floor; concealed anchorage, manufacturer's standard synthetic rubber; or flexible plastic, safety ribbed surface pattern, standard color; containing pressure switches for low-voltage control wiring and intended for either sliding or single acting swing door control, with "Opening" section and "Safety" section switches. Mats shall be 1/2 inch thick. Where required to be installed over existing floor finish, provide surface-mounted frame with tapered safety edge.

2.17.3.2 Photo-Cell Control System: Horizontal beam system.

2.17.3.3 Electrical Interlocks: Interlocks that prevent operation of unit when door is locked latched, door bolted are required unless units are equipped with self-protected devices or circuits.

2.17.3.4 Sliding Door Opening Width Control Switch: Two-position switch that, in normal position, allows

sliding doors to travel to full opening width and, in alternate position, reduces opening to a selected partial opening width.

2.18 Finishes: Exposed surfaces of hardware shall have one of the following finishes:

2.18.1 Bright Brass, Clear Coated: ANSI/BHMA A156.18.

2.18.2 Satin Brass, Clear Coated: ANSI/BHMA A156.18.

2.18.3 Satin Bronze, Clear Coated: ANSI/BHMA A156.18.

2.18.4 Bright Chromium Plated: ANSI/BHMA A156.18.

2.18.5 Satin Chromium Plated: ANSI/BHMA A156.18.

2.18.6 Bright Stainless Steel: ANSI/BHMA A156.18.

2.18.7 Satin Stainless Steel: ANSI/BHMA A156.18.

2.18.8 Primed Paint Finish.

3.0 EXECUTION:

3.1 Application: Hardware shall be located on doors in accordance with DHI publication, Recommended Locations for Builders' Hardware for Standard Steel Doors and Frames. When approved, slight variations in locations or dimensions will be permitted. Application shall be in accordance with DHI publication, The Installation of Commercial Steel Doors and Steel Framing, Insulated Steel Doors in Wood Frames, and Builders' Hardware. Door control devices for exterior doors such as closers and holders, shall normally attach to doors with thru-bolts such as sex bolts and nuts.

3.1.1 Hardware for labeled fire doors shall be installed in accordance with the requirements of NFPA 80 and

3.1.2 Door-closing devices shall be installed and adjusted in accordance with the templates and printed instructions supplied by the manufacturer of the devices. Insofar as practicable, doors opening to or from halls and corridors shall have the closer mounted on the room side of the door.

3.1.3 Floor Closers: Setting tools shall be used in the installation of floor closers.

3.1.4 Kick plates shall be installed on the push side of single acting doors and on both sides of double-acting doors.

3.1.5 Door operators shall be installed in accordance with manufacturer's instructions, including piping, controls, control wiring, and remote power units. Air supply for pneumatic operators shall provide regulated air pressure for each door as required for equipment purchased. In areas subject to extreme cold, dehydrating equipment shall be furnished.

Glass and Glazing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of glass and glazing materials. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Glazing Compounds and Preformed Glazing Sealants: A suitable type of glazing compound or preformed glazing sealant in compliance with section Glazing Materials of the FGMA Glazing Manual shall be provided.

2.1.1 Gunnable Polymer Glazing Sealants shall be as follows:

2.1.1.1 Acrylic (one-part): Fed. Spec. TT-S-00230.

2.1.1.2 Butyl (one-part): Fed. Spec. TT-S-001657.

2.1.1.3 Polysulfide (one- or two-part): Fed. Spec. TT-S-00230 and TT-S-00227.

2.1.1.4 Polyurethane (one- or two-part): Fed. Spec. TT-S-00230 and TT-S-00227.

2.1.1.5 Silicone (one-part): Fed. Spec. TT-S-001543 and TT-S-00230.

2.1.2 Glazing Preformed Tapes shall be butyl or polyisobutylene/butyl and shall be manufacturer's standards.

2.1.3 Knife Grade Glazing Sealants shall be as follows:

2.1.3.1 Wood Sash Putty: Fed. Spec. TT-P-00791.

2.1.3.2 Face Glazing Compound: ASTM C 669.

2.1.3.3 Steel Sash Putty: Manufacturer's standard.

2.1.3.4 Channel Glazing Compound: Manufacturer's standard.

2.1.4 Gaskets for Glazing shall be as follows:
2.1.4.1 Dense Neoprene: ASTM C 542 (lock-strip gaskets).
2.1.4.2 Foam Neoprene: ASTM C 509.
2.1.4.3 PVC: ASTM D 2287.
2.1.4.4 Mullion Sections shall be manufacturer's standard for glass size provided.
2.2 Glazing Accessories: Glazing points, chips, shims, angles, beads, setting blocks, spacer strips, and other glazing accessories shall be provided where required to provide a complete installation.
2.3 Float, Plate or Glass:
2.3.1 Clear Glass: ASTM C 1036, Type I, Class 1, Quality q3.
2.3.2 Heat-Absorbing Glass: ASTM C 1036, Type I, Class 2, Quality q3, Style A.
2.3.3 Light-Reducing Glass: ASTM C 1036, Type I, Class 3, Quality q3.
2.3.4 Greenhouse Glass: ASTM C 1036, Type I, Class 1, Quality q6.
2.4 Tempered Glass: ASTM C 1048, Kind FT, Condition A; Type I, Quality q3 or Type II, Quality q8. All tempered glass shall be purchased to meet field dimensions and shall not be altered in the field.
2.5 Wired Glass: ASTM C 1036, Type II, Class 1, Form 1, Mesh M1, 1/4 inch thick and in compliance with ANSI Z97.1. Wired glass for fire doors and windows shall comply with NFPA 80.
2.6 Figured Glass: ASTM C 1036, Type II, Class 1, Form 3, Quality q8, 1/8 inch thick.
2.7 Rough Glass: Rolled, translucent, flat, glazing quality, one side rough and the other polished, 7/32 inch thick.
2.8 Laminated Glass: Laminated glass shall be fabricated from two pieces of clear, heat-absorbing, light-reducing, or wired glass, as designated and previously specified, laminated together with a clear vinyl inter-layer. Laminated glass shall comply with ANSI Z97.1.
2.9 Insulating Glass:
2.9.1 Hermetically sealed glazing units shall be fabricated of two lites of glass, separated by a dehydrated air space that is 1/2 inch unless otherwise designated and sealed permanently at the edges. Clear, light-reducing, heat-absorbing, figured, wired, and tempered glass shall be as previously specified.
2.9.2 Manufacturer's standard fused-glass edge construction shall use double-strength clear sheet glass and shall only be provided in small applications under 30 sq ft. 2.10 Mirror Glass: Plate or float glass complying with ASTM C 1036, Type I, Class 1, Quality q2, and 1/4 inch thick except as otherwise indicated with a silver coating and protective electrolytic copper coating not less than .0002 inch thick, complying with Fed. Spec. DD-M-411. The protection of the mirror back shall conform to Fed. Spec. DD-M-411.
2.11 Glazing Plastics:
2.11.1 Cast acrylic glazing plastic sheets of 1/4 inch thickness, of clear transparent acrylic plastic with a light transmittance of 92 percent for a 1/4-inch sheet, impact resistance to withstand a 16-foot drop of a 1/2-pound steel ball on a 12-inch x 12-inch x 1/4-inch edge-supported sheet, modules of elasticity of approximately 450,000 psi, flexural strength of 16,000 psi, and 180 F allowable continuous service temperature.
2.11.2 Cast polycarbonate glazing plastic sheets of 1/4-inch thickness of clear transparent polycarbonate plastic, with a minimum light transmittance of 82 percent for a 1/4-inch sheet and free of significant dimensional change for exterior exposure. Drop ball impact resistance of 200 foot-pounds, for a 12-inch x 12-inch x 1/8-inch edge-supported sheet, modulus of elasticity of 340,000 psi, flexural strength of 13,500 psi, and 250 F allowable continuous service temperature.
2.11.3 Reinforced polyester glazing plastic sheets of 1/8-inch thickness of clear translucent acrylic-modified polyester plastic sheet with invisible glass fiber reinforcement compounded specifically for exterior exposure with U.V. absorbers with a light transmittance of 92 percent for an 1/8-inch sheet, manufacturer's standard figured or textured surfaces, a modulus of elasticity of 721,000 psi, flexural strength of 17,800 psi, and 180 F allowable continuous service temperature.
2.11.4 Reinforced polyvinyl chloride sheets of 0.12 inch thickness of clear transparent rigid polyvinyl chloride with .011-inch galvanized steel mesh woven to 10 mesh screening and located in the center of the sheet thickness. The sheet shall have a light transmission of 85 percent for a 1/4-inch sheet, tensile strength of 8,500 psi, flexural modulus of 550,000 psi, and flexural strength of 15,000 psi.

2.12 Bullet-Resisting Glass: Glass shall be fabricated from Type I, Class 1, Quality q3 glass with polyvinyl butyral plastic interlayers between the layers of glass. The thickness of each layers of glass shall be in accordance with the manufacturer's standard practice. The total nominal thickness of the laminated glass shall be 1-3/16 inches. Glass shall meet the test requirements of the Underwriters' Laboratory for bullet-resisting materials. Listing in Underwriters' Laboratory Guide COGT will be accepted as evidence of compliance with this requirement in lieu of a certificate.

2.13 One-Way Vision Glass: Glass shall be fabricated from Type I, Class 1, Quality q2, 1/4-inch thick glass. One face shall be coated with a hard adherent film of chromium or other approved coating of proven equivalent durability. The glass shall transmit not less than 5 percent or more than 11 percent of total incident light in the visible region and shall reflect from the front surface of the coating not less than 45 percent of the total incident light in the visible region.

2.14 Spandrel Glass: ASTM C 1048, Kind HS, Condition B, Type I, Quality q5. 2.15 Reflective Glass: ASTM C 1048, Kind HS or FT, Condition C, Type I, Quality q3, with minimum 10 percent visible light transmission and maximum 25 percent solar energy transmittance.

3.0 EXECUTION:

3.1 Preparation: Preparation of glazing and surrounding area shall comply with the details and general conditions governing glazing in the FGMA Glazing Manual unless otherwise specified.

3.1.1 Glazing: Remove broken glazing and putty from frames.

3.1.2 Frames: Clean existing frames. Replace missing or inoperative gaskets and glazing beads.

3.2 Installation:

3.2.1 General: The Contractor shall determine glazing dimensions by measuring the actual opening to receive the glass. Install sheet glass with the visible lines or waves running with the horizontal dimensions. Leave labels in place until the installation is approved.

3.2.2 Glass Setting: Items shall be glazed using glass of the quality and thickness specified or indicated. Doors and windows may be glazed in compliance with one of the glazing methods described in the standards under which they are produced, except the face puttying method will not be permitted.

3.2.3 Wired Glass: Install wire glass for fire doors and fire windows in compliance with the requirements of NFPA 80.

3.2.4 Cleaning: Glass surfaces shall be thoroughly cleaned, with labels, paint spots, putty, and other defacements removed and shall be clean at the time the work is accepted.

Aluminum Window Walls/Curtain Walls

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of aluminum window walls. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 System Performance:

2.1.1 Load-bearing strength (wind resistance) shall be in accordance with ASTM E 330, ANSI A58.1, and AAMA CW 1-9.

2.1.2 Deflections and thermal movements shall be as recommended by the wall manufacturer for the project site.

2.1.3 Leakage Resistance: Air leakage shall be in accordance with ASTM E 283. Water penetration shall be in accordance with ASTM E 331.

2.1.4 Condensation shall be in compliance with AAMA 1502.7 for the project site.

2.1.5 Sound transmission classification (STC) shall be as designated by the Authorized Member Representative and in accordance with ASTM E 90.

2.1.6 The wall system shall comply in general with applicable provisions of the AAMA Metal Curtain Wall, Window, Store Front, and Entrance Guide Specifications Manual (GSM-1).

2.2 System Components:

2.2.1 Aluminum members (extrusions, formed members, sheet, and plate) shall be in compliance with requirements of ASTM B 221 for extrusions and ASTM B 209 for sheet/plate.

2.2.2 Insulated panels shall be laminated aluminum-faced panels finished to match window wall framing.

Face sheets shall be not less than 0.0249 inch thick. Concealed back sheets shall be of aluminum or galvanized steel. Edge condition of panels shall be prepared for installation into framing, and either sealed or vented to exterior only. Panels shall be flat, with no deviations exceeding 5 thousands of an inch in 12 inches. Insulated core shall meet the designated k-value.

2.2.3 Brackets and reinforcements shall be high-strength aluminum units where feasible. Otherwise, nonmagnetic stainless steel shall be used, except at fabricator's option. Brackets not exposed to weather or abrasion may be hot-dipped galvanized steel complying with ASTM A 386. Provide nonstaining, nonferrous shims for installation and alignment of window wall work.

2.2.4 Window cleaner's bolts, if required, shall be nonmagnetic stainless steel complying with ASME A39.1.

2.2.5 Concealed flashing shall be dead-soft stainless steel, 26 gauge.

2.2.6 Fasteners and accessories shall have exposed portions matching finish of window wall system. At joints where movement must be accommodated, provide slip-joint linings of sheets, pads, shims, or washers of fluorocarbon resin or similar material recommended by manufacturer.

2.2.7 Inserts for concrete masonry shall be cast iron, malleable iron, or hot-dipped galvanized steel complying with ASTM A 386.

2.2.8 Firestopping materials shall be mineral fiber insulation or other noncombustible material suitable for permanent placement and complying with applicable regulations.

2.2.9 Finishes shall comply with NAAMM AA-M32C21A31 (0.4 mil) for natural aluminum color and NAAMM AA-M32C21A32 (0.4 mil) for integral color anodized finish.

3.0 EXECUTION: (Section not used.)

DIVISION 9-FINISHES

Plaster Repairs

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of plaster for repairs. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: Materials shall comply with ASTM C 841 and C 842 unless otherwise specified.

2.2 Finish Plaster shall be gypsum plaster or Keene's cement.

2.3 Lath and Furring shall be wood, gypsum, or metal to match existing. Paper backing shall be used on metal lath except when applied over masonry or concrete. Lath for Portland cement plaster shall comply with ASTM C 1063.

2.4 Portland cement: ASTM C 150, Type I or Type II. Only one type and brand shall be used in the work.

2.5 Portland cement Plaster: CSI 09220.

2.6 Metal Trim: New metal trim required for replacement of damaged or deteriorated trim shall be compatible with the existing metal trim.

2.7 Gypsum Wallboard for repair of solid but severely cracked plaster shall be 1/4 inch thick, 4-foot by 8-foot sheets.

2.8 Color: FED. STD. 595.

3.0 EXECUTION:

3.1 Preparation: Appropriate measures shall be taken to contain dust and protect adjacent surfaces during removal and replacement. Damaged or deteriorated plaster and accessories shall be removed and disposed of as required. Surfaces to which old plaster was applied shall be cleaned of all loose or foreign materials, which might inhibit bonding or proper fitting of new plaster, lathing, and accessories. Concrete or masonry surfaces to be replastered shall be coated with a continuous film of bonding agent.

3.2 Environmental Conditions: A temperature of not less than 55 F shall be maintained in the building for 24 hours before, during, and after plaster application.

3.3 Plaster Installation: Plaster shall be installed in compliance with ASTM C 842. Portland cement

plaster shall be installed for all exterior surfaces and all interior surfaces subject to high humidity. Gypsum plaster shall be installed for all remaining interior surfaces. Color, texture, finish, and thickness of plaster shall match adjacent, undamaged plaster or designated areas.

3.3.1 Plaster over Existing Work: Where replacement of the top or finish coat only is required, only the damaged or deteriorated finish coat shall be removed. New finish coat shall be applied, allowed to dry, and sanded to bring smooth with existing adjacent surfaces.

3.3.2 Ornamental Plaster: New plaster shall be run full, straight, and true with molding plaster using clean cut metal conforming to the existing profiles. Rough spots shall be sanded and left ready for painting.

3.3.3 Restoration: The Contractor shall replace or reinstall to the original condition all materials removed to get to the repair work. Materials damaged during removal or reinstallation shall be replaced with similar new materials.

Gypsum Drywall and Metal Studs

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of gypsum drywall. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Application procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS

2.1 Gypsum Panel - Sheetrock fire code gypsum panels (single layer).

2.2 Fasteners - Self-tapping steel screws with rust inhibited coating.

2.3 Insulation - 11/2- inch termafiber sound attenuating blankets or as circumstance dictates.

2.4 Metal Accessories - Corner Beads, trim, etc. shall be galvanized steel.

2.5 Joint Treatment - As recommended by manufacturer.

2.6 Perimeter Caulking - Acoustical as recommended by manufacturer.

2.7 Control Joints - Zinc.

2.8 Joint compound shall be asbestos free type.

2.9 Acoustical Sealant -As recommended by Manufacturer.

2.10 Metal Studs

2.10.1 Steel studs shall be hollow type spaced 16-inches on centers of sizes indicated, built up with diagonal wire web of No. 7 gauge cold drawn wire, diagonally spaced and welded at 8-inch intervals between outer chords on 1/2- inch x 1/2-inch angles, No. 16-gauge cold rolled steel.

2.10.2 Place steel studs approx. 2-inches from abutting partitions and 2-inches from each side of interior angle of all corners.

2.10.3 Steel studs shall be secured to top tracks with 22-ga. Galvanized steel adjustable stud shoes.•09260

2.11 STUD TRACKS

2.11.1 Floor and ceiling stud tracks shall be 22-ga. cold rolled steel with 1/2-inch legs and securely fastened to beams, slabs or partitions with 1/2-inch stud bolts or other method approved by manufacturer spaced not more than 24 inches on centers.

2.11.2 In locations where drawings indicate partitions on an existing floor (wood, asphalt tile, etc.), remove existing floor to allow partition to be secured to a sound concrete sub-surface.

2.12 STUD SHOES

2.12.1 Stud shoes shall be wire tied to studs with two double strands of 18-ga. galvanized tie wire.

2.13 HORIZONTAL BRACING

2.13.1 Shall consist of 3/4-inch steel furring channels fastened to inside of stud with webs in a horizontal position. Spacing of channels shall not exceed 6 feet.

3.0 EXECUTION:

3.1 Gypsum ceiling panels screw attached to metal furring channels clipped or wire tied to suspended main runner channels or wire tied to main support members.

3.2 Provide control joints where ceiling abuts dissimilar wall or ceiling or a structural element.

3.3 Gypsum wall panels shall be screwed to metal studs or furring channels and to and bottom metal track.

3.4 All joints of ceiling or wall panels shall be taped with at least two coats of joint compound. See manufacturers instructions for applicable installation.
3.5 Align stud track accurately to the partition layout @ Both floor and Ceiling.
3.6 Adjust all members for straight and proper alignment.

Tile Flooring

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of ceramic tile flooring, ceramic mosaic tile flooring, conductive ceramic tile flooring, quarry tile flooring, slate flooring, and quarry tile by the acid-resistant installation. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Glazed Ceramic Tile: ANSI A137.1.
2.2 Ceramic Mosaic Tile: ANSI A137.1.
2.2.1 Natural Clay Tile.
2.2.2 Porcelain Body Tile.
2.2.3 Slip-Resistant Tile: ANSI A137.1.
2.2.4 Pregrouted Sheets of ceramic tile, factory-assembled and grouted with manufacturer's standard polyurethane material.
2.3 Conductive Ceramic Tile: Complying with Type I, Class F.
2.4 Quarry Tile: ANSI A137.1. Wax-coated top surface for acid-resistant installation.
2.4.1 Slip-Resistant Quarry Tile shall comply with TCA ANSI A137.1, Section 5.2.1.2.9.
2.5 Slate: Grade A, unfading slate flooring.
2.6 Base Units: Cove type, round top.
2.7 Trim Pieces: For base shall be cove or bullnose.
2.8 Mortar and Grout Materials:
2.8.1 Portland cement: ASTM C 150, Type 1.
2.8.2 Aggregate: Sand, ASTM C 144.
2.8.3 Dry-Set Mortar and Grout: ANSI A118.1, TCA Formula 759 or 763 (as applicable).
2.8.4 Conductive Dry-Set Mortar: Conforming to ANSI A118.2.
2.8.5 Conductive Latex Mortar: Conforming to ANSI A118.2.
2.8.6 Liquid Latex: ANSI A118.4 except latex shall be non-remulsifiable in water.
2.8.7 Epoxy Mortar and Grout: TCA Formula AAR-II, two-component epoxy resin, hardener, and mineral filler complying with ANSI A118.3.
2.8.8 Furan Mortar.
2.8.9 Furan Grout.
2.8.10 Water shall be clean, fresh, potable water approved by Public Health authorities for domestic consumption.
2.8.11 Commercial Cement Grout: Proprietary compound of Portland cement and additives, factory-blended to decrease shrinkage.
2.9 Adhesives:
2.9.1 Epoxy Adhesive: TCA Formula C150, two component epoxy resin and hardener.
2.9.2 Organic Adhesive: ANSI A136.1 with TCA certification of conformance.
2.10 Sealants:
2.10.1 Polysulphide: Fed. Spec. TT-S-00230, Type I, single component, synthetic-rubber base.
2.10.2 Polyurethane: Fed. Spec. TT-S-00230, Type I, single component.
2.10.3 Silicone: Fed. Spec. TT-S-001543 Class A and TT-S-00230, single component.
2.11 Adhesive and Joint Sealant: Fed. Spec. TT-S-00230, Type 2, Class B.
2.12 Cleavage Membrane: One of the following:
2.12.1 Saturated Felt: ASTM D 250, 15-pound type.
2.12.2 Polyethylene Film: ASTM D 2103, Type O, 0.004 inch thick.
2.13 Marble Thresholds: Group A per Marble Institute of America MIA-01, with rounded edges and sand rubbed finish.

2.14 Reinforcing Mesh: ASTM A 185.
2.15 Plywood: DOC PS 1, "C-C EXT-APA" or "UNDERLAYMENT C-C Plugged EXT-APA," 3/4 inch thick unless otherwise noted.
2.16 Nails: Fed. Spec. FF-N-105 annular, screw or ring type, zinc-coated.
2.17 Backer Rod: Closed cell polymeric foam, with a density of 2.5 pcf and tensile strength of 35 psi per ASTM D 1623 and water absorption less than 0.02 gms/cc per ASTM C 1083.
2.18 Elastomeric Sheet: 40 mil complying with ASTM D 2103.
3.0 EXECUTION:
3.1 General: Comply with ANSI A108.1 through A108.7 except as otherwise indicated and with TCA Handbook for Ceramic Tile Installation.
3.2 Portland Cement Mortar Bed: Install in accordance with ANSI A108.1, as modified herein.
3.2.1 Mix Mortar in proportion on one part Portland cement to five parts dry sand or six parts damp sand.
3.2.2 On wood and framed concrete slab floors provide a cleavage membrane before placing setting bed, with edges of sheets lapped.
3.2.3 On cleavage membrane lay welded wire mesh reinforcing, lapping three inches at all edges.
3.2.4 Install mortar and tamp heavily to compact bed to depth of 3/4 inch to 1-1/4 inches.
3.3 Dry-Set Portland cement Mortar Bed: Install in accordance with ANSI A108.5 except as modified below.
3.3.1 Carefully work sufficient water into dry-set mortar to obtain desired consistency.
3.3.2 Mix mortar ingredients thoroughly before adding latex. Carefully work in sufficient latex to obtain desired consistency.
3.3.3 Rework mixes from time to time to maintain proper consistency, but do not add additional ingredients.
3.3.4 Apply layer of mortar to form a thickness of at least 1/8 inch.
3.4 Organic Adhesive Application: Install in accordance with ANSI A108.4.
3.5 Install conductive ceramic tile in accordance with ANSI A108.7.
3.5.1 Testing: Conductive ceramic tile floors shall be tested in accordance with NFPA 99.
3.5.2 Replacement: Floors that have not met requirements of NFPA 56 within six months after they are installed shall be removed and replaced with properly conductive floor by this Contractor at no additional cost to the Member.
3.6 Install quarry tile and slate in accordance with ANSI A108.3.

Ceramic Wall Tile

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of ceramic wall tile. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Tile:
2.1.1 Ceramic Tile: Tile shall be standard grade conforming to ANSI A137.1. Containers shall be grade-sealed. Seals shall be marked to correspond with the marks on the signed master grade certificate.
2.1.2 Ceramic mosaic tile and trim shall be unglazed natural clay or porcelain with cushion edges. Tile size shall be 1 inch by 1 inch, 1 inch by 2 inches, 2 inches by 2 inches, or a mixture of standard sizes in a stock pattern, as selected.
2.1.3 Glazed wall tile and trim shall be cushion-edged with bright or matte glaze. Tile shall be 4-1/4 inches by 4-1/4 inches, 4-1/4 inches by 6 inches, or 6 inches by 6 inches and, as selected.
2.1.4 Accessories: Accessories shall be the built-in type of the same materials and finish as the wall tile.
2.2 Setting Bed: Metal lath shall be flat expanded type conforming to ANSI A42.3 or A42.4, and weighing not less than 2.5 pounds per square yard.
2.3 Water shall be potable.
2.4 Mortar, grout, and adhesive shall conform to the following:
2.4.1 Dry-Set Portland cement Mortar: ANSI A118.1.
2.4.2 Organic Adhesive: ANSI A136.1, Type I.
2.4.3 Epoxy Resin Grout: ANSI A118.3.

2.4.4 Furan Resin Grout: ASTM C 395.
3.0 EXECUTION:
3.1 Preparation: Surface to receive tile shall conform to the requirements ANSI A108.1 for surface conditions for the type setting bed required and for workmanship.
3.2 Installation:
3.2.1 General: Special shapes shall be provided as required for sills, jambs, recesses, offsets, external corners, and other conditions to provide a complete and neatly finished installation.
3.2.2 Installation of Wall Tile:
3.2.2.1 Plastic or Cured Mortar Bed: Tile shall be installed over a plastic mortar bed or a cured mortar bed. A 4-mil polyethylene membrane, metal lath, and scratch coat shall also be installed. Plastic mortar bed, materials, and installation of tile shall conform to ANSI A108.1. Cured mortar bed and materials shall conform to ANSI A108.1. Dry-set mortar method of installing tile over a cured mortar bed shall conform to ANSI A108.5.
3.2.2.2 Dry-Set Mortar: Dry-set mortar shall be used to install tile directly over clean, sound, dimensionally stable masonry in accordance with ANSI A108.5. 3.2.2.3 Organic Adhesive: Organic adhesive installation of ceramic tile shall conform to ANSI A108.4.
3.3 Cleaning: Upon completion, tile surfaces shall be thoroughly cleaned in accordance with ANSI A108.1. Acid shall not be used for cleaning glazed tile.

Terrazzo

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for terrazzo floors and stairs. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Terrazzo materials and installation shall comply with specifications and recommendations of The National Terrazzo and Mosaic Association, Inc. (NTMA)
2.2 Underbed reinforcement shall be 2-inch by 2-inch by 16-gauge welded wire mesh, ASTM A 185, galvanized.
2.3 Isolation membrane shall be polyethylene film, complying with ASTM D 2103, not less than 4.0 mils thick.
2.4 Cast-In-Place Terrazzo Materials:
2.4.1 Portland cement shall conform to ASTM C 150, Type I, except as modified to comply with NTMA requirements for compressive strength. Provide non-staining white cement for terrazzo matrix. Provide standard gray cement for underbed.
2.4.2 Sand shall conform to ASTM C 33.
2.4.3 Aggregate shall be natural, sound, crushed marble chips without excessive flats or flakes, complying with NTMA requirements.
2.4.4 Monolithic terrazzo shall be 1/2-inch total thickness over concrete slab.
2.4.5 Bonded terrazzo shall be 1/2-inch terrazzo over a 1-1/4 inch minimum underbed.
2.5 Thinset Epoxy and Polyester Materials:
2.5.1 Polyacrylate-Modified Cementitious Terrazzo Matrix: Polyacrylate and color pigment complying with NTMA "Guide Specification for Polyacrylate Modified Terrazzo."
2.5.2 Polyester Resin Terrazzo Matrix: Two-component polyester resin and hardener, mineral filler, and color pigment, complying with NTMA "Guide Specification for Polyester Terrazzo."
2.5.4 Epoxy Resin Terrazzo Matrix: Thermosetting, amine-cured epoxy resin and hardener, mineral filler, and color pigment, complying with NTMA "Guide Specification for Epoxy Terrazzo."
2.5.5 Conductive Terrazzo with Resinous Matrix: Electricity conductance shall conform to resistance levels established by the UL 779.
2.6 Precast Terrazzo: Precast terrazzo base and stair units shall comply with NTMA.
2.7 Sealer: Colorless, slip-and stain-resistant, non-yellowing penetrating sealer that will not disturb color or physical properties of terrazzo surface; pH factor between 7 and 10.
2.8 Plywood: DOC PS 1, "C-C EXT-APA" or "Underlayment C-C Plugged EXT-APA", 3/4 inch thick unless

otherwise noted.
2.9 Nails: Fed. Spec. FF-N-105 annular, screw or ring type.
2.10 Elastomeric Sheet: 40 mil thick extruded, homogeneous, waterproof, impervious, nonplasticized chlorinated polyethylene sheet, complying with ASTM D 2103.
2.11 Curing Materials:
2.11.1 Polyethylene Film: Non-staining type.
2.11.2 Paper: Non-staining, heavy building paper.
2.11.3 Curing Compound: Liquid membrane-forming compound, complying with ASTM C 309, Type I.
2.12 Cleaner: Neutral liquid chemical cleaner, biodegradable, free from crystalline salts, phosphate or water soluble alkaline salts, formulated for terrazzo, pH factor between 7 and 10.
3.0 EXECUTION:
3.1 Preparation: Clean and prepare substrate to comply with NTMA specifications for type of terrazzo application indicated. Clean area to receive terrazzo of loose chips and all foreign matter. Grind concrete substrate as required to provide surfaces within tolerances required by NTMA.
3.2 Installation:
3.2.1 Comply with NTMA and manufacturer's recommendations for proportioning mixes, for installation of strips, and for placing, curing, grinding, grouting, and finishing.
3.2.2 Provide terrazzo bases, thresholds, stair treads, and landings as required.
3.2.3 Install divider and accessory strips in an adhesive setting bed, without voids below strips. Provide mechanical anchorage for adequate attachment of strips to substrate.
3.2.4 Provide control joints by installing angle type divider strips back-to-back with neoprene rubber filler cemented between strips, flush with finish floor.
3.2.5 Provide for expansion joints by installing angle type divider strips back-to-back, with removable filler of the width shown (but not less than 1/4 inch wide) between strips.
3.2.6 Install abrasive inserts where required.

Acoustical Ceilings
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of acoustical units in suspended ceilings. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Acoustical units shall conform to ASTM E 1264, Class A, and the following requirements:
2.1.1 Acoustical panel units for exposed grid system shall be the type and pattern required, NRC grade of 55 minimum when tested on mounting No. 7, trimmed and butt, with a LR coefficient of .75 and a STC range of 40-44. Nominal size shall be 24 inches by 48 inches or 24 inches by 24 inches. Finish shall be factory-applied white finish.
2.1.2 Acoustical panel units for semi-exposed grid system shall be the type and pattern required, NRC grade of 55 minimum when tested on mounting No. 7, trimmed and butt, with a coefficient of .75 and a STC range of 40-44. Nominal size shall be 12 inches by 24 inches or 12 inches by 12 inches. Finish shall be factory-applied white finish.
2.1.3 Acoustical tile units for concealed grid system shall be the type and pattern as required, NRC grade of 55 minimum when tested on mounting No. 7.LR grade shall be 1, and STC range shall be 40-44. Edge detail shall be beveled or square, and joint detail shall be kerfed and rabbeted or as required. Nominal size shall be 12 inches by 12 inches, and finish shall be factory-applied white finish.
2.1.4 Metal Ceiling System: Pans shall be type required, and acoustical insulation pads shall be NRC grade 55 minimum when tested on mounting No. 7. The pattern shall be "c," with a nominal size of 12 inches by 24 inches. Edge detail shall be manufacturer's standard, and joint detail shall be beveled or cross-scored to simulate 12-inch by 12-inch units. Finish shall be factory-applied white baked enamel, two coats on exposed surfaces, one coat on edges and backs. Pads shall be completed enclosed, of material and thickness required for acoustical and fire test ratings, with a LR grade of 2.
2.1.5 Fire Resistive Ceilings: Acoustical fire resistive ceiling systems shall be rated for fire endurance

when tested in accordance with ASTM E 119. Suspended ceiling shall have been tested with a specimen roof and/or floor assembly representative of the construction, including 09510-mechanical and electrical work within ceiling space openings for light fixtures, air outlets, and access panels.

2.1.6 Ceiling sound transmission class and test: STC range of acoustical units, when required, shall be determined in accordance with Ceiling Sound Transmission Test by Two-Room Method and reported in accordance with the appendix to ASTM E 90 for 11 frequency data or ASTM E 413 for 16 frequency data.

2.2 Suspension system shall be of the type required and shall conform to ASTM C 635 for intermediate- or heavy-duty systems. Surfaces exposed to view shall be aluminum or steel with a factory-applied white baked enamel finish, aluminum with a clear anodized finish as required or aluminum with colored factory-applied vinyl paint finish. Wall molding shall have a flange of not less than 15/16 inch and shall be provided with inside and outside corner caps.

2.3 Hangers shall be galvanized steel wire. Hangers and attachment shall support a 300-pound vertical load without failure of supporting material or attachment.

2.4 Access panels shall match adjacent acoustical tiles and shall be designed and equipped with suitable framing and fastenings for removal and replacement without damage. Panel shall be not less than 12 inches by 12 inches or more than 12 inches by 24 inches. An identification plate of 0.032-inch thick aluminum, 3/4 inch in diameter, stamped with the letters "AP" and finished the same as the unit shall be attached near on corner on the face of each access panel.

2.5 Fire Hazard Classification: All acoustical unit materials shall bear the UL label and marking, indicating fire hazard classification of acoustical unit materials as determined by ASTM E 84. Provide materials with the following fire hazard classifications: Flame spread not more than 25. Smoke developed not more than 50.

3.0 EXECUTION:

3.1 Acoustical work shall be provided complete with all necessary fastenings, clips, and other accessories required for a complete installation. 3.2 Suspension System shall be installed in accordance with ASTM C 636 and as specified herein.

3.3 Wall molding shall be provided where ceilings abut vertical surfaces.

3.4 Ceiling Tiles: Panels in exposed-grid system shall be held in place with manufacturer's standard hold-down clips.

Acoustical Insulation and Barriers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of acoustical insulation and barriers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Leaded vinyl shall be a loaded vinyl sound barrier product composed of lead, vinyl, and fiberglass reinforcing intended for use as a sound attenuation material. The material shall weigh either 72 or 120 ounces per square yard as required. Material thickness shall be 0.025 inch and 0.050 inch for 72 ounce and 120 ounce material, respectively.

2.2 Foil-reinforced, Kraft-faced, mineral-fiber insulation shall be a faced insulation product designed to be used for thermal and acoustical insulation. Mineral fiber insulation shall be in accordance with Fed. Spec. HH-I-558, Form A, Class 1 or 2. Noise reduction coefficient (NRC) shall be not less than 0.55 for 1-inch thickness. Vapor transmission rate shall be not more than 0.02 perms. Surface burning characteristics shall be not more than a flame spread classification of 25, a fuel contribution of 50, and a smoke developed rating of 50, when tested in accordance with UL 723.

2.3 Vapor barrier facing material shall be in accordance with ASTM C 1136, Type I or II as required. Facing material shall be a laminate of aluminum foil and reinforced-reinforced mineral fiber scrim.

2.4 Sheet lead shall be in acoustical attenuating product weighing 1 pound per square foot, with a thickness of not less than 1/64 inch. Lead sheet shall conform to Fed. Spec. QQ-L-201, Grade B.

2.5 Fire Hazard Classification: All acoustical insulation and barrier materials shall bear markings

indicating the fire hazard classification as determined by ASTM E 84. Provide materials with the following fire hazard classifications: Flame spread not more than 25. Smoke developed not more than 50.

3.0 EXECUTION: (Section not used.)

Sound Absorbing Panels

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of sound absorbing panels. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Perforated steel panels shall be modular units, fabricated of 22 gauge zinc-coated steel, and perforated with holes comprising not less than 10 percent of the panel area. Panels shall be suitably stiffened in both directions in accordance with panel size. Panels shall be filled with 2 inch thick, 1.5 lbs/cu ft acoustical insulation meeting Fed. Spec. HH-I-558, Form B, Type 1, Class 7. Installed panel units with acoustical insulation shall have a minimum Noise Reduction Coefficient (NRC) of .70 when tested in accordance with ASTM C 423. Panel units shall be furnished with two coats of white baked-on polyester paint on exposed surfaces and one coat on non-exposed surfaces.

2.2 Fiberglass wall panels shall be modular units, fabricated of 1-1/8 inch glass fiber board laminated to a nonwoven needle-punched fabric. The panels shall have a minimum NRC of .80 according to ASTM C 423. Panels shall be furnished with suitable wall fastening system.

2.3 Sound attenuation blankets shall be composed of mineral fiber of 4 lbs/cu ft density for 1 inch thickness, and 3 lbs/cu ft density for greater than 1 inch thickness conforming to ASTM C 665. Blanket R-value shall be 4 per inch.

2.4 Fire Hazard Classification: A sound absorbing panel unit and sound attenuation blankets shall have a fire hazard classification as determined by ASTM E 84. Provide materials with the following fire hazard classifications: Flame spread not more than 25. Smoke developed not more than 50.

3.0 EXECUTION:

3.1 Perforated steel panels shall be installed on ceiling suspension systems and wall furring systems that are compatible with perforated steel panels and that are already in place.

3.2 Fiberglass wall panels shall be installed on substrate wall surfaces that are clean, dry, and continuous, with no surface irregularities.

Wood Strip Flooring

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of wood strip flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Wood strip flooring shall be manufactured from kiln-dried, plain-sawed, red oak lumber. Flooring shall be select grade, tongue and groove, end-matched, with manufacturer's standard channeling of back face of each strip. Size shall be 3/4 inch thick, 2-1/4 inches wide.

2.2 Maximum moisture content shall be 9 percent for wood strip flooring and 14 percent for other wood members.

2.3 Finishing Materials for Job Finished Flooring:

2.3.1 Stain: Penetrating type non-fading wood stain.

2.3.2 Wood Filler: Fed. Spec. TT-F-336.

2.3.3 Sealer: Penetrating type, pliable, wood-hardening finish/sealer.

2.3.4 Varnish: Alkyd resin varnish.

2.3.5 Urethane Finish: Fed. Spec. TT-C-542.

2.3.6 Floor Wax: Liquid, solvent-type, slip- resistant, conforming to Fed. Spec. P-W-158.

2.4 Composition Cork Expansion Strip: Fed. Spec. HH-C-576, Type I-B, Class 2.
2.5 Nails shall be Fed. Spec. FF-N-105 screw or ring type, zinc coated.
2.6 Asphalt primer shall comply with ASTM D 41.
2.7 Asphalt saturated felt shall be organic, 15-pound, unperforated, complying with ASTM D 226.
2.8 Membrane shall be 6 mil, carbonized polyethylene sheeting, complying with Fed. Spec. L-P-512.
2.9 Wood sleepers shall be No. 1 common, fir, hemlock, spruce, or yellow pine complying with requirements of the rules or standards under which produced with preservative treatment complying with AWPB LP-2.
2.10 Plywood subflooring shall be DOC PS 1, "C-D INT- APA," with exterior glue, or "C-C EXT-APA."
2.11 Hardboard shall comply with ANSI/AHA A135.4, specially made for underlayment, 1/4 inch thick.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Wood subfloors shall be renailed where loose. Where unsatisfactory wood subflooring is removed, replace with new exterior or underlayment grade plywood. Apply hardboard underlayment just before finish floor is to be installed. Nail plywood subfloors with screw-type nails. Cover ground in crawl space with lapped and sealed 4 mil polyethylene or 55-pound rolled roofing, and cover subfloor with a lapped layer of 15-pound asphalt saturated felt.
3.1.2 Concrete Subfloors: Fill large cracks and holes in concrete structural floor slabs with a one part nonshrinking cement to three part sand grout with a latex or epoxy additive. Test for dryness with a 3 percent solution of phenolphethalein in grain alcohol (97 percent). Sand or trowel smooth irregularities to within allowable tolerances of NOFMA-01. Apply primer to concrete subfloors avoiding separating the emulsion. Apply two applications of hot asphalt mastic and asphalt saturated felt, then apply an additional layer of asphalt mastic. Provide flat 2 x 4 sleepers, 18 to 30 inches long impregnated with an approved wood preservative and laid in additional asphalt mastic; or apply a polyethylene sheet moisture protection system consisting of two courses of 1 x 2 nailing strips with a layer of polyethylene between, the first course being treated with preservative and adhered to the slab in rivers of mastic supplemented by a 1-1/2 inch concrete nail every 24 inches.
3.1.3 Treated wood cuts shall be treated with the original preservative.
3.2. Installation of Wood Strip Flooring:
3.2.1 General: Comply with NOFMA-01.
3.2.2 Expansion Space: For straight running pattern flooring and depending upon the width of pattern to be laid (usually the width of the room), provide approximately 1/2 inch of expansion space under base and base shoe along length of stripping, with approximately half as much space at ends of pattern.
3.2.3 Machine sand installed unfinished flooring to remove offsets and non-level conditions.
3.2.4 Field finish floors by applying a coat of wood paste filler and stain, if needed.
3.2.4.1 Natural Finish: Apply two coats of sealer and two coats of floor wax.
3.2.4.2 Varnish Finish: Apply three coats of floor varnish.
3.2.4.3 Urethane Finish: Apply multiple coats of urethane finish to build a dry film thickness of 1.0 mil.

Wood Block Industrial Flooring

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of wood block industrial flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Wood block creosoted flooring shall be yellow pine, Douglas fir, or upland oak, preservative-treated, and in accordance with ASTM D 1031. Blocks shall be end-grain lumber with beveled corners and shall be 2, 2 1/2, or 3 inches thick, 3 inches wide, and 6 inches long.
2.2 Wood block natural finish flooring shall be yellow pine or upland oak, preservative-treated. Wood blocks shall be of the species, quality, and size described in ASTM D 1031. Blocks shall be end-grain lumber with beveled corners and shall be 2 inches thick, 3 inches wide, and 6 inches long.
2.3 Primer, adhesive, and filler shall be provided for wood block creosoted flooring.

2.4 Flexible filler and clear industrial sealer and finish coating shall be provided for wood block natural finish flooring.
3.0 EXECUTION:
3.1 Preparation: Before any work under this section is begun, all defects such as rough or scaling concrete, low spots, high spots, and uneven surfaces shall have been corrected and all damaged portions of concrete slabs shall have been repaired. If concrete curing compounds or surface sealers have been applied to the concrete slabs, they shall have been entirely removed from the slabs.
3.2 Installation:
3.2.1 For wood block creosoted flooring, a coat of priming oil shall be applied to the concrete slab. After the priming oil has dried, a squeegee coat of hot adhesive shall be applied. When the adhesive has hardened, the blocks shall be laid tightly together with the grain vertical. After the floor has been laid, two coats of filler shall be applied by squeegee. Expansion joints shall be provided.
3.2.2 For wood block natural finish flooring, the joints shall receive filler and multiple coats of clear sealer and finish coating. Number of coats and method of application shall be adjusted to seasonal conditions.
3.3 Marking Lines: Floor surface in areas to receive lines shall be cleaned by scarification or by wire brushing. At least two coats of a marking material compatible with flooring materials shall be applied with suitable brush or spraying machine. The minimum total thickness of the marking lines shall be 4 mils.

Wood Parquet Flooring

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of wood parquet flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Wood parquet flooring shall be kiln-dried, plain-sawed, red oak.
2.2 Laminated (plywood) wood block flooring shall be prime grade, 12-inch x 12-inch x 1/2-inch nominal size, with manufacturer's standard urethane floor finish. Flooring shall be tongue and grooved as required for laying in checkerboard pattern.
2.3 Slat block flooring shall be clear grade, factory-prefinished with manufacturer's standard penetrating floor sealer treatment. Flooring shall be 9 inches x 9 inches x 5/16 inch, square pattern, tongue and groove, square edge matching. Pattern units of flooring shall be factory-assemble and adhered to removable paper facing for shipment to the project, or with slats fastened together with metal splines on backs.
2.4 Solid Block Flooring: Wood parquet flooring shall be prefinished in factory. Flooring shall be prime grade, tongue and groove, square edge, matching.
2.5 Plastic impregnated parquet flooring shall be manufacturer's standard fabrication of solid hardwood slat-block parquet flooring, which has been impregnated with acrylic plastic and treated by gamma radiation and factory-finished. Flooring shall be composed of 5/16-inch thick x 6-inch squares fabricated into 12-inch square blocks, square edged, tongued and grooved, with tongue and groove matching.
2.6 Adhesive/mastic shall be polyvinyl acetate (PVA) or special mastic of type recommended by the flooring manufacturer and complying with flammability and environmental control regulations.
2.7 Finish Materials for Unfinished Flooring:
2.7.1 Stain: Penetrating type non-fading wood stain.
2.7.2 Wood Paste Filler: Fed. Spec. TT-F-336, pigmented if required.
2.7.3 Sealer: TT-S-176, Class I, for white oak and red oak, Class II for beech, birch, and hard maple.
2.7.4 Varnish: Alkyd resin varnish conforming to Fed. Spec. TT-V-109.
2.7.5 Polyurethane Finish: Moisture curing type, polyurethane finish conforming to Fed. Spec. TT-C-542.
2.7.6 Floor Wax: Slip-resistant, conforming to Fed. Spec. P-W-158, Type I, Class 2.
2.8 Composition Cork Expansion Strip: Fed. Spec. HH-C-576, Type I-B, Class 2.

2.9 Nails and Screws shall be recommended by NOFMA-01.
2.10 Concrete Primer: ASTM D 41.
2.11 Asphalt-Saturated Felt: ASTM D 226.
2.12 Hardboard Underlayment: ANSI/AHA A135.4.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 For Adhesive Application on Concrete Slab: Test for dryness with a 3 percent solution of phenolphethalein in grain alcohol (97 percent), examine concrete surfaces and grind irregularities to within allowable tolerances of NOFMA-01, and apply primer to concrete subfloors.
3.1.2 For Adhesive Application on Wood Subflooring or Underlayment: Preparation of subflooring or underlayment shall be in compliance with the printed instructions of the flooring manufacturer.
3.1.3 For Nailed Application on Wood Subflooring or Underlayment: Cover subflooring with a layer of 15-pound asphalt-saturated felt, lap all edges at least 2 inches, and turn felt up at least 2 inches behind baseboards.
3.1.4 For Plastic Impregnated Parquet Flooring: Patch and level concrete subfloors with porous latex cement patching compound. If parquet is to be installed over existing synthetic floor or tongue and grooved subfloor wider than three and one quarter inches, a 1/4-inch plywood or untempered hardboard underlayment.
3.2 Installation:
3.2.1 General: Comply with recommendations and instructions by NOFMA in "Hardwood Flooring Installation Material" and by recommendation of American Parquet Flooring Association, Inc. Where flammable adhesives are used, provide safety sparkproof fans when natural ventilation is inadequate; prohibit smoking, lighting matches, metal heel caps, or any other flame or spark producing device.
3.2.2 Installation of wood-block flooring on concrete slabs shall be by adhesive method.
3.2.3 Installation on Wood Subflooring or Underlayment: Apply one layer of saturated felt over wood or underlayment in troweled adhesive, and apply wood blocks with at least two 7-penny spiral or screw type flooring nails per block.
3.2.4 Installation of Plastic Impregnated Parquet Flooring: Install with special adhesive.
3.2.5 Sanding: Machine sand installed unfinished flooring to remove offsets and non-level conditions.
3.2.6 Field Finishing:
3.2.6.1 Base Finish: On same day that final sanding, buffing, and sweeping have been completed, apply a coat of wood paste filler. Apply stain if needed, then apply two coats of sealer.
3.2.6.2 Natural Finish: When floors are dry apply two coats of wax.
3.2.6.3 Varnish Finish: Apply 3 coats of floor varnish.
3.2.6.4 Urethane Finish: Apply urethane finish to build a dry film thickness of 1.0 mil.

Softwood Flooring

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of softwood flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Douglas Fir Wood Strip Flooring, kiln-dried, vertical grain, complying with the requirements of WCLB for Grade C and better flooring.
2.2 Southern Pine Wood Strip Flooring, kiln-dried, edge grain, complying with the requirements of SPIB for Grade C and better.
2.3 Matching: Tongued and grooved, and end matched.
2.4 Pressure Treatment: Where flooring is exposed to the exterior, provide AWPB LP-2 pressure treatment after manufacture of flooring, followed by drying to required moisture content.
3.0 EXECUTION:
3.1 Plank Flooring: For strip flooring of face width over 3-1/4 inches (plank flooring), install two counter-set nails at each end of each piece and spaced not more than 32 inches along length of

each piece. Fill holes with matching wood filler.

3.2 Treated Wood: Whenever treated wood flooring must be cut for installation, treat the cut with the preservative used in the original treatment immediately after cutting.

Resilient Flooring: Cementitious Underlayment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of cementitious underlayment for resilient flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Cementitious underlayment shall be one of the following factory-mixed types.

2.1 Magnesium Type: Mixture of sand, magnesium, cement, and/or gypsum. Add water before using.

2.2 Latex Type: Mixture of sand, cement, and latex in dry form to which water is added on the job, or two component type in which latex is added as a liquid on job.

2.3 Polyvinyl Acetate Type: Polyvinyl acetate resins, cement, gypsum, and sand mixtures.

2.4 Epoxy Type: Two-component epoxy type that merely requires mixing of the two parts in compliance with manufacturer's instructions.

2.5 Oxychloride Type: Mixture with cement and with or without magnesium.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 On wood subfloors, lay 15-pound saturated felt in opposite direction to floor boards. Lap edges three inches.

3.1.2 Place metal lath nailed at 6-inch centers over felt.

3.2 Installation:

3.2.1 Install cementitious underlayment in strict compliance with instructions for the type of system used.

3.2.2 Where feather edges less than 1/4 inch thick are required, use a latex type underlayment for such thin parts of the underlayment.

3.2.3 On concrete surfaces apply latex or polyvinyl acetate liquid as a bonding agent before installing underlayment.

Resilient Flooring

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of resilient flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Critical Radiant Flux: Resilient flooring material shall have an average critical radiant flux of 0.45 watts per square centimeter when tested in accordance with NFPA 253.

2.2 Resilient Tile Flooring:

2.2.1 Asphalt Tile: Fed. Spec. SS-T-312, Type I, 9 inches by 9 inches by 1/8 inch thick.

2.2.2 Homogeneous Vinyl Tile: Fed. Spec. SS-T-312, Type III, 12 inches by 12 inches by 1/8 inch thick.

2.2.3 Rubber Tile: Fed. Spec. SS-T-312, Type II, 12 inches by 12 inches by 1/8 inch thick.

2.3 Resilient Sheet Flooring:

2.3.1 Sheet Vinyl Flooring: Fed. Spec. L-F-475, Type II, Grade A, thickness 0.085 inch, with organic backing, not less than 72 inches wide.

2.3.2 Sheet Rubber Flooring: Solid, integrally colored, 36-inch wide; thickness 1/8 inch.

2.4 Base: Provide base complying with Fed. Spec. SS-W-40, either Type I rubber or Type II vinyl with matching end stops and preformed or molded corner units, with a 4 inch height, 1/8-inch gauge thickness, and standard top-set cove style.

2.5 Resilient Stair Treads: Provide rubber or vinyl stair tread units, full tread width, not less than 1/8 inch at tapered end and 1/4 inch at nosing, with two abrasive strip inserts full width of treads, and curved nosings 1-1/2 inches high.

2.5.1 Resilient Stair Base: Provide rubber or vinyl base, 7-inch cove type, for stair risers to match treads.

2.5.2 Resilient Stringer Skirt: Cut to match riser and tread profile to meet wall base height.
2.6 Resilient edge strips shall be 1/8 inch thick, homogeneous vinyl or rubber composition, tapered or bullnose edge, not less than 1 inch wide.
2.7 Metal edge strips shall be of width shown and of required thickness to protect exposed edge of resilient flooring. Provide units of maximum available length to minimize number of joints.
2.8 Adhesives:
2.8.1 Asphalt Emulsion: Clay type, Fed. Spec. MMM-A-115, Class 1.
2.8.2 Asphalt Emulsion: Chemical type, Fed. Spec. MMM-A-115, Class II.
2.8.3 Asphalt: Cutback type, Fed. Spec. MMM-A-110.
2.8.4 Adhesives (Cements): As recommended by flooring manufacturer to suit material and substrate conditions.
2.8.5 Cove Base Adhesive: Resin base waterproof adhesive with high initial tack.
2.8.6 Lining Felt Adhesive: Fed. Spec. MMM-A-137.
2.9 Concrete Slab Primer: Non-staining type.
2.10 Asphaltic Slab Primer: Fed. Spec. SS-A-701.
2.11 Wax: Fed. Spec. P-W-155.
2.12 Latex Underlayment: One-component or two-component factory mixed product containing powdered or liquid latex, cement, and other powders.
2.13 Smooth-Lining Felt:
2.13.1 Semi-Saturated Felt: Designed for application with vinyl floor covering materials, minimum weight of 0.75 lbs./sq. yd.
2.13.2 Asphalt Saturated Organic Felt: ASTM D 226, 15-pound plain.
2.14 Crack Filler: Type and brand recommended by floor covering manufacturer.
2.15 Hardboard: AHA A135.4, untempered type specially made for use as underlayment, 3/16 inch or 1/4 inch thick.
2.16 Plywood: DOC PS 1, "C-C EXT-APA" or "UNDERLAYMENT C-C Plugged EXT-APA," 3/4 inch thick unless otherwise noted for subfloors and 1/4 inch thick for underlayment.
2.17 Nails: Fed. Spec. FF-N-105, annular, screw, or ring type.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Concrete Floor Surfaces: Fill large cracks and holes in concrete structural floor slabs with one part nonshrinking cement to three part sand grout with a latex or epoxy additive. Level floors and fill small cracks and holes in concrete or underlayment with a commercial latex or epoxy floor patching compound.
3.1.2 Wood Floor Surfaces: Fill knot holes, cracks wider than 1/8 inch, and holes larger than 1/4 inch in diameter with a crack filler as specified for this application. All ridges or other uneven surfaces shall be planed, scraped, or sanded smooth. Nail heads shall be set. Renail wood underlayment and sub-floors where loose using annular or ring type coated nails. Remove and replace rotted, broken, or otherwise unsatisfactory wood subflooring and all other defective materials with new exterior grade plywood of equivalent thickness.
3.2 Installation:
3.2.1 Environmental Conditions: Spaces in which flooring work is to be performed shall be maintained between 70 F and 90 F at the floor level for at least 48 hours prior to starting the work, during the time work is performed, and for at least 48 hours after the work is completed. A minimum temperature of 55 F shall be maintained thereafter. Adequate ventilation shall be provided to remove moisture and fumes from the area.
3.2.2 Lay Tile From Center Marks established with principal walls, discounting minor offsets, so that tiles at opposite edges of the room are of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis, unless otherwise indicated.

Fluid-applied Resilient Flooring

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of fluid-applied resilient flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product

manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Polyurethane Elastomer Flooring:

2.1.1 Polyurethane elastomer flooring shall be a poured-in-place urethane recreational type flooring surface system composed of a two-part urethane component system. Components shall be blended and poured as a liquid onto a prepared base. Primer material to provide adhesion of the polyurethane to the base shall be as recommended by the flooring manufacturer. Line paints shall be polyurethane. Flooring color, thickness, durometer hardness, and painted lines shall be as required.

2.1.2 Physical Properties: Material weight shall be approximately 0.83 pound per square foot per 1/8-inch thickness. Tensile strength shall be 200-600 psi in accordance with ASTM D 412. Hardness range shall be 55-65 Shore A-2 in accordance with ASTM D 2240. Elongation shall be limited to 150-350 percent in accordance with ASTM D 412. Compression set shall be 90 percent immediate recovery after 72 hours at 50 percent compression at 72 F in accordance with ASTM D 395. The material shall provide complete resistance to fungus.

3.0 EXECUTION: Base surface preparation shall be in strict accordance with polyurethane flooring manufacturer's recommendations. Cracks and construction joints shall be filled flush with materials recommended by the manufacturer.

Conductive Vinyl Tile Flooring

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of conductive vinyl tile flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Certificate of Conductance: Submit one copy of certificate signed by the Contractor, stating: "Conductive floors were tested by method prescribed in ANSI/UL 779 and were found to have a resistance of less than 1,000,000 ohms and greater than 25,000 ohms."

2.2 Conductive Vinyl Tile: Floor covering shall be of solid, unlaminated construction, manufactured from highest grade materials, with surface smooth, and free from foreign matter. Tile shall be resistant to the action of acids and other materials normally encountered in operating rooms. Tile shall comply with Fed. Spec. SS-T-312, Type III and shall be listed by Underwriters' Laboratories, Inc. Elements of tile shall be so proportioned that the electrically conductive components will not be more than 1/4 inch apart on the top surface. The tile flooring shall have an average critical radiant flux of 0.45 watts per square centimeter when tested in accordance with NFPA 253.

2.2.1 Tile Size: 1/8 inch by 12 inch by 12 inch tiles, micro- squared to ensure tight joints.

2.2.2 Slab Size: 1/8 inch by 36 inch by 36 inch slabs.

2.3 Conductive Adhesive: A two-part chemically setting, water- resisting, epoxy adhesive specially formulated for installing conductive vinyl tile. Adhesive shall form a conductive field under tile without use of copper foil strips.

2.4 Epoxy caulking cement used to seal the perimeter joint shall be a material recommended by the manufacturer of the flooring.

3.0 EXECUTION:

3.1 Conductive tile shall be installed by experienced mechanics under the supervision of factory-approved personnel. Install with conductive adhesive. Complete electrical grounding in compliance with the manufacturer's instructions.

3.2 Lay tile from center marks established with principal walls, discounting minor offsets, so that tile at opposite edges of the room are of equal width. Adjust as necessary to avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis, unless otherwise directed.

3.3 Cleaning: Three days after installation, conductive vinyl tile flooring shall be cleaned thoroughly. Do not apply wax to conductive flooring.

3.4 Testing: After completion of installation, conductive vinyl tile floors shall be tested by qualified

technicians employed by the Contractor. Test shall be done in presence of the Authorized Member Representative. Testing procedure shall comply with ANSI/UL 779.

Carpeting

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of carpeting. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Carpet Cushions:

2.1.1 Rubberized Fiber-Hair Cushion: Burlap fabric reinforcing between top and bottom feltings of blended India jute fiber and new animal hair, less than 90 percent fiber and more than 10 percent hair, 5 oz/sq yd or more of rubberized coating on top surface and on bottom surface complying with Fed. Spec. DDD-C-001023, Type II. Weight shall be 39 oz/sq yd.

2.1.2 Ripple-Type Rubber: Sponge or foam rubber, molded with a rippled or waffled bottom surface, with an adhered top reinforcement of burlap or other fabric complying with Fed. Spec. ZZ-C-00811, Type I, Class 1 (firm), 1/4 inch thick.

2.1.3 High-Density Foam: Open-cell, homogenized latex-rubber, compounded for maximum moisture and aging resistance with ash and filler content not exceeding 50 percent, skinned-over on bottom surface, reinforced on top surface with an adhered fabric. Waffle pattern shall comply with Fed. Spec. ZZ-C-00811, Type I, Class 1, 1/4 inch thick.

2.1.4 Rebonded Polyurethane: Manufacturer's standard formulation of polyurethane foam and binders, to produce a flat carpet cushion complying with Fed. Spec. L-C-001676, Class I, 3/8 inch thick.

2.2 Carpet:

2.2.1 Carpet Fiber (Filament) and Yarn: Fed. Spec. DDD-C-95.

2.2.1.1 Wool: Natural, long staple, virgin wool carpet fiber, not less than 97 percent pure; permanently treated for resistance to insects and mildew.

2.2.1.2 Continuous Hollow Nylon: Continuous multiple hollow-core filament, of manufacturer's standard denier, texturized or crimped for "bulk", delustered with maximum of 15 percent delustrant.

2.2.1.3 Continuous Multilobal Nylon: Continuous nylon filament, of approximately 18 denier, in tri-lobal or similar cross section (not round or ovular), texturized for "bulk."

2.2.1.4 Continuous Round Nylon: Continuous round nylon filament, of not less than 15 denier, texturized or crimped for "bulk," delustered with maximum of 15 percent delustrant.

2.2.1.5 Continuous Nylon: Continuous nylon filament of type recommended by carpet manufacturer, approximately 15 denier, texturized or crimped for "bulk," delustered.

2.2.1.6 Staple Nylon: Long staple (approximately 7 inches) nylon fiber, of varying denier and crimp to resemble natural wool, delustered.

2.2.1.7 Acrylic: Long staple (approximately 7 inches) acrylic fiber, of not less than 15 denier average, crimped to increase "bulk."

2.2.1.8 Modacrylic: Long staple (approximately 7 inches) modified acrylic fiber, modified to increase melting temperature, of not less than 15 denier average, crimped to increase "bulk."

2.2.1.9 Bi-Component Acrylic: Long staple (approximately 7 inches) 2-component acrylic fiber with differential shrinkage characteristic, which imparts spiral crimp for very high "bulk."

2.2.1.10 Polypropylene: Continuous polypropylene (olefin) filament, of 15 denier minimum, textured for "bulk."

2.2.1.11 High-Denier Polypropylene: Continuous filament or long staple polypropylene (olefin) fiber, of 75 denier minimum, textured for bulk, produced specifically for felted or needle punched construction of carpet.

2.2.1.12 Polyester: Long staple (approximately 7 inches) fiber, of 15 denier minimum, textured for "bulk," specifically compounded for high stain resistance.

2.2.1.13 Nylon-Reinforced Vinyl: Continuous filament nylon thread, coated with vinyl to form a carpet yarn, produced specifically for woven (non-pile) carpet construction.

2.2.1.14 Stain-Resistant Polyester: Long staple (approximately 7 inches) fiber, of 15 denier minimum, unless otherwise indicated, textured for "bulk," specifically compounded for high stain resistance.

2.2.1.15 Destatic Fiber: Metallic carpet fiber, of stainless steel, aluminum, or other metal, either coated or plain, proven by test of round nylon filament pile carpet to be effective in controlling the static buildup in persons to below 3,000 volts when used in one of the following blends of fiber with ambient condition of 20 percent relative humidity and 70 F temperature, with oak-tanned, leather-soled shoes: a. 0.33 percent of stainless steel filament. b. 3.0 percent blend of plastic coated aluminum filament.

2.2.1.16 Pile Yarn, General: Provide yarn spun in manner recommended by yarn manufacturer and carpet manufacturer.

2.2.2 Carpet Construction:

2.2.2.1 General: Fabricate carpet by the construction method used in manufacturer's standard process.

2.2.2.2 Pile Density; Pitch and Rows: Fabricate carpet with the spacing of tufts both ways, uniformly spaced by manufacturer's standard method.

2.2.2.3 Variation of Yarn and Density: Wherever the texture or pattern of the completed carpet is not affected and also wherever the effect produced is acceptable to the Authorized Member Representative, the carpet manufacturer may (at his option) vary both the denier of the yarn and the density of the tufts, provided the product of the two remains constant and equal to the product of yarn denier and tuft density indicated (equal density factor maintained.)

2.2.2.4 Pile Height: Provide pile height as designated.

2.2.2.5 Primary Backing for Tufting: Provide manufacturer's standard backing material, but not less than one of the following:

2.2.2.5.1 Polypropylene: Woven polypropylene fabric weighing not less than 3.2 oz/sq yd.

2.2.2.5.2 Plastic Fabric: A non-woven fabric of 75 percent polypropylene fibers and 25 percent other plastic fibers, weighing not less than 4.0 oz/sq yd.

2.2.2.5.3 Jute: Woven jute fabric, weighing not less than 9.0 oz/sq yd.

2.2.2.6 Adhesive Binding for Tufting: Provide manufacturer's standard liquid latex or other resinous coating as required to produce the tuft bind strength indicated, but not less than 20 oz coating/sq yd.

2.2.2.7 Backing for Woven Carpet: Provide manufacturer's standard shot (weft), chain (warp), filler, and stuffer yarns, of jute, Kraft cord, cotton, or synthetic fibers. Provide the number of yarns perrow or pitch of pile as indicated or, if not indicated, provide manufacturer's standard arrangement as needed for strength and to make up the required carpet weight, but provide not less than 2 shot yarns (3 Axminster) and double chain yarn. Provide woven-through-the-back construction.

2.2.2.8 Back Coating for Woven Carpet: Provide manufacturer's standard liquid latex or other resinous coating, but not less than 10 oz/sq yd.

2.2.2.9 Backing for Knitted Carpet: Provide manufacturer's standard chain (warp) yarns of cotton or synthetic fibers and filler yarns of jute or Kraft cord. Provide the number of yarns per row or pitch as indicated or, if not indicated, provide manufacturer's standard arrangement as needed for strength and to make up the required carpet weight, but not less than double chain yarns and double overlapping filler yarns.

2.2.2.10 Back Coating for Knitted Carpet: Liquid latex or other resinous coating, shall be more than 14 oz/sq yd.

2.2.2.11 Backing for Fusion-Bonded Carpet: Provide manufacturer's standard jute or synthetic fabric backing with latex or vinyl plastic coating for fusion-bonding of face pile.

2.2.2.12 Backing for Needle-punched Carpet: Type and weight designated or, if not designated, manufacturer's standard backing fabric produced specifically for needle-punching and felting of staple fibers to produce carpet, complying with Fed. Spec. DDD-C-001173 for construction of needle-punched carpet.

2.2.2.13 Secondary Fabric Backing: Provide, as a minimum, 8-ounce burlap or jute fabric, laminated to carpet with liquid latex adhesive, to achieve a stripping bond of not less than 2.0 lbs in. (Fed. Std. 191).

2.2.3 Dyeing Method: Carpet shall meet the requirements of both the wet-method color fastness rating of "Good" or better, per Fed. Spec. DDD-C-95, evaluated by Method 5610 of Fed. Std. 191 and the fade resistance established by the Association of Textile Chemists and Colorists for carpet when tested on the Atlas Fadeometer for the number of hours indicated. If method of dyeing and fade

resistance are not indicated, use manufacturer's standard method, as needed to achieve a fade resistance of 40 hours.

2.2.4 Flame Spread: Carpet shall comply to UL 992 flame propagation index of less than 4.0 and Fed. Std 372, minimum average critical radiant flux of 0.50 watts per square centimeter. Carpet shall pass the methamine tablet test per DOC-FF-1-70 (pill test).

2.3 Bonded Cushion Carpet:

2.3.1 High Density Foam Backing: Open-cell homogenized latex-rubber compound for maximum moisture and aging resistance, with ash or filler content not exceeding 50 percent, skinned-over on exposed surface, complying with Fed. Spec. DDD-C-95, Class I, 38 oz/sq yd, 1/8 inch thick. Compression resistance shall be 5 pounds minimum. Compression set shall be 15 percent maximum. Provide special formulation, tested with carpet for flame spread rating of less than 75 when by the tunnel test of ASTM E 84, or flame propagation index of less than 4.0 when tested by the UL chamber test, UL 992. Carpeting and cushion shall be tested together.

2.3.2 Primary Backing: Polypropylene weighing 3.5 oz/sq yd minimum.

2.3.3 Bonded Cushion Backing: Provide cushion bonded to carpet to achieve a stripping bond of not less than 2.0 lbs/in (Fed. Std. 191A), either cured-in-place or laminated sheet stock. At manufacturer's option, back coating used as tuft binding may be decreased or eliminated with the use of cured-in-place backing, provided required tuft bind strength is achieved.

2.4 Adhesive for Carpet: Waterproof, release type adhesive as recommended by the carpet manufacturer or cushion manufacturer. Provide adhesive that complies with flame spread rating required for the carpet installation, if any.

2.5 Adhesive for Seams: Waterproof, nonstaining adhesive furnished or recommended by the carpet manufacturer that complies with flame spread rating required for the carpet.

2.6 Carpet Edge Guard: Bend-down type of formed or extruded aluminum carpet edge guard stripping. Form units with concealed teeth to grip the carpet from below.

2.7 Tackless Carpet Stripping: Water-resistant plywood stripping, with angular pins protruding from the top. Provide stripping with 2 rows of pins wherever the carpet width is less than 20 feet and with 3 rows of pins wherever carpet width is 20 feet or more. Provide prenailed stripping, ready for anchorage to concrete or similar substrate.

2.8 Tape:

2.8.1 Cushion Tape: Singel Face cloth, 2 inches wide.

2.8.2 Carpet Tape: Double-face cloth, 2 inches wide.

2.8.3 Seam Tape: Paperback, for latex sewing, 4 inches wide.

2.8.4 Seam Tape: Heat bonding, 4 inches wide.

2.9 Seam Thread: No. 18 waxed linen.

2.10 Masonry Nails: No. 9 (0.148 inch x 1 inch) hardened masonry nails, Fed. Spec. FF-N-105.

2.11 Latex Underlayment: One- or two-component, factory-mixed product containing powdered or liquid latex, cement, and other powders.

2.12 Crack Filler: Type and brand recommended by carpeting manufacturer.

2.13 Hardboard: AHA A135.4, untempered type specially made for use as underlayment, 3/16 inch or 1/4 inch thick.

2.14 Plywood: DOC PS 1, "C-C EXT-APA" or "UNDERLAYMENT C-C Plugged EXT-APA", 3/4 inch thick unless otherwise noted for subfloors and 1/4 inch thick for underlayment.

2.15 Nails: Fed. Spec. FF-N-105 annular, screw or ring type.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Fill large cracks and holes in concrete structural floor slabs with a one-part, nonshrinking cement to three-part sand grout with a latex or epoxy additive. All ridges or other uneven surfaces shall be ground smooth; chalky or dusty surfaces shall be primed.

3.1.2 Level floors and fill small cracks and holes in concrete or underlayment with a commercial latex or epoxy floor patching compound. 3.1.3 Wood Floor Surfaces: Knot holes, cracks wider than 1/8 inch, and holes larger than 1/4 inch in diameter shall be filled with a crack filler as specified for this application. All ridges or other uneven surfaces shall be planed, scraped, or sanded smooth.

3.1.4 Wood underlayment and subfloors shall be renailed where loose.

3.1.5 Rotted, broken or otherwise unsatisfactory wood subflooring and all other defective materials shall be removed and replaced with new.
3.1.6 Undercut wood door bottoms as required to allow clear door swing over newly carpeted areas.
3.2 Installation:
3.2.1 Install carpet edge guard at every location where edge of carpet is exposed to traffic, except where another device, such as an expansion joint cover system or threshold, is indicated with an integral carpet binder bar.
3.2.2 Installation On Stairs: Install carpet by nailing or other secure method recognized to be durable and safe for traffic on stairs. Conceal edges. Avoid seams at points of high wear (nosings and treads). Cushion on stairs shall be twice the thickness of cushions on floor.

Magnesium Oxychloride Flooring
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of magnesium oxychloride flooring and base. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Magnesium Oxychloride Composition: Manufacturer's standard product shall comply with Mil. Spec. MIL-D-16680. Color to be used will be selected by the Authorized Member Representative from manufacturer's standard colors.
2.1.1 Mixing Solution: Magnesium chloride flake in a 22 degree Baume solution.
2.1.2 Physical Properties when tested in compliance with Mil. Spec. MIL-D-16680:
Fire Resistance: Incombustible
Water Absorption: Less than 7 percent
Abrasion Resistance: 0.072 inch
Impact Resistance: 0.031 inch; no chipping, crackling or detachment.
2.2 Saturated Felt: ASTM D 250, 15-pound type.
2.3 Expanded Metal Lath: Fed. Spec. QQ-L-101, diamond mesh pattern, expanded copper alloy steel, weighing 3.4 pounds per square yard. 2.4 Bonding Agent: Trowel-applied bonding medium made by manufacturer of magnesium chloride.
3.0 EXECUTION:
3.1 Environmental Conditions: Installation shall not be started unless ambient temperature of area in which the work occurs is at least 50 F and rising and is maintained above 50 F without interruption while the work is being done and for at least three days after the completion of the work.
3.2 Preparation:
3.2.1 Concrete floors shall be clean and free from all grease, dirt, paint, and all other foreign matter and shall be completely dry prior to flooring installation. 3.2.2 Wood Floors shall be structurally sound, firmly nailed, free of vibration, and broom clean. Lay felt over wood in opposite direction to joints in wood and overlap edges 3 inches.
3.3 Installation: Apply flooring and base to a uniform 1/2-inch thickness and steel-trowel to a uniform smooth density. Where cover base is installed over wood, trowel material on metal lath. Light traffic may be permitted 24 hours after installation and heavy traffic after 3 to 5 days.

Epoxy Flooring
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of epoxy flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 General: Component materials for any one flooring type shall be from a single manufacturer. Cove bases of flooring material shall be provided if required.
2.2 Epoxy quartz chip flooring shall be decorative floor surfacing system consisting of primer; topping including epoxy resin, hardener, and ceramic-coated quartz aggregate; and finish coat or coats.

Topping, including aggregate, when tested in accordance with referenced standards, shall have a compressive strength of 9,800 psi (ASTM C 579), a flexural strength of 6,000 psi (ASTM C 580), a bond strength of 400 psi (ACI 503, Appendix A), and a water absorption rate of 0.06 percent (ASTM C 413). Tests of chemical resistance of cured resin, when immersed for 7 days in reagents, shall show no effect from ammonium hydroxide, carbon tetrachloride, citric acid, dimethyl formamide, formaldehyde (3 percent), heavy-duty detergent, heptane, hydrogen peroxide (28 percent), lactic acid, oleic acid, phenol solution, sodium carbonate (20 percent), sodium chloride (10 percent), sodium hydroxide (60 percent), sodium hypochlorite, sulfuric acid (30 percent), and urine.

2.3 Epoxy flooring shall be industrial floor surfacing system consisting of primer; topping including epoxy resin, hardener, coloring agent, and selected fine aggregates; and finish coat or coats. Physical properties of topping, including aggregate, when tested in accordance with referenced standards, shall have a compressive strength of 7,500 psi (ASTM C 579), a tensile strength of 1,750 psi (ASTM C 307), a flexural strength of 3,000 psi (ASTM D 790), and a maximum thermal coefficient of linear expansion of 20 by 10!-6! in/in/degrees F (ASTM D 696). The extent of burning shall be 0.25 inches maximum (ASTM D 635). Minimum bond strength shall be 200 psi, with 100 percent concrete failure (ACI 503, Appendix A). Abrasive resistance shall be 0.20 grams maximum (ASTM D 1044, 1,000 Grams, 1,000 Cycles). Impact strength, except topping bonded to concrete, shall be 0.05, with no chipping, cracking, or detachment of surfacing from concrete (MIL-D-3134, Para. 4.7.3). Tests of chemical resistance of cured resin when immersed 7 days in reagents, shall show no effect from acetic acid (5 percent), ammonium hydroxide (10 percent), citric acid (50 percent), cola syrup, fatty acid, motor oil (20W), hydrochloric acid (10 percent), salt water, sodium hydroxide (10 percent), sulfuric acid (10 percent), trisodium phosphate (5 percent), and water (distilled). There shall be only slight softening from ethyl alcohol (95 percent), jet fuel JP-4C, and mineral spirits. There shall be no effect but slight stain from nitric acid (10 percent).

2.4 Chemical-resistant epoxy flooring shall be chemical-resistant floor surfacing system consisting of primer; topping including epoxy resin, hardener, coloring agent, and selected fine aggregates; and finish coat or coats. Topping, including aggregate, when tested in accordance with referenced standards, shall have a compressive strength of 9,500 psi (ASTM C 579), a flexural strength of 2,080 psi (ASTM C 580), an impact strength of 120 in. lbs (ASTM D 2794), a bond strength of 400 psi (ACI 503, Appendix A), and a water absorption rate of 0.04 percent (ASTM C 413). Tests of chemical resistance of cured floor surfacing system, when immersed for 7 days in reagents listed, shall show no effect from acetic acid (100 percent), chromic acid (10 percent), citric acid (20 percent), formaldehyde (37 percent), heavy-duty detergent, hydrochloric acid (37 percent), hydrogen peroxide (28 percent), lactic acid (85 percent), mineral spirits, nitric acid (40 percent), oleic acid, oxalic acid (10 percent), phosphoric acid (85 percent), potassium hydroxide (50 percent), sulfuric acid (75 percent), tannic acid (20 percent), tartaric acid (10 percent), and urine.

2.5 Epoxy terrazzo flooring shall be decorative floor surfacing consisting of primer, thermosetting epoxy resin matrix, decorative mineral aggregate, epoxy grout, and sealer. Heavy brass, 1/4-inch divider strips, and expansion joints shall also be provided as required. Materials shall conform to applicable National Terrazzo and Mosaic Association (NTMA) publications. Flooring, when tested in accordance with the standards, shall show no toxicity. Epoxy terrazzo flooring shall be self-extinguishing when tested in compliance with ASTM D 635.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Concrete surfaces shall comply with ASTM C 811 unless otherwise indicated or required by manufacturers' instructions.

3.1.2 Wood floors shall have contaminants removed by sanding, solvent cleaning, detergent cleaning, or other methods as required.

3.1.3 Primer shall be applied over prepared substrate.

3.2 Installation:

3.2.1 Epoxy quartz chip flooring, epoxy flooring and chemical-resistant epoxy flooring shall have a topping mix of aggregates and/or fillers trowel-applied to the following thicknesses:
a. Epoxy quartz chip flooring: 1/4 inch.

b. Epoxy flooring: 3/16 inch.
c. Chemical-resistant epoxy flooring: 1/4 inch.

Finish or sealing coat or coats shall be applied after topping mix has cured. Floor system shall be applied to wall surfaces at locations indicated to form base with cove of radius and height designated. All interior and external corners of base shall be rounded.

3.2.2 Epoxy terrazzo flooring shall be applied according to NTMA recommendations and as follows. A 1/4-inch thick aggregate/filler topping mix and recommended curing compound shall be applied and the surface shall then be ground, rinsed, grouted, and reground. Finish or sealing coat or coats shall be applied after topping mix has cured. Floor system shall be applied to wall surfaces at locations designated to form base with cove of radius and height indicated. All interior and external corners of base shall be rounded.

Conductive Elastomeric Liquid Flooring

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of conductive elastomeric liquid flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Carbon black shall comply with ASTM D 561.

2.2 Acrylic/urethane shall be water dispersed acrylic resin mixed with dry components and aggregates. Material shall comply with Mil. Spec. MIL-D-3134. Factory pre-mixed with carbon black.

2.3 Acrylic shall be modified high strength acrylic resin mixed with dry component powders with tensile strength of 4,890 psi, bond strength of 290 psi, and flexural strength of 1,650 psi, minimums, complying with Mil. Spec. MIL-D-3134.

2.4 Neoprene rubber shall be water-phase neoprene rubber composition complying with NTMA Specifications, with tensile strength of 245 psi, bond strength to concrete of 255 psi, and compressive strength of 2,600 psi, minimums.

2.5 Latex shall be specially formulated, emulsion resin mixed with dehydrated powders. Comply with Paragraphs 3.4 through 3.22 of Mil. Spec. MIL-D-3134, except Paragraph 3.7 shall not apply.

2.6 Epoxy emulsion shall be 100 percent non-volatile, thermosetting, two-part epoxy resin matrix with tensile strength of 4,000 psi, bond strength of 200 psi, and compressive strength of 14,000 psi.

2.6.1 Water-emulsified epoxy resin shall have the following characteristics:
Viscosity: 180 centipoises at 25 C.
Specific weight: 9.2 pounds per gallon.
Color: opaque white.
Solids (minimum): 59 percent.
Stable after five freeze-thaw cycles.

2.6.2 Water emulsified hardener shall have the following characteristics:
Viscosity: 160-190 centipoises at 50 C.
Specific weight: 8.6 pounds per gallon.
Solids (minimum): 75.0 percent.
Stable after five freeze-thaw cycles.

2.7 Polyacrylate: A polyacrylate hydraulic cement copolymer and dry coreactant composite shall comply with requirements of Mil. Spec. MIL-D-3134.

2.8 Polyester: Thermosetting polyester topping resin, catalyst, and premixed fillers shall have tensile strength of 5,000 psi, compressive strength of 14,000 psi, and bond strength of 200 psi, minimums.

2.9 Fillers: Inert mineral or cellulosic material best suited for the resin binders shall be used. Filler in quantity necessary to impart required physical characteristics shall be furnished with particle size not greater than 3/16 inch in any dimension and shall contain sufficient fines to provide an even-textured, nonslip type of surface on the finished topping.

2.10 Primer shall be material that will penetrate into pores of substrate. Primer shall bond with topping to form a permanent monolithic bond between the substrate and the topping.

3.0 EXECUTION:
3.1 Environmental Conditions: Elastomeric liquid flooring installation shall not be started unless ambient temperature of area in which the work occurs is at least 50 F. and rising, and is maintained above 50 F. without interruption while the work is being done and for at least three days after the completion of the work.
3.2 Installation Over Wood Floors: Renail wood subfloors where loose, using annular or ring type zinc-coated nails. Remove and replace rotted, broken, or otherwise unsatisfactory wood subflooring and all other defective materials.
3.3 Installation Over Concrete Floors: Roughen surfaces that are glossy, painted, or have loose surface material. Fill large cracks and holes.
3.4 Cleaning: Thoroughly clean all surfaces to receive flooring to remove all grease, oil, wax, dirt, dust, and other foreign matter.
3.5 Topping: Install topping 1/8 inch thick for epoxy type and 1/8 to 3/8 inch thick for other types.
3.6 Bases shall be cover type cast-in-place with 1-inch radius cove and shall be 6 inches high.
3.7 Finish or sealer coat shall be applied.
3.8 Testing: After completion of installation, test conductive floors. Test must prove that conductive floors comply with all requirements of ANSI/UL 779.

Heavy-duty Concrete Floor Topping

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of heavy-duty concrete floor topping. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Portland cement: Comply with ASTM C 150, Type I or Type III.
2.2 Aggregate: Selected, clean, hard, and tough material, either crushed or natural, as approved by the Authorized Member Representative. Trap rock, granite, quartz, corundum, or manufactured products such as silicon carbide or heat-treated aluminum oxides are acceptable. They shall comply, in all respects except gradation, with ASTM C 33.
2.3 Water shall be clean, fresh, potable water approved by public health authorities for domestic consumption.
3.0 EXECUTION:
3.1 Preparation: Roughen surfaces of present concrete that are glossy, painted, or have loose surface material. Clean and sweep thoroughly to remove all grease, oil, wax, dirt, sand, dust, and all other foreign matter.
3.2 Installation: Nominal mixture shall be one part of Portland cement, one part of fine aggregate, and two parts of coarse aggregate by volume. Not more than four gallons of mixing water shall be used for each bag of Portland cement in the mixture. Mixing of concrete shall continue for at least one minute after all ingredients are in mixer.

Brick Flooring

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of brick flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Brick Materials:
2.1.1 Light Traffic Paving Brick: ASTM C 902, Class SX, MX, or NX, Type I, II, or III, Application PS, PX, or PA.
2.1.2 Chemical-Resistant Brick: Solid brick, ASTM C 279, Type H or L.
2.1.3 Industrial Floor Brick: Solid brick, ASTM C 410, Type T, H, M, or L.
2.1.4 Base: Matching base shall be provided at walls and vertical elements, including stretcher units, internal and external corners, stops, and other locations as required. Type shall be square-top

cove, round-top cove, or turn-up base.

2.1.5 Lining units shall be brick units matching floor brick for lining pits and trenches and for curbs and pads occurring in floor brick field. Provide special trim shapes for continuous coverage of substrates.

2.1.6 Temporary Coating: Wax shall be compatible with cleaning method required to remove wax without damage to grout or brick.

2.2 Setting Materials:

2.2.1 Mortarless Applications:

2.2.1.1 Roofing Felt: ASTM D 226, 15-pound asphalt-saturated felt.

2.2.1.2 Fine Aggregate for Setting Bed: ASTM C 144 or stone screenings.

2.2.1.3 Sand for Joints: ASTM C 144, free of clay particles.•09750

2.2.2 Portland cement Applications:

2.2.2.1 Portland cement: ASTM C 150, Type I, natural color or white, to produce the required color of mortar or grout.

2.2.2.2 Aggregate: ASTM C 144 or C 404, or both.

2.2.2.3 Liquid Admixture for Setting Bed and Grout: Liquid latex mortar additive with a compressive strength of 3,000 psi, bond strength of 500 psi, no loss in strength when exposed to ozone for 200 hours at an ozone concentration of 200 pphm and water absorption of 4 percent maximum.

2.2.2.4 Bond Coat Admixture: High strength liquid latex mortar additive with a compressive strength of 5,000 psi, bond strength of 500 psi, tensile strength of 500 psi, no loss in strength when exposed to ozone for 200 hours at 200 pphm, and water absorption of 4 percent maximum.

2.2.2.5 Pigments: Commercial iron oxide, manganese dioxide, ultra-marine blue, chromium oxide, or carbon black, suitably compounded for use in mortar mixes.

2.2.2.6 Water: Clean and free of deleterious materials that would impair strength or bond.

2.2.3 Chemical-Resistant Mortar and Grout:

2.2.3.1 Sulfur Mortar: ASTM C 287, with silica or carbon filler.

2.2.3.2 Resin Mortar: Liquid resin and filler material shall comply with ASTM C 395. Resin shall be phenolic, furan, polyester, epoxy, or vinylester. Filler shall be silica or carbon.

2.2.3.3 Resin Grout: ASTM C 658, epoxy or furan.

2.2.3.4 Chemical-Resistant Membrane: Multiple component asphaltic system consisting of asphalt primer and bituminous-coated glass fiber cloth embedded in hot-melt asphalt compound.

2.2.3.5 Expansion Joint Filler: Elastomeric sealant of type recommended and produced by mortar/grout manufacturer for type of application indicated. Include primer and backer rod where required.

2.2.4 Miscellaneous Materials:

2.2.4.1 Cleavage Membrane: 15-pound asphaltic felt, ASTM D 226, Type I, or 4-mil polyethylene sheeting, ASTM C 171.

2.2.4.2 Setting Bed Reinforcement: 2 inches by 2 inches, 16/16, welded wire fabric.

2.2.4.3 Sealer: Phenolic type or acrylic base non-slip material.

3.0 EXECUTION:

3.1 Expansion and Control Joints: Provide sealant-filled joints at locations and widths required. Install expansion joint filler where sealant type joints are required in chemical-resistant flooring.

3.2 Ungrouted Mortarless Brick Flooring:

3.2.1 Cushioning Material: Install roofing felt, two layers with edges butted to achieve uniform thickness, and fine aggregate setting bed screeded to depth required.

3.2.2 Lay bricks and fill joints with sand. After all bricks are in place and all joints are filled, remove excess sand.

3.3 Latex-Modified Portland cement Applications:

3.3.1 Apply cement slush coat not to exceed 1/16 inch thickness.

3.3.2 Mix Portland cement, sand, and liquid admixture.

3.3.3 Spread and screed setting bed to uniform thickness at sub grade elevations required.

3.3.4 Place brick before initial set of cement occurs. Tamp and beat bricks to obtain full contact with setting bed.

3.3.5 Grout joints as soon as possible after initial set of setting bed and cure grout.

3.4 Chemical-resistant sulfur mortar applications shall comply with ASTM C 287 unless otherwise

directed.

3.5 Chemical-Resistant Resin Mortar Applications:

3.5.1 Bricklaying: Except as otherwise directed, bricklaying shall comply with ASTM C 399.

3.5.2 Tile Setting: Except as otherwise directed, tile setting shall comply with ANSI/ASTM C 723.

3.5.3 Chemical-Resistant Membrane: Provide chemical-resistant asphaltic membrane system over concrete substrates under chemical-resistant mortar applications where directed.

3.5.4 Set Bricks on Vertical Surfaces in compliance with ASTM C 399, using either resin mortar or sulfur as bed joint material, as required.

3.6 Chemical-Resistant Cement Mortar and Resin Grout Applications:

3.6.1 Application of brick in hydraulic cement mortar setting bed shall comply with ASTM C 398. Grouting joints with resin grout shall comply with ASTM C 723, unless otherwise directed.

3.6.2 Install cleavage membrane as required.

3.6.3 Reinforce setting bed with welded wire fabric as required.

Light-duty Brick Flooring

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of light-duty brick flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Floor Brick (Brick Pavers): ASTM C 62, Grade SW, solid uncored brick, 1-1/4 inches thick by 3-1/4 inches by 8 inches.

2.2 Paving Brick: ASTM C 902, solid uncored brick of size selected by the Authorized Member Representative.

2.3 Masonry Mortar: ASTM C 270, Type M.

2.4 Portland cement: ASTM C 150, Type I.

2.5 Aggregate for Masonry Mortar: ASTM C 144.

2.6 Hydrated Lime: ASTM C 207, Type S.

2.7 Aggregate for Cement Setting Beds: Sand as recommended in ASTM C 404.

2.8 Aggregate for Grout: Sand as recommended in ASTM C 404.

2.9 Pigments: Inert mineral oxides or carbon black.

2.10 Sand Setting Bed: ASTM C 33.

2.11 Commercial Cement Grout: Proprietary compound of Portland cement and additives.

2.12 Cleavage Membrane: 15-pound asphalt felt or 4-mil polyethylene sheeting.

2.13 Setting Bed Reinforcement: 2-inch by 2-inch, 16/16, welded wire fabric, ASTM A 185.

3.0 EXECUTION:

3.1 General Requirements: Do not use brick with chips, cracks, voids, discolorations, and other defects. Cut brick shall have clean, sharp, unchipped edges. Use full units without cutting wherever possible. Set brick with uniform joints.

3.2 Ungrouted Applications: Place sand setting bed and compact by tamping. Set brick closely together, and sweep fine sand over surface to fill joint irregularities.

3.3 Portland cement Applications:

3.3.1 Preparation of Subbase: Clean subbase to remove dirt, dust, debris, and loose particles.

3.3.2 Install cleavage membrane and provide folded membrane material at overlapping edges to form lock joints.

3.3.3 Apply slush coat of cement grout over surface of concrete subbase about 15 minutes prior to placing setting bed.

3.3.4 Setting Bed: Mix one bag of Portland cement to 3 cu. ft. of sand. Use only enough water to produce a moist surface when setting bed is ready for setting of brick. Install reinforcing mesh if over a wood substrate.

3.3.5 Wet brick several hours before laying. Do not lay bricks with free water on the surface.

3.3.6 Set brick before initial set of cement bed occurs. Do not set brick on dry bed. Set and level each brick immediately.

3.3.7 Grout joints as soon as possible after initial set of setting bed. Force grout into joints, strike flush, and tool slightly concave.
3.3.8 Use Portland cement Grout mixed in the proportion of one bag of Portland cement to 2 cu. ft. of sand mixed with water to the consistency of heavy cream.
3.4 Masonry Mortar Applications:
3.4.1 Mix mortar to comply with ASTM C 270 proportion specifications for Type "M" mortar.
3.4.2 Install Brick in bed joints of mortar with vertical joints filled with mortar. Remove excess mortar promptly as the work progresses.
3.4.3 Strike joints flush with top surface of brick and tool slightly concave.
3.5 Pointing: During the tooling of joints, enlarge voids or holes and completely fill with mortar or grout.
3.6 Cleaning: Remove excess mortar/grout from exposed brick surfaces, wash, and scrub clean. Rinse with clean water.
3.7 Sealing and Waxing: After cleaning, apply a neutral sealer to brick flooring, and when dry, apply a suitable floor wax recommended for brick floors.

Standard Floor Treatment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for standard floor treatments for terrazzo, ceramic tile, oxychloride, concrete, and resilient flooring. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Cleaning Compound: A liquid chemical cleaner containing non-ionic and anionic type detergents, non-reactive to flooring. Compound shall have no free metal alkalis, no artificial coloring, and no fatty acids. Compound shall be UL listed as "slip-resistant."
2.2 Stripper: An ammoniated stripper that will penetrate and loosen wax films without damaging flooring. Stripper shall be non-flammable and phosphate-free with a flash point of none to boiling.
2.3 Wax: Water-emulsion type, self polishing, made from 100 percent No. 1 prime Carnuba wax, UL listed as "slip-resistant."
2.4 Polish: Metal cross-linked copolymer, slip-resistant polish. Polish shall dry to clear gloss without buffing.
2.5 Sealer: Penetrating type seal that will fill pores and leave a clear, hard, non-flaking, non-tracking finish. Sealer shall be UL listed as to slip resistance.
3.0 EXECUTION:
3.1 Preparation and Installation:
3.1.1 Terrazzo and Oxychloride Floors:
3.1.1.1 Clean floors with a neutral liquid cleaner with pH factor as near seven as possible.
3.1.1.2 Apply two coats of sealer, and buff with electric polishing machine.
3.1.2 Ceramic Tile Floors: Scrub thoroughly using a neutral liquid cleaner, and apply one coat of penetrating sealer.
3.1.3 Concrete Flooring:
3.1.3.1 Scrub thoroughly using a neutral liquid cleaner. Apply stripper to remove stubborn grease, waxes, and polishes.
3.1.3.2 When floor is clean and dry, apply two coats of penetrating sealer.
3.1.4 Resilient Flooring:
3.1.4.1 Scrub with a light solution of neutral chemical cleaner. Use a stripper to remove build-up of old wax and polishes. Rinse clean, and allow to dry. 3.1.4.2 Apply two coats of wax and machine polish.

Floor Treatment: Non-slip Coatings on Concrete Floors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for non-slip coatings on concrete floors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance

with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: A combination of pigmented two-part high solids urethane resin and a select gradation of sand shall be used. Color shall be selected from manufacturer's standard colors.

2.1 Tensile Strength and Elongation: Tensile strength shall be 580 psi, and elongation shall be 57 percent, all complying with ASTM D 412.

2.2 Water Absorption: Coatings shall not absorb water, in accordance with ASTM D 570.

2.3 Coefficient of friction shall comply with ASTM D 1894.

2.4 Abrasion resistance shall be ASTM D 1044 Taber Abraser, H-18 wheel, 1 kg load. Weight loss shall be 0.20 grams after 1,000 cycles.

2.5 Impact shall be by a 2-pound falling ball at 150 inch-pounds pressure, 0.05 inch maximum indentation with no cracking.

2.6 Chemical resistance shall be non-staining to most common chemicals, such as 10 percent acetic acid, 10 percent citric acid, 10 percent sodium hydroxide, and ethyl alcohol.

3.0 EXECUTION: Concrete floors shall be either acid etched or sand blasted. Surface to be coated shall be clean, dry, and free from surface contaminants.

Exterior Painting

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and application of paint to exterior surfaces. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Application procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Painting materials for the exterior surfaces indicated shall conform to the following Federal and Military Specifications:

2.1 Concrete: TT-P-19 Paint, Acrylic Emulsion, Exterior

2.2 Concrete Masonry Units: TT-F-1098 Filler, Block, Solvent-Thinned, for Porous Surfaces (Concrete Block, Cinder Block, Stucco, Etc.). TT-P-19 Paint, Acrylic Emulsion, Exterior. TT-P-96 Paint, Latex Base, Exterior. TT-P-97 Paint, Styrene-Butadiene Solvent Type, White (for Exterior Masonry).

2.3 Stucco: TT-F-1098 Filler, Block, Solvent- Thinned, for Porous Surfaces (Concrete Block, Cinder Block, Stucco, Etc.). TT-P-19 Paint, Acrylic Emulsion, Exterior. TT-P-96 Paint, Latex Base, Exterior. TT-P-97 Paint, Styrene-Butadiene Solvent Type, White (for Exterior Masonry).

2.4 Asbestos Cement: TT-P-19 Paint, Acrylic Emulsion, Exterior

2.5 Wood, Unpainted: TT-P-001984 Primer Coating, Latex Base, Exterior (Undercoat for Wood), White and Tints. MIL-P-28582 Primer Coating, Exterior, Lead Pigment-Free (Undercoat for Wood, Ready-Mixed, White and Tints).

2.6 Wood, Primed: TT-P-19 Paint, Acrylic Emulsion, Exterior. TT-P-31 Paint, Oil: Iron-Oxide, Ready-Mixed, Red and Brown. TT-P-37 Paint, Alkyd Resin, Exterior Trim, Deep Colors. TT-P-102 Paint, Oil, Alkyd Modified, Exterior, White and Tints. TT-P-1510 Paint, Latex, Exterior, for Wood Surfaces, White and Tints

2.7 Wood, Decks and Porches, Primed and Unpainted: TT-E-487 Enamel: Floor and Deck.

2.8 Wood, to Receive Stain: TT-S-708 Stain, Oil; Semi-Transparent, Wood, Exterior. TT-S-001992 Stain, Latex, Exterior for Wood Surface.

2.9 Concrete Walls and Floors of Swimming Pools: TT-P-95 Paint, Rubber: For Swimming Pools and Other Concrete and Masonry Surfaces. 2.10 Ferrous Metals, Ungalvanized and Unpainted. TT-P-86 Paint, Red-Lead-Base, Ready-Mixed. TT-P-645 Primer, Paint, Zinc-Chromate, Alkyd Type.

2.11 Ferrous Metals, Galvanized but Unpainted: TT-P-641 Primer Coating: Zinc Dust-Zinc Oxide (for Galvanized Surfaces). MIL-P-26915 Primer Coating, Zinc Dust Pigmented, for Steel Surfaces.

2.12 Ferrous Metals, Primed: TT-E-489 Enamel, Alkyd, Gloss (for Exterior and Interior Surfaces). TT-E-1593 Enamel, Silicone Alkyd Copolymer, Gloss (for Exterior and Interior Use). TT-P-31 Paint, Oil: Iron-Oxide, Ready-Mixed, Red and Brown. TT-P-37 Paint, Alkyd Resin, Exterior Trim, Deep Colors. TT-P-38 Paint, Aluminum, Ready-Mixed. TT-P-102 Paint, Oil, Alkyd Modified, Exterior, White and Tints.

2.13 Aluminum or Aluminum Alloy, Unpainted: TT-P-645 Primer, Paint, Zinc-Chromate, Alkyd Type.

2.14 Aluminum or Aluminum Alloy, Primed: TT-E-489 Enamel, Alkyd, Gloss (for Exterior and Interior Surfaces). TT-E-1593 Enamel, Silicone Alkyd Copolymer, Gloss (for Exterior and Interior Use).
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Concrete, Concrete Masonry Units and Stucco: Remove all glaze, efflorescence, laitance, dirt, grease, oil, asphalt, surface deposits of iron, and other foreign matter. Apply a filler to areas of irregular surface profile.
3.1.2 Asbestos Cement: Remove stains with solvent. Do not wire brush.
3.1.3 Wood: Clean off foreign matter. On seasoned knots, scrape, clean, and apply thin coat of knot sealer. Scrape off or remove pitch with mineral spirits or turpentine. Set nails and prime and fill nail holes and other surface imperfections with putty, exterior spackling compound, or plastic wood filler. Allow to dry and sand smooth.
3.1.4 Ferrous Metals, Ungalvanized: If not shop-coated, solvent clean. Remove loose rust, mill scale, and other foreign matter by power wire brushing or sandblasting to the degree specified on the drawings.
3.1.5 Ferrous Metals, Galvanized, and Aluminum and Aluminum Alloy: Solvent clean and treat with vinyl type wash coat conforming to Mil. Spec. DOD-P-15328.
3.1.6 Removal of Paints Containing Lead or Other Contaminants: All work associated with the removal of paints containing lead or other contaminants shall be in accordance with 29 CFR 1910 and 29 CFR 1926 (including all sub parts). The Contractor shall submit for approval a detailed lead protection program, accident prevention plan, respiratory protection plan, airborne sampling plan, and containment plan for all work involving lead paint removal. These submittals shall define all measures that are to be taken to ensure that workers and the environment will be protected during the progress of the work.
3.2 Application: Provide complete hiding and uniform thickness of coats. All paints shall be applied and allowed to cure in accordance with the manufacturer's recommendations. All surfaces not scheduled to receive paint shall be protected from overspray. Clean-up of over sprayed areas shall be at the contractor's expense.
3.2.1 Concrete Masonry Units: Apply filler coat to bare concrete masonry units and allow to dry. Follow with finish coats.
3.2.2 Wood to Receive Paint: Prime bare wood prior to application of finish coats.
3.2.3 Ferrous Metals: Prime bare metal prior to application of finish coats. Vinyl paints shall be spray applied at a total coating thickness of 7 mils (3 coats minimum).
3.2.4 Aluminum and Aluminum Alloy: Prime bare metal prior to application of finish coats.

Interior Painting

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and application of paint to interior surfaces. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Application procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work. 2.0 PRODUCTS: Painting materials for the interior surfaces indicated shall conform to the following Federal and Military Specifications.
2.1 Concrete:
2.1.1 Walls and Nontextured Ceilings: TT-E-508 Enamel, Interior, Semigloss, Tints and White. TT-E-509 Enamel, Odorless, Alkyd, Interior, Semigloss, White and Tints. TT-E-545 Primer (Enamel-Undercoat, Alkyd, Odorless, Interior, Flat, Tints and White). TT-P-29 Paint, Latex Base, Interior, Flat, White and Tints. TT-P-30 Paint, Alkyd, Odorless, Interior, Flat, White and Tints. TT-P-95 Paint, Rubber: For Swimming Pools and Other Concrete and Masonry Surfaces. TT-P-1511 Paint, Latex (Gloss and Semigloss, Tints and White) (for Interior Use).
2.1.2 Textured Ceilings: TT-C-555 Coating, Textured (for Interior and Exterior Masonry Surfaces).
2.1.3 Floors: TT-P-91 Paint, Rubber-Base, for Interior Use (Concrete and Masonry Floors).
2.2 Concrete Masonry Units: TT-C-535 Coating, Epoxy, Two Component, for Interior Use on Metal, Wood, Wallboard, Painted Surfaces, Concrete, and Masonry. TT-C-542 Coating, Polyurethane, Oil-Free, Moisture Curing. TT-C-550 Coating System Glaze, High Performance, (Solvent Base) for

Interior Surfaces. TT-E-505 Enamel, Odorless, Alkyd, Interior, High Gloss, White and Light Tints. TT-E-506 Enamel, Alkyd, Gloss, Tints and White (for Interior Use). TT-E-508 Enamel, Interior, Semigloss, Tints and White. TT-E-509 Enamel, Odorless, Alkyd, Interior, Semigloss, White and Tints. TT-E-545 Primer (Enamel-Undercoat, Alkyd, Odorless, Interior, Flat, Tints and White). TT-F-1098 Filler, Block, Solvent-Thinned, for Porous Surfaces (Concrete Block, Cinder Block, Stucco, Etc.). TT-P-29 Paint, Latex Base, Interior, Flat, White and Tints. TT-P-30 Paint, Alkyd, Odorless, Interior, Flat, White and Tints. TT-P-95 Paint, Rubber: For Swimming Pools and Other Concrete and Masonry Surfaces. TT-P-1511 Paint, Latex (Gloss and Semigloss, Tints and White) (for Interior Use).

2.3 Asbestos Cement: TT-E-508 Enamel, Interior, Semigloss, Tints and White. TT-E-509 Enamel, Odorless, Alkyd, Interior, Semigloss, White and Tints. TT-E-545 Primer (Enamel-Undercoat, Alkyd, Odorless, Interior, Flat, Tints and White). TT-P-29 Paint, Latex Base, Interior, Flat, White and Tints. TT-P-30 Paint, Alkyd, Odorless, Interior, Flat, White and Tints. TT-P-1511 Paint, Latex (Gloss and Semigloss, Tints and White) (for Interior Use).

2.4 Gypsum Wallboard and Plaster: TT-C-535 Coating, Epoxy, Two Component, for Interior Use on Metal, Wood, Wallboard, Painted Surfaces, Concrete, and Masonry. TT-C-542 Coating, Polyurethane, Oil-Free, Moisture Curing. TT-C-550 Coating System Glaze, High Performance, (Solvent Base) for Interior Surfaces. TT-E-505 Enamel, Odorless, Alkyd, Interior, High Gloss, White and Light Tints. TT-E-506 Enamel, Alkyd, Gloss, Tints and White (for Interior Use). TT-E-508 Enamel, Interior, Semigloss, Tints and White. TT-E-509 Enamel, Odorless, Alkyd, Interior, Semigloss, White and Tints. TT-E-545 Primer (Enamel-Undercoat, Alkyd, Odorless, Interior, Flat, Tints and White). TT-P-29 Paint, Latex Base, Interior, Flat, White and Tints. TT-P-30 Paint, Alkyd, Odorless, Interior, Flat, White and Tints. TT-P-650 Primer Coating, Latex Base, Interior, White (for Gypsum Wallboard). TT-P-1511 Paint, Latex (Gloss and Semigloss, Tints and White) (for Interior Use). TT-S-179 Sealer Surface: Pigmented Oil for Plaster and Wallboard.

2.5 Wood Other Than Floors:

2.5.1 Painted Surfaces: TT-E-505 Enamel, Odorless, Alkyd, Interior, High Gloss, White and Light Tints. TT-E-506 Enamel, Alkyd, Gloss, Tints and White (for Interior Use). TT-E-508 Enamel, Interior, Semigloss, Tints and White. TT-E-509 Enamel, Odorless, Alkyd, Interior, Semigloss, White and Tints. TT-E-545 Primer (Enamel-Undercoat, Alkyd, Odorless, Interior, Flat, Tints and White). TT-P-29 Paint, Latex Base, Interior, Flat, White and Tints. TT-P-1511 Paint, Latex (Gloss and Semigloss, Tints and White) (for Interior Use).

2.5.2 Stained, Varnished, or Natural Finishes Surfaces: TT-S-176 Sealer, Surface, Varnish Type, Floor, Wood and Cork. TT-S-711 Stain; Oil Type, Wood, Interior. TT-V-85 Varnish, Oil, Low Sheen, Brush or Spray Application. TT-V-109 Varnish, Spar, Alkyd-Resin. TT-V-119 Varnish, Spar, Phenolic-Resin. TT-V-121 Varnish, Spar, Water-Resisting.

2.5.3 Furniture: TT-S-711 Stain; Oil Type, Wood, Interior. TT-V-86 Varnish, Oil, Rubbing (for Metal and Wood Furniture).

2.6 Wood Floors:

2.6.1 Painted Surfaces: TT-E-487 Enamel: Floor and Deck.

2.6.2 Stained or Natural Finished Surfaces: P-W-155 Wax, Floor, Water-Emulsion. P-W-158 Wax, General Purpose, Solvent Type. TT-C-542 Coating, Polyurethane, Oil-Free, Moisture Curing. TT-S-176 Sealer, Surface, Varnish Type, Floor, Wood and Cork.

2.7 Ferrous Metals:

2.7.1 Ungalvanized and Unpainted: TT-P-86 Paint, Red-Lead-Base, Ready-Mixed. TT-P-615 Primer Coating: Basic Lead Silico Chromate, Ready Mixed. TT-P-645 Primer, Paint, Zinc-Chromate, Alkyd Type. TT-V-51 Varnish: Asphalt.

2.7.2 Galvanized but Unpainted: DOD-P-15328 Primer (Wash), Pretreatment, (Formula No. 117 for Metals) (Metric).

2.7.3 Primed: TT-E-489 Enamel, Alkyd, Gloss (for Exterior and Interior Surfaces). TT-E-505 Enamel, Odorless, Alkyd, Interior, High Gloss, White and Light Tints. TT-E-506 Enamel, Alkyd, Gloss, Tints and White (for Interior Use). TT-E-508 Enamel, Interior, Semigloss, Tints and White. TT-E-509 Enamel, Odorless, Alkyd, Interior, Semigloss, White and Tints. TT-E-545 Primer (Enamel-Undercoat, Alkyd, Odorless, Interior, Flat, Tints and White). TT-P-30 Paint, Alkyd, Odorless,

Interior, Flat, White and Tints. TT-P-38 Paint, Aluminum, Ready-Mixed.
2.8 Fire Retardant Paint:
2.8.1 Non-Metallic Surfaces: TT-P-26 Paint, Interior, White, Tints and Black, Fire Retardant.
2.8.2 Metallic Surfaces: TT-P-001932 Paint, Latex Base, Interior, White, Tints and Black, Fire Retardant.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Concrete and Concrete Masonry Units: Remove all glaze, efflorescence, laitance, dirt, grease, oil, asphalt, and surface deposits of iron and other foreign matter.
3.1.2 Asbestos Cement: Remove stains with solvent. Do not wire-brush.
3.1.3 Gypsum Wallboard: Remove dirt and dust prior to application of first coat.
3.1.4 Plaster: Age at least 30 days. Clean, remove loose matter, and repair surface irregularities. Instrument-measured moisture content shall not exceed 8 percent.
3.1.5 Wood: Remove foreign matter. On seasoned knots, scrape, clean, and apply thin coat of knot sealer. Scrape off or remove pitch with mineral spirits or turpentine. Set nails, and prime and fill nail holes and other surface imperfections with putty or plastic wood filler. Allow to dry and sand smooth.
3.1.6 Ferrous Metals, Ungalvanized: If not shop-coated, clean with solvent. Remove loose rust, mill scale, and other foreign matter by proper wire brushing or sand blasting.
3.1.7 Ferrous Metals, Galvanized: Clean with solvent.
3.2 Application: Provide complete hiding and uniform thickness of coats.
3.2.1 Concrete Masonry Units: Apply filler coat to bare concrete masonry unit surfaces where required and allow to dry. Follow with finish coats.
3.2.2 Gypsum Wallboard and Plaster: Touch up suction spots or overall application of base coat or sealer to produce a uniform color or gloss prior to application of finish coats.
3.2.3 Wood to Receive Stain: Sand lightly after application of stain. On open-grain wood surfaces, apply wood filler after staining as required. Sand smooth. Sand lightly between coats of varnish.
3.2.4 Ferrous Metals: Prime bare metal prior to application of finish coats.

Painting of Water Storage Tank Interior Surfaces

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for painting water storage tank interior surfaces. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: The following materials form a part of this section of the specification: Mil. Spec. DOD-P-15328, SSPC Paint 8, and Mil. Spec. MIL-P-15930.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Respirators: Respirators shall be worn by all persons engaged or assisting in spray painting. Air-fed respirators will be worn by all persons engaged in spray painting in confined areas (water thinned coatings excluded).
3.1.2 Forced Ventilation: Whenever surface preparation or painting operations include the use of volatile organic solvents, the enclosed space shall be made safe at all times from fire and explosion as determined by a calibrated explosimeter or organic vapor analyzer. During the painting operation, sufficient exhaust ventilation shall be provided to exchange the air in the enclosed spaces with fresh air at the rate of 5,000 cfm for each spray gun in operation. All parts of the enclosed spaces shall be swept by moving air. Exhaust ducts shall discharge clear of working areas and away from sources of possible ignition. If the ventilation fails, operations shall be stopped and the compartment evacuated until sufficient exhaust ventilation is provided.
3.1.3 Blast Cleaning: Ferrous surfaces shall be dry blast cleaned to near white metal grade, which shall be in compliance with SSPC-SP 5, except that paragraphs 3.1, 3.2, 3.3, and 3.10 shall not be applicable and except that a limited relaxation from the uniform white metal grade of surface cleanliness will be permitted, as follows. The metal shall be cleaned to such a degree that were a large surface to be divided into 6-inch squares, at least 75 percent of the subdivisions would meet

the white metal grade of cleanliness and the remaining subdivisions would be randomly distributed. Within these small, randomly distributed areas a minor relaxation from white metal cleanliness would be permitted, consisting only of very slight shadows, stains, and discolorations stemming from very thin, adherent, sparsely scattered residues of mill scale and corrosion products. No relaxation from the white metal grade will be permitted on surface irregularities such as edges, interior angles, welds, rivet lines, and junctions of joining members. The overall blasting effort expended shall be not less than two-thirds (2/3) of that which would be required to accomplish the white metal grade of cleanliness on the specific surfaces involved, but this limitation shall not be construed as a waiver of any of the requirements above. Remove weld spatter not dislodged by blasting with impact or grinding tools. Surfaces shall be dry at the time of blasting.

3.1.4 Surface Protection: Within 8 hours after cleaning but in any event prior to the deposition or formation of any detectable moisture, contaminants, or corrosion, all ferrous surfaces that have been blast cleaned to the near-white metal grade shall be cleaned of dust and abrasive particles by brushing, vacuum cleaning, and/or blowdown with clean, dry compressed air, and shall be given the pretreatment and first coat of paint.

3.1.5 Pretreatment: All sandblasted surfaces shall receive a washcoat pretreatment complying with Mil. Spec. DOD-P-15328. Application shall be by spray, and all requirements of the specification concerning mixing, thinning, application, and spreading rate shall be followed. All materials not applied within a maximum of eight hours after mixing shall be discarded and must not be used.

3.2 Installation:

3.2.1 Primer Paint: All pretreated surfaces shall receive two coats of vinyl paint complying with Mil. Spec. MIL-P-15930. Application shall be by brush or spray. All corners, angles, welds, rivets, and other surface irregularities shall receive one additional preliminary spray coat. The succeeding primer coat (or initial finish coat) shall not be applied until the primer is dry to touch. The color of alternate coats shall provide contrast to assist in obtaining complete coverage.

3.2.2 Finish Paint: All primed surfaces shall receive a minimum of two coats of Aluminum Vinyl Finish Paint complying with SSPC Paint 8. The paint shall be formulated as specified except that high boiling solvents such as cyclohexanone shall not be used in the formulation. High boiling solvents may be substituted for the ketones specified in the thinner only if ambient temperatures at the time of application exceed 75 F (24 C). Application shall be by spray. All corners, angles, welds, rivets, and other surface irregularities shall receive one additional preliminary spray coat. The succeeding coat shall not be applied until the first coat is dry to touch.

3.2.3 Thickness Requirements: Apply the washcoat pretreatment to a dry film thickness of at least 0.3 mils but not exceeding 0.5 mils. Apply the primer paint to produce a dry film of approximately 2.5 mils. Apply the finish paint such that the resulting total system has a minimum dry film thickness of at least 5 mils at its thinnest point. If this thickness is not obtained in the specified number of coats, apply additional coats of the finish paint to meet the minimum thickness requirement at no additional cost to the Member. Final thickness measurements shall be made by the Contractor in the presence of the Authorized Member Representative using a magnetic thickness gauge as specified in SSPC-PA 2.

3.2.4 Final Drying Time: After the final coat of paint has been applied, the tank shall remain open and forced ventilation shall be continued for a minimum of three days prior to being flooded with water.

3.2.5 Washing: After the final work has been completed in the tank, but prior to any disinfecting operations, wash the tank with clean water to remove all dust and overspray. Washing may take place during the final dry time provided the coating is sufficiently cured to withstand the abuse.

3.2.6 Disinfection of Tank: After painting and all other interior work has been completed, disinfect the tank before it is replaced in service. If the local medical facility or health department requires a specific procedure for disinfection, follow that procedure. Otherwise the following procedure shall be followed: Place water containing 50 ppm chlorine in the tank to such a depth that when the tank is filled the resultant chlorine concentration shall be no less than 2 ppm. Hold the water containing 50 ppm chlorine in the tank for 24 hours before the tank is filled. Allow the full tank, in turn, to stand for 24 hours, after which the tank may be put into service without draining the water used to disinfect it.

Painting of Water Storage Tank Exterior Surfaces

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for painting water storage tank exterior surfaces. Product shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: The following materials form a part of this section of the specification: Fed. Spec. TT-P-86, TT-P-320, TT-V-81, and SSPC Paint 101.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 All exterior surfaces to be painted shall be cleaned using power tools in compliance with SSPC-SP 3 or, at the option of the Contractor, surfaces may be blast cleaned in compliance with SSPC-SP 7. In addition, the following operations shall be implemented.

3.1.2 Mildew shall be removed from all surfaces to be painted by scrubbing the surface with a solution consisting of 1/2 pound of trisodium phosphate and 1 pound of hypochlorite bleach per gallon of warm water. Additional bleach may be beneficial in heavily mildewed areas. Rinse surfaces to remove cleaning materials and allow to dry completely before repainting.

3.1.3 Surface glaze remaining on existing coatings shall be removed either by lightly abrading the surface or through the use of a chemical deglosser.

3.1.4 Removal of Vines and Trimming of Plantings: Remove all ivy vines and tentacles interfering with the contract work from the exteriors of the structure and haul from the site of the work. Remove ivy in such a fashion that the remaining growth shall all be live and connected to the root system. Other types of plantings that interfere with the contract surfaces shall be trimmed or tied back.

3.2 Installation:

3.2.1 All paints shall be mixed, thinned, and applied in compliance with the procedures and requirements set forth in SSPC-PA 1. The following paint system shall be used.

3.2.2 Primer: The primer shall consist of one coat of a material complying with Fed. Spec. TT-P-86, Type II.

3.2.3 Finish Coats: The finish coats shall consist of a minimum of two coats of one of the following paints: Paint 1 - job-mixed alkyd aluminum paint in compliance with SSPC Paint 101 Type I or Paint 2 - aluminum paint consisting of aluminum paste and a mixing varnish in compliance with Fed. Spec. TT-V-81, Type II and mixed in the proportions of two pounds of aluminum paste complying with Fed. Spec. TT-P-320 per gallon of mixing varnish.

3.2.4 Thickness Requirements: Apply the primer paint to a dry film thickness of approximately 1.5 mils. Apply the finish paint such that the resulting total system has a minimum dry film thickness of at least 3.5 mils at its thinnest point. If this thickness is not obtained in the specified number of coats, apply additional coats of the finish paint to meet the minimum thickness requirement. Final thickness measurements shall be made by the Contractor in the presence of the Authorized Member Representative, using a magnetic thickness gauge as specified in SSPC-PA 2.

3.2.5 Respirators: Respirators shall be worn by all persons engaged or assisting in spray painting. Air-fed respirators will be worn by all persons engaged in spray painting in confined areas (water thinned coatings excluded).

3.2.6 Lettering and Sign Painting: Building number signs, gauges, and other signs that are painted shall have lettering and numbering repainted. Design and color shall match existing.

Wall Coverings

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of vinyl, cork, fabric, and flexible wood wall coverings. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Vinyl Wall Covering: Wall covering shall conform to Fed. Spec. CCC-W-408, Type I, II, or III as required. A polyvinyl fluoride film, 1/2 mil thick, shall be factory-applied to the wall covering as

required. The film shall conform to Fed. Spec. L-P-1040, Type I, Grade B, Class 2.

2.2 Cork wall covering shall be either sheet cork in standard 24-inch by 36-inch sheet size, or sheeting composed of a cork sheeting material factory-bonded to a fabric backing. Wall covering material shall be either 20 ounces per lineal yard or 24 ounces per lineal yard and 36 inches wide, as required.

2.3 Fabric wall covering shall be natural woven fabric bonded to a paper backing. Fabric materials shall be treated for stain and mildew resistance and shall be a minimum of 27 inches wide. All fabric wall coverings shall be Class A flame-rated and tested in accordance with ASTM E 84.

2.4 Flexible wood sheets shall be composed of genuine wood veneer bonded to a clay-filled cotton backing fabric to form a flexible wall covering in sheets not less than 12 inches wide, factory matched and numbered in sequence for spaces as required.

2.5 Primer and adhesive shall be mildew-resistant and non-staining, as recommended by the wall covering manufacturer.

2.6 Wainscot caps shall be aluminum extrusions.

2.7 Fire Hazard Classification: Provide wall covering materials bearing UL label and marking, indicating fire hazard classification of wall covering, as determined by ASTM E 84. Provide materials with the following fire hazard classifications: Flame spread not more than 25. Smoke developed not more than 50.

3.0 EXECUTION:

3.1 Wall covering materials shall be acclimatized by removing from packaging in area of installation not less than 24 hours before application.

3.2 Prime and seal substrates in accordance with wall covering manufacturer's recommendations for type of substrate. Surface sealer shall be applied to gypsum wallboard to permit future removal of wall covering without damage to paper facing.

DIVISION 10-SPECIALTIES

Compartments and Cubicles for Shower and Toilet Rooms

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of laminated plastic and metal toilet partitions, urinal screens, and shower and dressing compartments. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Laminated Plastic Toilet Partitions and Urinal Screens:

2.1.1 Plastic laminate shall be NEMA LD-3, minimum 0.062 inch thick.

2.1.2 Core material for plastic laminate shall be manufacturer's standard particleboard or plywood, in thickness to provide a nominal dimension of 1 inch for doors, panels, and screens and 1-1/4 inches for pilasters.

2.1.3 Pilaster shoes shall be ASTM A 167, Type 302 or 304, stainless steel not less than 3 inches high, 20 gauge, finished to match hardware.

2.1.4 Stirrup brackets shall be manufacturer's standard design for attaching panels to walls and pilasters, either chromium-plated nonferrous cast alloy or anodized aluminum.

2.1.5 Hardware and accessories shall be manufacturer's standard design heavy duty operating hardware and accessories of chromium-plated nonferrous cast alloy or chromium plated brass, as required.

2.1.6 Overhead bracing shall be continuous extruded aluminum tubing in antigrip profile, with clear anodized finish.

2.1.7 Anchorages and fasteners shall be manufacturer's standard exposed fasteners of stainless steel, chromium-plated steel, or brass finished to match hardware, with theft-resistant type heads and nuts. For concealed anchors, use hot-dip galvanized, cadmium-plated, or other rust-resistant protective-coated steel.

2.1.8 Fabrication:

2.1.8.1 General: Furnish standard doors, panels, screens, and pilasters fabricated for partition system. Furnish units with cutouts, 10155-drilled holes, and internal reinforcement to receive partition-

mounted hardware, accessories, and grab bars.

2.1.8.2 One-piece face sheets shall be pressure-laminated to core material with no splices or joints, and with edges straight and sealed. Seal exposed core material at cutouts to protect against moisture.

2.1.8.3 Overhead-Braced Partitions: Furnish galvanized steel supports and leveling bolts at pilasters, as recommended by manufacturer to suit floor conditions. Make provisions for setting and securing continuous aluminum overhead-bracing tube at top of each pilaster. Furnish shoe at each pilaster to conceal supports and leveling mechanism.

2.1.8.4 Floor-Supported Partitions: Furnish galvanized steel anchorage devices, complete with threaded rods, lock washers, and leveling adjustment nuts at pilasters, to permit structural connection at floor. Furnish shoe at each pilaster to conceal anchorage.

2.1.8.5 Ceiling-Hung Partitions: Furnish galvanized steel anchorage devices, complete with threaded rods, lock washers, and leveling adjustment nuts at pilasters, to permit connection to structural support above finished ceiling. Furnish devices that are designed to support pilasters from structure without transmitting load to ceiling finish. Furnish 3 inch high stainless steel trim piece, finished to match hardware, at each pilaster.

2.1.8.6 Wall-Hung Screens: Furnish panel units of same construction and finish as partition system panels.

2.1.8.7 Floor-Supported Screens: Furnish pilasters not less than 1 inch in thickness, panels and pilasters of same construction and finish as toilet partitions. Furnish galvanized steel anchorage devices, complete with threaded rods, lock washers, and leveling adjusting nuts at pilasters, to permit structural connection to floor. Furnish shoe at pilaster to conceal anchorage.

2.1.8.8 Furnish hardware for each compartment in partition system, as follows:

a. Cutout inset type hinges, adjustable to hold door open at any angle up to 90 degrees; gravity type, spring-action cam type, or concealed torsion rod type.

b. Recessed or surface-mounted latch unit, designed for emergency access, with combination rubber-faced door strike and keeper.

c. Coat hook with combination hood and rubber-tipped bumper.

d. Door pull.

2.2 Metal Toilet Partitions and Urinal Screens:

2.2.1 Toilet enclosures shall conform to Fed. Spec. RR-P-1352, Type I, Style A, B, or C as required. Finish surface of panels shall be baked enamel, in color as required. Panels to receive toilet paper holders or grab bars shall be reinforced for the reception of the items required.

2.2.2 Room entrance screens shall conform to Fed. Spec. RR-P-1352, Type II, Style A . Finish surface of screens shall be baked enamel.

2.2.3 Urinal screens shall conform to Fed. Spec. RR-P-1352, Type III, Style A or D, as required. Finish surface of screens shall be baked enamel. Width of Style A screens shall be 24 inches or 36 inches, as required.

2.3 Shower and Dressing Compartments:

2.3.1 General: Materials shall be provided which have been selected for surface flatness and smoothness. Exposed surfaces, which exhibit pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections on finished units are not acceptable. Shower compartments shall include a shower receptor for each compartment. 2.3.2 Steel Sheets for Baked Enamel Finish shall be ASTM A 591, Class C, galvanized-bonderized, of the following minimum thicknesses:

a. Pilasters (overhead-braced): 20-gauge.

b. Panels and Screens: 20-gauge.

c. Doors: 22-gauge.

2.3.3 Concealed anchorage reinforcement shall be minimum 12-gauge galvanized steel sheet.

2.3.4 Concealed tapping reinforcement shall be minimum 14-gauge galvanized steel sheet.

2.3.5 Core material for metal partitions shall be manufacturer's standard sound-deadening honeycomb of impregnated Kraft paper, in thickness to provide finished dimension of 1 inch minimum for doors, panels, and screens and 1-1/4 inches minimum for pilasters.

2.3.6 Pilaster shoes shall be ASTM A 167, Type 302/304 stainless steel, not less than 3 inches high, 20-gauge, finished to match hardware.

2.3.7 Stirrup brackets shall be manufacturer's standard design for attaching panels to walls and pilasters, either chromium-plated nonferrous cast alloy or anodized aluminum.

2.3.8 Hardware and Accessories shall be manufacturer's standard design, heavy-duty operating hardware and accessories of chromium-plated nonferrous cast alloy or chromium-plated brass, as required.

2.3.9 Overhead bracing shall be continuous extruded aluminum tubing in antigrip profile, with clean anodized finish.

2.3.10 Anchorages and fasteners shall be manufacturer's standard exposed fasteners of stainless steel, chromium-plated steel, or brass finished to match hardware, with theft-resistant type heads and nuts. For concealed anchors, use hot-dip galvanized, cadmium-plated, or other rust-resistant protective-coated steel.

2.4 Solid Plastic(polymer resin) Toilet / Shower Enclosures and Urinal Screens:

2.4.1 Toilet and shower enclosures shall conform to FS RR-P-1352, Type I, style A. Doors, panels, pilasters, and screens shall be solid Polymer resin. All doors, panels, pilasters and screens shall be protected with a plastic masking.

2.4.2 Doors, panels, pilasters, and screens shall be one (1) inch thick with all edges uniformly machined to a o.250 inch radius. Panels shall be anchored to walls and pilasters with continuous wall brackets made of extruded aluminum. Each panel shall contain a continuous aluminum strip on the bottom. Doors, Panels, pilasters and urinal screens shall be provided with the standard hardware. Doors shall be furnished with one (1) coat hook / bumper of manufacturer's standard.

2.5 Fabrication:

2.5.1 Furnish standard doors, panels, screens, and pilasters fabricated for partition system, unless otherwise indicated. Furnish units with cutouts, drilled holes, and internal reinforcement to receive partition-mounted hardware, accessories, and grab bars, as required.

2.5.2 Door Dimensions: Unless otherwise indicated, furnish 24-inch wide in-swinging doors.

2.5.3 Pressure laminate seamless face sheets to core material and seal edges with continuous interlocking strip or with lapped and formed edges. Weld edges and corners, with exposed welds ground smooth.

2.5.4 Overhead-Braced Partitions: Furnish galvanized steel supports and leveling bolts at pilasters, as recommended by manufacturer to suit floor conditions. Make provisions for setting and securing continuous aluminum overhead-bracing tube at top of each pilaster. Furnish shoe at each pilaster to conceal supports and leveling mechanism.

2.5.5 Floor-Supported Partitions: Furnish galvanized steel anchorage devices, complete with threaded rods, lock washers, and leveling adjustment nuts at pilasters, to permit structural connection at floor. Furnish shoe at each pilaster to conceal anchorage.

2.5.6 Furnish hardware for each dressing compartment as follows:

a. Cutout inset type hinges, adjustable to hold door open at any angle up to 90 degrees; gravity type, spring-action cam type, or concealed torsion rod type.

b. Recessed or surface-mounted latch unit, designed for emergency access, with combination rubber-faced door strike and keeper.

c. Coat hook, with combination hook and rubber-topped bumper.

d. Door pull.

2.5.7 Accessories: Each dressing compartment shall be provided with the following accessories: shower curtain rod, curtain, hooks, soap dish, and wood seat.

2.5.8 Finish for compartments and showers shall be baked enamel. Clean galvanized steel surfaces after fabrication and before application of enamel coating system to remove processing compounds, oils, and other contaminants. Prime metal with baked-on rust-inhibitive primer. Apply two coats of thermosetting enamel finish, applied by electrostatic process, and baked in accordance with paint manufacturer's instructions.

2.5.9 Shower receptor shall be pre-cast terrazzo, made of marble chips cast in white Portland cement. Provide wrought brass drain bodies cast integrally in receptor. Drain bodies shall provide for caulked lead connection not less than one inch deep to a two-inch pipe, with a removable type stainless steel strainer. Shower receptor curb shall be rabbeted 1 inch deep to receive steel shower walls. Receptors shall have an integral steel flange, 6-inch minimum height, on all sides except at threshold location.

3.0 EXECUTION:
3.1 Installation: Partitions associated with compartments and cubicles shall be installed straight and plumb with all horizontal lines level and rigidly anchored to the supporting construction. Anchorage to walls shall be by through-bolting or toggle-bolting as required. Drilling and cutting for installation of anchors shall be at locations that will be concealed in the finished work.

Access and Pedestal Floors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of access and pedestal floors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Provide access flooring that, when installed, complies with NFPA 75, (components shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less when tested in accordance with NFPA 255 and ASTM E 84) unless otherwise directed.
2.1 Panels shall be 24 inches by 24 inches square (+/- 0.015 inch) and shall be capable of withstanding a concentrated load of 1,200 pounds with a deflection of not greater than 0.080 inches and a uniform load of 500 pounds per square foot with a deflection not to exceed 0.080 inches.
2.2 Pedestals shall be assemblies that are electrically conductive and corrosion-resistant. Each shall be capable of adjustments of 1/64-inch increments, have positive locking, and be capable of supporting a 5,000-pound axial load.
2.3 Stringers (on floors 18 inches in height or greater) shall be capable of individual removal and shall support 200 pounds.
2.4 Accessory ramps, handrails, and fascia plates shall be compatible with panels and pedestals.
3.0 EXECUTION:
3.1 Preparation: No installation of access flooring shall take place until structural floor surfaces are clean and dry.
3.2 Installation:
3.2.1 Completed system shall be rigid and free from vibration, with no rocking panels.
3.2.2 Floor shall be level within +/- 0.062 inch in any 10-foot area and +/-0.125 inch over the entire area.

Pest Control

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for pest control. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: One of the following materials shall be used for pest control:
2.1 Benzene Hexachloride, 0.8 percent gamma isomer concentration in a water emulsion.
2.2 Chlordane, 1.0 percent concentration in a water emulsion.
2.3 Heptachlor, 0.5 percent concentration in a water emulsion.
3.0 EXECUTION:
3.1 Immediately prior to placing concrete floor slabs on grade and basement slabs for structures and immediately prior to backfilling around foundation for structures with basements or crawl spaces, soil treatment shall be applied as hereinafter specified. Soil treatment agents shall be delivered to the jobsite in sealed and labeled containers. Labels shall bear the manufacturer's warnings to be observed in the handling and use of soil treatment materials.
3.2 Soil treatment shall be applied in accordance with the precautions on the label and in the following minimum quantities:
3.2.1 Under slabs on grade, 1-1/2 gallons per 10 square feet as overall treatment. In critical areas such as around utility openings for pipes, ducts, and conduits, 0.5 gallon per square foot shall be applied. Along the exterior perimeter of the slab and under expansion joints, 2 gallons per 5 linear feet in a strip 1 foot wide shall be applied.

3.2.2 Foundation walls of structures with basements, 2 gallons per 5 linear feet per foot of depth from finished grade to top of footings in a strip 1 foot wide on exterior side at each elevation as follows: near level of top of footings before any backfill is placed, as each 1-foot lift of backfill is completed, and just below finished grade. Two gallons per 5 linear feet in a strip 1 foot wide shall be applied under the basement slab next to perimeter footings.

3.2.3 Foundation walls of structures with crawl spaces, 2 gallons per 5 linear feet per foot of depth from finished grade to top of footings in a strip 1 foot wide on exterior, with one-half of the application near level of top of footings before any backfill is placed, and the remainder just below finished grade. Two gallons per 5 linear feet in a strip 1 foot wide shall be applied adjacent to the interior side of the foundation of buildings.

Flagpoles

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of flagpoles. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Steel flagpoles shall be constructed from standard weight steel pipe complying with ASTM A 53, Type S, Grade B, or better.

2.2 Aluminum flagpoles shall be fabricated from seamless extruded tubing complying with ASTM B 241, alloy 6063-T6, having a minimum wall thickness of 3/16 inch.

2.3 Stainless steel flagpoles shall be seamless construction, fabricated of AISI 302/304 alloy.

2.4 Bronze Flagpoles shall be fabricated from Copper Development Assoc. No. 230 bronze alloy seamless pipe.

2.5 Flagpole style shall be cone-tapered, sectionally swaged, or entasis-tapered and shall be of designated height and diameter.

2.6 Two continuous halyards shall be provided for each pole and furnished complete with all standard fittings.

2.7 Provide anchors and base necessary for the particular installation requirements.

3.0 EXECUTION

3.1 Flagpoles shall have a positive lightning ground for each installation.

3.2 Portions of ground-set flagpoles shall be painted below ground with a heavy coat of bituminous paint.

Directory and Bulletin Boards

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of directories and bulletin boards. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Directory boards shall be grooved and covered with felt, vinyl, or rubber. Boards shall be fabricated of one piece of material. Space grooves at 1/4 inch O.C. to receive changeable letters or changeable name bases, as required.

2.2 Chalkboard surfaces shall comply with Porcelain Enamel Institute specifications.

2.3 Tack Board Surfaces shall be natural cork, plastic-impregnated cork, or vinyl fabric laminated under pressure to 1/4 inch thick exterior plywood or hardwood backing.

2.4 Visual aid boards shall have a white porcelain enamel writing surface.

2.5 Frames shall be constructed of hardwood, chrome-plated steel, aluminum, bronze, or stainless steel of designated design. All units located on the exterior shall be of weatherproof construction.

2.6 Glass for encased boards shall be laminated glass, tempered glass, acrylic sheeting, or polycarbonate sheeting.

2.7 Locks and keys for glass-encased boards shall be of the disk tumbler type with two keys.

3.0 EXECUTION:

3.1 Mounting surface preparation, and product installation shall be in accordance with the product manufacturer's written recommendations.

3.2 The work shall be protected against damaged during construction. During construction hardware shall be adjusted for proper operation. Products that are damaged or improperly installed shall be removed and reinstall or replaced with new products as directed. Glass, frames and other discolored surfaces shall be cleaned in accordance with manufacturer's instructions.

Signs

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of signs. Materials shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Cast-aluminum letters shall have a satin, polished, clear anodized, colored anodic, or enameled finish.

2.2 Cast-bronze letters shall have a satin, polished, or oxidized finish.

2.3 Special medallion construction shall be of cast bronze or aluminum, free from pits, scale, second holes, or other defects.

2.4 Adhesive door signs shall be fabricated from individually die cut-to-shape letters that are pre-spaced and pre-masked on a high-quality plastic film coated with a pressure-sensitive adhesive backing.

2.5 Hard plastic door signs shall be made from high-pressure plastic laminate engraving stock with face and core plies in contrasting colors.

2.6 Frames for plastic door signs shall be made of solid extruded aluminum with an anodized gold or silver finish and concealed mounting holes. Frames shall be designed to allow signs to slide in from the side.

3.0 EXECUTION

3.1 Signs shall be installed in accordance with approved manufacturer's instructions. Signs shall be installed plumb and true at mounting heights. Locations and mounting heights shall be as directed by the Authorized Member Representative. Signs mounted on other surfaces shall not be installed until the finishes on such surfaces have been completed.

3.1 Anchorage shall be in accordance with approved manufacturer's instructions. Anchorage not otherwise specified or indicated shall include slotted inserts, expansion shields, and power- driven fasteners when approved for concrete; toggle bolts and through bolts for masonry; machine carriage bolts for steel; lag bolts and screws for wood.

3.2 The work shall be protected against damage during construction. Hardware shall be adjusted for proper operation. Glass, frames and other sign surfaces shall be cleaned in accordance with manufacturer's instructions.

Metal Lockers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of metal lockers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Materials and Finishes:

2.1.1 Stainless Steel: ASTM A 167, Type 302, 304, or 316 alloy. Exposed surfaces shall have a satin finish or a minimum of no. 4 polished finish.

2.1.2 Carbon Steel: ASTM A 366, baked enamel finish.

2.2 Wardrobe Lockers:

2.2.1 Backs and sides of lockers shall be fabricated of minimum 24-gauge steel with double flanged connections extending full height. Top and bottom shall be of not less than 24 gauge steel with flanged edges. Exposed ends of non-recessed lockers shall be of a minimum 16-gauge steel. Provide one 24-gauge steel hat shelf in single tier units.

2.2.2 Doors shall be one-piece construction of minimum 16-gauge sheet steel, flanged at all edges. Provide extra bracing or reinforcing on inside of doors over 15 inches wide.
2.2.3 Ventilation: Provide stamped, louvered vents in door face. Single tier lockers shall have not less than 6 louver openings top and bottom. Double-tier lockers shall have not less than 3 louver openings top and bottom. Multi-tier lockers shall have not less than 2 louver openings top and bottom, or 3 louver openings top or bottom.
2.2.4 Hinges shall be heavy-duty, not less than 0.050 inch thick steel, full-loop, 5-knuckle, tight pin, 2 inches high. Weld to inside of frame and secure to door with not less than 2 factory-installed fasteners, which are completely concealed and tamperproof when door is closed. Provide at least 3 hinges for each door 42 inches high and over, at least 2 hinges for each door less than 42 inches high.
2.2.5 Standard hardware items, including coat hooks, sequential number plates, and arrangements for locking devices, shall be provided.
2.3 Box Lockers:
2.3.1 Tops and bottoms of lockers shall be fabricated from minimum 16-gauge steel sheet and backs from not less than 18-gauge steel. Sides and intermediate partitions shall be constructed of expanded metal welded to steel hemming. Provide 16-gauge steel shelf in single tier lockers.
2.3.2 Doors shall be manufacturer's standard of either expanded metal in a steel frame or perforated steel sheet with flanged edges, minimum 16 gauge. Provide extra bracing or reinforcing on inside of doors over 15 inches wide.
2.3.3 Hinges shall be heavy-duty, not less than 0.050 inch thick steel, full-loop, 5-knuckle, tight pin, 2 inches high. Weld to inside of frame and secure to door with not less than 2 factory-installed fasteners that are completely concealed and tamperproof when door is closed. Provide at least 3 hinges for each door 42 inches and over, at least 2 hinges for each door less than 42 inches high, or continuous piano hinge at top for multi-tier units. Manufacturer shall provide all necessary hardware including sequential number plates and arrangements for locking devices.
2.4 Basket Locker: Rack shall have legs for fastening to the floor and sway braces. Racks shall be designed to allow bolting together to form double-faced racks.
2.4.1 Uprights on Rack shall be a minimum of 13 gauge, shelves a minimum of 18 gauge, and dividers a minimum of 20 gauge, ribbed for stiffness.
2.4.2 Baskets shall be all wire or wire and minimum 24 gauge steel front with perforations. All baskets shall be zinc plated with a bright finish. Pilfer guards shall be available for all styles of baskets.
2.4.3 Hardware shall be provided as required for installation and functioning including sequential number plates and arrangements for locking.
3.0 EXECUTION: Lockers shall be installed in accordance with the designated arrangement, securely anchored in position, and accurately aligned vertically and horizontally.

Fire Extinguishers, Cabinets and Accessories

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of fire extinguishers, cabinets, and accessories. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Fire extinguishers shall be Underwriters' Laboratories (UL) listed and/or Factory Mutual System (FM) approved for their intended use in compliance with NFPA 10 and its appendices. Fire extinguishers shall be clearly marked to indicate extinguisher suitability according to class of fire.
2.2 Fire extinguisher cabinets and accessories shall be in compliance with NFPA 10 and its appendices and shall be of sufficient size to house fire extinguishers of the type and capacity required.
3.0 EXECUTION:
3.1 Fire extinguishers shall be distributed and maintained in compliance with NFPA 10 and its appendices.
3.2 Fire extinguisher cabinets and accessories shall have the locations of fire extinguishers readily recognizable by the use of markings that are not part of the extinguisher itself.

Postal Specialties

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of mail chutes and mail boxes. Materials shall match existing materials and/or as shall be directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: All products shall comply with U.S. Postal Service requirements for construction and installation of units serviced by USPS carriers.

2.2 Mail chutes shall have sides and back that are of a continuous one-piece construction extending from floor to ceiling on each floor and extending 4 feet 6 inches above finish flooring on top floor. Back and sides shall be fabricated of aluminum with a 0.105-inch minimum thickness and alloy 6063-T5 extrusions with satin anodized finish complying with NAAMM-M31C21A31. Removable front panels shall be made of 3/16-inch tempered glass, 1/4-inch float glass, or transparent polycarbonate resin plate, set into continuous one-piece frames and covers. Frames and covers shall be fabricated from aluminum with a 0.125 inch minimum thickness, and alloy 6063-T5 extrusions with satin anodized finish complying with NAAMM-M31C21A31, or color anodized, bronze, or standard bronze statuary finish.

2.2.1 Furnish manufacturer's standard cast-metal floor and ceiling fascia and lock band finished to match front frames and covers. Furnish lock band with acceptable locking device and keyed lock that prevents key removal if locking device is not secured.

2.2.2 Mail slot shall be metal pocket with cigarette ejector and brass finish. Inscribe "U.S. MAIL" on face of mail slot.

2.2.3 Bundled mail or package chute shall be constructed similarly to standard mail chutes. Furnish complete with removable frames, hinged lock band, bottom deflector or baffle slow-down, and mail openings on each floor. Fabricate chute size 14 inches wide and 7 inches deep, unless otherwise indicated. Bundled mail chutes will not require USPS approval.

2.2.4 Locked receiving mail box shall be constructed of aluminum alloy 6063-T5 with satin anodized finish complying with NAAMM-M31C21A31 or bronze with statuary finish. Boxes shall be 36 inches by 20 inches by 12 inches.

2.3 Mail Boxes:

2.3.1 Letter slot shall be metal, designed for flush mounting. The legend "U.S. MAIL" must be plainly inscribed on every mail opening.

2.3.2 Rural letter box shall be post-mounted type and shall have a heavy-duty piano hinge and red flag. Doors shall have legend "U.S. MAIL" plainly inscribed. Boxes shall have a polyurethane baked-on finish that resists rust.

2.3.3 Apartment House Keyed Mail Boxes: Mail compartments and wall receptacles shall be of heavy galvanized steel or corrosion-resistant metal construction. Each compartment shall be designed to receive name card and shall bear identification numbers as directed.

2.3.4 Letter Box with Combination Lock: Each compartment shall be equipped with a single dial, 3-digit combination lock and shall be provided with identification numbers.

2.3.5 Letter Box with Keyed Lock: Each compartment shall be equipped with a 5-pin tumbler cylinder lock capable of at least 1,000 key changes, with 2 keys for each box door. Each box shall be keyed differently and a master key shall be provided. Provide identification numbers for each compartment.

3.0 EXECUTION: Install postal specialties so that they comply with U.S. Postal Service requirements.

Wire Mesh Partitions

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of wire mesh partitions. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:
2.1 Mesh shall be 10-gauge crimped steel wire woven into 1- 1/2 inch mesh, or heavy-duty type constructed of 6-gauge or 8-gauge steel woven wire woven into 2-inch mesh, securely clinched to frame members.
2.2 Frames: Provide cutouts for pipes, ducts, beams, and other items necessary for partition installation.
2.2.1 Vertical Members shall be 1-1/4 inch x 5/8-inch cold-rolled steel C-Section channels with 1/4-inch bolt holes approximately 15 inches on center.
2.2.2 Horizontal members shall be 1-inch x 1/2-inch x 1/8-inch cold-rolled steel channels, mortised and tenoned to vertical members.
2.2.3 Horizontal reinforcing members shall be 1-inch x 1/2-inch x 1/8-inch cold-rolled steel channel with wire woven through or two 1-inch x 3/8-inch channels bolted or riveted to each side of mesh and secured to vertical members. Provide number of horizontal reinforcing members to suit panel height.
2.3 Stiffening Bar: For free-standing partitions over 8 feet -0 inches in height, provide flat bar stiffener posts between abutting panel frames.
2.4 Top capping bars shall be 2-1/4 inch x 1-inch cold-rolled steel channels, secured to top framing channel with 1/4-inch U-bolts spaced not more than 28 inches on center.
2.5 Corner posts shall be 1-1/4 inch x 1-1/4 inch x 1/8-inch angles with 1/4-inch bolt holes to align with bolt holes in vertical frame members and floor plate.
2.6 Floor shoes shall be cast iron, sized to suit vertical framing and to provide approximately 3 inches clear space between finished floor and bottom horizontal frame members. Furnish units with set screw for leveling adjustment.
2.7 Sheet metal base shall be panels formed to 16-gauge steel sheet, welded or bolted to frames.
2.8 Hinged Door: Door frame shall be of 1-1/4 inch x 1/2-inch x 1/8-inch channels, with 1-1/4 inch x 1/8-inch flat bar cover plate on 3 sides and matching 1/8-inch thick angle strike bar and cover on lock side. Provide 1-1/2 pair butt hinges riveted or welded to door and frame and bronze mortise type cylinder lock operated by key outside with recessed knob inside. Provide cylinders for lock, keyed and master keyed, if required.
2.9 Sliding Door: Door frame shall be of 1-1/2 inch x 3/4-inch x 1/8-inch channels with 1-1/2 inch x 1/8-inch flat bar cover plate on all 4 sides. Provide door with two 4-wheel roller bearing carriers, box track, bottom guide channel, and bronze mortise type cylinder lock operated by key outside and recessed knob inside. Provide cylinders for locks, keyed and master keyed, if required.
2.10 Service Window: Fabricate of same mesh and frames as panel units, arranged to lock in open and closed positions with spring catches.
2.11 Service Window Shelf: Fabricate of 12-gauge steel, flanged front and back, edges finished smooth, with side brackets for support.
2.12 Line Posts: Where partition runs exceed 20 feet without intersection or connection to overhead framing, furnish standard line posts and base plates located at intervals to ensure partition rigidity and stability.
2.13 Finish: Manufacturer's standard shop-applied enamel finish.
2.14 Provide bolts, hardware, and accessories for complete installation.
3.0 EXECUTION:
3.1 Erect partitions plumb, rigid, properly aligned, and securely anchored in place.
3.2 Provide additional field bracing as necessary for rigid, secure installation.

Demountable Partitions

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of demountable partitions. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 General Requirements: Movable partitions shall be floor-to-ceiling type, designed for erection on

finished floors, and shall include doors, windows, fasteners, and accessories required for the installation. The partition system shall be capable of accommodating electrical wiring, outlets, and switches and shall be readily demountable without damage to panels, framing, electrical work, and other major components.

2.2 Fire-resistive rating and test: partitions shall have a flame spread rating of 25 or less and a smoke developed rating of 50 of less when tested in accordance with ASTM E 84. Fire-resistance rating shall be determined in accordance with ASTM E 119.

2.3 Sound Transmission Class and Test: Where sound-rated partitions are required, partition assemblies shall have a minimum STC of 40. STC range shall be determined in accordance with Sound Transmission Test by Two-Room Method and reported in accordance with the appendix to ASTM E 90 for 11 frequency data or ASTM E 413 for 16 frequency data.

2.4 Panel units shall be manufacturer's standard construction except that gypsum wallboard shall be a minimum of 5/8 inch thick and shall conform to ASTM C 36. Gypsum backing board, if used, shall conform to ASTM C 442.

2.5 Framing System: The framing system shall consist of extruded anodized aluminum or roll-formed steel components that include ceiling runners, floor track, starting units, studs or posts, post covers if applicable, bracing, and suitable treated fasteners to prevent corrosion. The framing system when assembled with panel units shall form a rigid, stable partition.

2.6 Doors, Frames, and Hardware: Doors shall be 1-3/4 inch flush hollow metal of a size to provide 3/32-inch clearance at jambs and head. Door frames shall provide a compatible appearance with other trim components, shall be a minimum 18-gauge cold-rolled steel or extruded anodized aluminum constructed to incorporate a cushion door stop at the head and both jambs, and shall allow for variations in floor level. Door hardware shall be the manufacturer's standard type hardware, except all doors shall receive 1-1/2 pairs of 4-1/2 inch by 4-1/2 inch butts.

2.7 Finishes: Exposed steel or aluminum surfaces shall be prefinished. Gypsum wallboard shall be painted or finished with a minimum 6-mil vinyl wall covering, as required.

2.8 Base trim shall be 4-inch PVC without exposed fasteners, 4-inch vinyl cover base with snap-on capabilities, 4-inch vinyl cover base applied with adhesive, or 4-inch metal clip on base cover, as required.

3.0 EXECUTION: Partitions shall be erected plumb and straight after floor covering and finished ceiling are in place. Doors shall be hung to swing freely and hardware shall be carefully fitted and adjusted. Glass for glazed openings shall be installed on shims in a vinyl or polyurethane foam gasket. Glass stops shall be installed without exposed fastenings.

Security Screens

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of security screens for doors and windows. Products shall match existing materials and shall be as directed by the Authorized Member Representative. Installations shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Mesh shall be 9-gauge crimped steel wire woven into 2-inch mesh securely clinched to frame members.

2.2 Standard diamond pattern expanded metal shall be 1-1/2 inch, 9-gauge, carbon steel conforming to ASTM F 1267 Type I Class 1.

2.3 Flattened diamond pattern expanded metal shall be 1-1/2 9-gauge carbon steel conforming to ASTM F 1267 Type II Class 1.

2.4 Frame bars and center stiffeners shall be not less than 1/2-inch in diameter cold finished steel bars conforming to ASTM A 108.

2.5 Frame channels shall be hot rolled low carbon bar channels not less than 1-inch by 1/2-inch by 1/8-inch conforming to ASTM A 29.

2.6 Center stiffeners where frame channels are used, shall be not less than two 3/4-inch by 3/8-inch channels, conforming to ASTM A 29, bolted to each side.

2.7 Subframes for hinged security screens shall be not less than 1-1/4 inch by 1-1/4 inch by 1/8-inch

medium carbon steel angles conforming to ASTM A 36.

2.8 Finish: Manufacturer's standard shop-applied enamel finish or hot dipped galvanized as directed.

2.9 Provide bolts, masonry anchors, hardware, and accessories for complete installation. Hardware shall include all padlock hasps and staples, hinges, and locking devices. Provide cylinders for locks, keyed and mastered keyed, if required.

3.0 EXECUTION:

3.1 Erect security screens plumb, rigid, properly aligned, and securely anchored in place for a rigid installation.

Movable Metal Partitions

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of movable metal partitions. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Freestanding partition systems shall consist of individual panels, connector posts, and framing components. Nominal panel height shall be 5 feet-0 inches.

2.2 Panels shall be of manufacturer's standard width and height, constructed of 1/8-inch S2S tempered hardboard facing laminated to a core material. Total thickness shall be 1-9/16 inches.

2.3 Panel face coverings shall be vinyl, plastic laminate, fabric, natural hardwood, or baked enamel on steel substrate.

2.4 Panels shall have a flame spread rating of 25 or less and a smoke developed rating of 50 or less when tested in accordance with ASTM E 84 when tested as a composite unit.

2.5 Framing members shall be extruded aluminum shapes in 6063-T5 Alloy and 22-gauge pre-finished steel.

2.6 Exposed components shall have anodized or baked acrylic paint finish.

2.7 Panel frame design shall provide connection and attachment of connector posts and various framing components with the use of simple hand tools. Each panel unit shall be able to be individually free-standing or connected to other panels.

2.8 Sound-absorbing panels shall be constructed of flame-resistant decorator fabric applied over a reinforced wood frame and fiberglass core. Flame-resistant fiberglass insulation shall be held in place by galvanized steel wire netting. Total panel thickness shall be 2-1/2 inches providing a minimum noise reduction coefficient (NRC) of 0.75.

3.0 EXECUTION: Additional framing components shall be provided as required to assemble the freestanding partitions. Components include, but are not limited to, vinyl edge inserts and filler caps, individual panel supports, and wall connectors.

Metal Storage Shelving

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of metal storage shelves. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Metal Storage Shelving: Fed. Spec. AA-S-1048, Carbon Steel, baked enamel finish or ASTM A 167, stainless steel, a minimum no. 3 polished finish or a satin finish.

2.1.1 Shelves: Form of 0.0478-inch thick steel with front and rear faces double flanged and box channeled.

2.1.2 Brackets: Cantilever design, steel not less than 0.1046 inch thick and of hook-in-lift-off design, adjustable without use of tools.

2.1.3 Anchorage: 1/4-inch size bolts with standard nuts and lock washers.

3.0 EXECUTION: Storage shelving shall be installed in accordance with the designated arrangement, securely anchored in position, and accurately aligned vertically and horizontally.

Toilet Accessories

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of toilet accessories other than porcelain type tile wall accessories. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Finishes: Finishes on metal shall be provided as follows:

2.1.1 On Stainless Steel: No. 4 general-purpose polished.

2.1.2 On Carbon Steel, Copper Alloy, and Brass: Chromium-plated, bright.

2.2 Miscellaneous Accessory Items:

2.2.1 Mirror, Glass (MG): Glass mirror shall conform to Fed. Spec. DD-M-411.

2.2.2 Mirror, Metal (MM): Metal mirror shall be stainless steel or chromium-plated steel, mirror quality, 0.037-inch minimum thickness, edges turned back 1/4 inch and recess fitted with fiberboard backing, mounted with concealed theftproof fastening. Size shall be as required.

2.2.3 Grab Bar (GB): Grab bar shall conform to Fed. Spec. WW-P-541. Grab bar shall be form and length as required. Flange shall have screw mounting holes concealed on the lip of the flange. Installed bars shall be capable of withstanding a 500-pound vertical load without becoming loose from the fastenings and without obvious permanent deformation.

2.2.4 Shelf, Glass (SG): Glass shelf shall conform to Fed. Spec. WW-P-541 and shall be supported between brackets or on brackets. Shelf shall be plate or float glass, width and length as required. Separate supports shall be stainless steel.

2.2.5 Shelf, Metal, Heavy-Duty (SMHD): Heavy-duty metal shelf shall be stainless steel supported between brackets or on brackets not more than two feet on center. Thickness of shelf and brackets shall be not less than 0.07 inches. Shelf shall have rounded corners with minimum 1/2-inch lipped front edge, designed to support 60 pounds per linear foot. Width and length shall be as required.

2.2.6 Shelf, Metal, Light-Duty (SMLD): Light-duty metal shelf shall conform to Fed. Spec. WW-P-541. Shelf shall be supported between brackets or on brackets. Width and length shall be as required. Shelf and separate supports shall be stainless steel.

2.2.7 Soap and Grab Bar Combination, Recess-Mounted (SGR): Recess-mounted soap and grab bar combination shall conform to Fed. Spec. WW-P-541, stainless steel, modified to provide a grab bar. Plastic insert dish shall be furnished.

2.2.8 Towel Bar (TB): Towel bar shall conform to Fed. Spec. WW-P-541, stainless steel, length as required. Bar shall be minimum 3/4 inch in diameter.

2.2.9 Towel Pin (TP): Towel pin shall have concealed wall fastenings; pin shall be integral with or permanently fastened to wall flange, approximately 4-inch projection.

2.3 Dispensers and Receptacles:

2.3.1 Paper Towel Dispenser (PTD): Paper towel dispenser shall conform to Fed. Spec. WW-P-541.

2.3.1.1 Mounting S, Surface: Style N or O.

2.3.1.2 Mounting R, Recessed: Style P, Q, or T.

2.3.2 Sanitary Napkin and Tampon Disposer (SND): Sanitary napkin and tampon disposer shall conform to Fed. Spec. WW-P-541, stainless steel. Reusable liner of the type standard with the manufacturer shall be provided.

2.3.3 Sanitary Napkin and Tampon Dispenser (SNTD): Sanitary napkin and tampon dispenser shall conform to Fed. Spec. WW-P-541.

2.3.4 Waste receptacle (WR) shall conform to Fed. Spec. WW-P-541.

2.3.5 Facial tissue dispenser (FTD) shall conform to Fed. Spec. WW-P-541.

2.3.6 Toilet tissue dispenser (TTD) shall conform to Fed. Spec. WW-P-541.

2.3.7 Toilet paper holder (TPH) shall conform to Fed. Spec. A-A-2524, roller mounted, 2 support brackets.

2.3.8 Toothbrush and tumbler holder (TTH) shall conform to Fed. Spec. WW-P-541.

2.3.9 Soap dispenser (SD) shall be liquid type consisting of a stainless steel tank with hold capacity of 40 fluid ounces.

2.3.10 Soap holder (SH) shall conform to Fed. Spec. WW-P-541.
2.4 Medicine cabinets:
2.4.1 Medicine cabinet (MC) shall conform to Fed. Spec. WW-P-541. Width height, and depth of cabinet shall be as required.
2.4.2 Sliding door cabinet, Class 1, assembly shall be surface-mounted vanity or recessed cabinet with design and lighting arrangement as required.
2.4.3 Swinging door cabinet, Class 2, Design and assembly, including the lighting arrangement, shall be as required. Assembly shall be surface or recess-mounted.
2.5 Shower Curtains and Rods:
2.5.1 Shower curtain (SC) shall conform to Fed. Spec. A-A-2398, size as required to suit conditions.
2.5.2 Shower curtain rods (SCR) shall be stainless steel 1 inch OD by 0.049 inch minimum, straight or bent as required to meet installation conditions.
2.6 Hand dryer shall be electrically operated conforming to Fed. Spec. W-H-50. Unit shall be surface-mounted, semi-recessed or flush-mounted as required. Cover face shall be polished aluminum, cadmium-plated, polished chrome, stainless steel, or porcelain. Fan shall deliver a minimum of 150 cfm at the discharge end of the nozzle.
2.7 Ash urn shall be wall-mounted, paraboloidal shape, two quart capacity conforming to Fed. Spec. RR-A-1255. Urn shall be 22-gauge type 304 stainless steel with satin finish or satin bronze finish.
2.8 Janitorial Material:
2.8.1 Mop and broom holder shall be 18-gauge stainless steel, satin finish, 8 inches deep in standard lengths as required.
2.8.2 Utility shelf with mop and broom holders shall be 18-gauge stainless steel, satin finish, 8 inches deep in standard lengths as required.
2.8.3 Pail or ladder hook shall be 12-gauge stainless steel, bright polished finish projecting 8 inches from wall, 6 inches high, and 1 inch wide.
2.9 Hospital Accessories:
2.9.1 Foot Operated Soap Dispenser: Dispensing mechanism shall be non-corroding containing a stainless steel hood and shatter-proof container. The unit shall contain a molded rubber foot pump with non-slip base.
2.9.2 Bed Pan Storage Rack: Rack shall be stainless steel surface-mounted providing storage for bed pans and urinals.
3.0 EXECUTION: Anchors and fasteners shall be capable of developing a restraining force commensurate with the strength of the accessory to be mounted and shall be well suited for use with the supporting construction. Where exposed fasteners are permitted, they shall have oval heads and finish to match the accessory, except exposed fasteners in designated areas shall be of tamper-proof design.

Wardrobes

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of wood or steel wardrobes. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacture's recommendations. Demolition and removal of materials shall be a as required to support the work.
1.1 Design: Wardrobes shall be constructed of either wood or steel at the Contractor's option except when necessary to match existing or where one type is better suited for locality and intended usage. The material selected shall be used throughout the project. Design of wardrobes shall be by the Contractor using specified requirements as a minimum of acceptability. Each wardrobe shall be a complete unit capable of relocation without modifying or adding components, except for anchors and scribes. Common sides or backs between adjacent units are not permissible. The dimensions indicated are for the purpose of establishing general layout. Minor variations necessary to coordinate the details of construction will be permitted. All parts shall be manufactured to standards that will permit replacement without modifying of remaining parts.
2.0 PRODUCTS
2.1 Hardware:

2.1.1 Hinges shall be brass or steel, not less than 0.062 inch thick, 5 knuckle, tamper-proof institutional type, joint length not less than 2-1/2 inches, chromium finish or primed for paint finish. When doors are closed, only a smooth beveled and rounded joint shall be exposed. Doors 42 inches and less on the hinged side shall have two hinges; doors more than 42 inches on the hinged side shall have three hinges.

2.1.2 Latches: The active door of double doors on the clothes hanging compartment shall be provided with a three-point latching and locking mechanism. The handle shall be of the lever type, of cast brass or bronze, and shall be designed to permit locking by padlocking the handle to a steel keeper with a matching hole. A 14-gauge rectangular corrosion resisting steel shield shall be provided to protect the door from damage at the handle and padlock area. The interior components of the mechanism shall include locking bars or rods not less than 1/2-inch thick, two steel upper guides and two steel lower guides, three-finger cam, and applied strikes or reinforced openings for latching. The handle, keeper, and locking bars or rods shall have a chromium finish, and all other components shall have a chromium, nickel, zinc, or cadmium plated finish. Doors to overhead storage compartment, when separate from clothes hanging compartment doors, shall be provided with a heavy-duty catch and strike which will latch automatically when the overhead storage compartment is closed and which can be released manually when the clothes hanging compartment doors are open.

2.1.3 Clothes hanging rods shall be chromium plated or zinc-coated steel tubing approximately 1 inch in diameter and with a minimum wall thickness of 0.083 inch. Clothes hanging rods with exposed ends shall be provided with plastic caps to prevent marring the finish on the inside of the wardrobe.

2.1.4 Drawer slides shall be heavy duty 14-gauge steel mating channels equipped with replaceable nylon-tired rollers or self-lubricating double-prong plastic glides located to insure that the drawer will operate freely and smoothly throughout its travel. Slides shall have integral cushioned stops at both ends of the travel, shall permit removal of drawers without tools, and shall be free of excessive play or sag.

2.1.5 Silencers of rubber or similar resilient material shall be provided on door frames at close proximity to each latching point to minimize noise when the door is closed. Silencers shall be replaceable.

2.1.6 Astragals: Active door of double doors shall be provided with an astragal, full height of the door.

2.2 Steel Sheets shall be cold-rolled, commercial quality, stretcher level degree of flatness and of manufacturer's standard gauges specified.

2.3 Steel Wardrobe Construction:

2.3.1 Workmanship: Form bends accurately. Cut edges straight and smooth. Holes shall be accurately punched or drilled and have all burrs removed. Extend butt welds the full width of joining edges; grind smooth and flush with adjacent surfaces when on exterior of wardrobes. Resistance welds shall be 3/16-inch minimum diameter and maximum spacing of 8 inches on center. Welds shall be thoroughly fused and sound and free from cracks, fissures, pits, holes, gas pockets, porosity, and undercuttings. Leave no sharp corners or protrusions of any kind in the final assembled wardrobes. Use of mechanical fasteners exposed to exterior of unit shall be limited to those required for application of hardware and scribes.

2.3.2 Base shall be closed type, formed to provide a bearing surface at the floor, and provided with floor mounting holes. Bases constructed as part of the framing and panel members shall be of the same gauge as those members. Bases constructed as separate components shall be not lighter than 16-gauge steel.

2.3.3 Back and side panels shall each be formed of sheet steel not lighter than 22 gauge and shall be reinforced if necessary to impart rigidity to unbroken spans.

2.3.4 Front shall be not lighter than 18-gauge steel and multichannel formed as required to provide strength and rigidity to side panels, top, and bottom without exposing fasteners. Front shall be reinforced as necessary to serve as a stable mount and frame for doors and hardware. Fronts formed as part of side panels shall be equivalent to the specified 18-gauge steel multichannel construction. With the door closed, clearance between door edge and frame shall be uniform and shall not exceed 1/8 inch and door face shall be flush with the face of the front.

2.3.5 Top shall be not lighter than 22-gauge steel, flat exterior surface, and formed as required for

securing to back, front and sides.

2.3.6 Bottom shall be not lighter than 18-gauge steel and formed as required for securing to back, front and sides.

2.3.7 Hat shelf and upper storage shelf shall be not lighter than 18-gauge steel and formed as required for securing to back and sides.

2.3.8 Doors shall be of double-wall type with not lighter than 22-gauge steel inside panel and not lighter than 20-gauge outside panel separated by not less than 3/4 inch of rigid mineral insulation cemented between the panels. Doors shall be reinforced or otherwise prepared for the reception of hardware and to provide strength and rigidity to the doors.

2.3.9 Scribes and closures shall be not lighter than 20 gauge.

2.3.10 Chest Unit shall have top and side of not lighter than 20-gauge steel firmly attached to the wardrobe. Shelves shall be constructed of not lighter than 18-gauge steel. Drawer bodies shall be of not lighter than 22 gauge, and drawer fronts shall be of not lighter than 20 gauge with the top formed to provide a full length integral pull.

2.3.11 Finish shall be an approved factory-applied baked-enamel, semi gloss finish in accordance with manufacturer's standard finishes. Color will be selected from manufacturer's standard colors.

2.4 Wood Wardrobe Construction:

2.4.1 General: Except as otherwise shown or specified, wood wardrobes shall conform to AWI-02 and AWI-01. Plywood for transparent finish shall be hardwood plywood, and one species shall be used throughout. Plywood for paint finish shall be hardwood plywood, or have a medium density impregnated fiber overlay.

2.4.2 Wood scribes and closures shall be 3/8-inch minimum thickness and shall match wardrobes. Moldings used in conjunction with scribes and closures and for joints between adjacent wardrobes shall be 5/16- by 1-1/16 inch flat members or 3/4-inch quarter round.

2.4.3 Wood Finishes: Interior surfaces shall be given an approved transparent finish, and exterior surfaces shall be given an approved paint finish of the color as selected from manufacturer's standard colors or an approved transparent finish. Surfaces to receive a transparent finish shall be stained to an approved shade and all wood surfaces to be finished shall be filled, sanded smooth, and given not less than two coats of an approved finish coating. Finishing of interior and exterior surfaces shall be part of a continuous shop operation to and including at least the first finish coat in order to minimize warpage.

3.0 EXECUTION

3.1 Installation: Wardrobes shall be assembled and positioned in accordance with the layout shown, set level, and secured in place. Wardrobes with backs to walls shall be secured to the wall with not less than four fasteners, using one fastener near each corner. Free-standing or island-type installations shall be secured to the floor with not less than four fasteners, using one fastener near each corner. Back-to-back or side-to-side wardrobes shall be secured to each other. Securing of adjacent wardrobes shall be with three fasteners located high, low, and intermediate when a side is involved. Securing of adjacent wardrobes shall be with four fasteners located near the corners when a back-to-back installation is involved. Fasteners to secure metal wardrobes in place shall penetrate two thicknesses of metal at each wardrobe or shall be provided with washers. There shall be no sharp corners or protrusions in the final assembled wardrobes that could be considered harmful to the user or the stored items. Scribes over 14 inches wide shall be secured to the building construction with concealed fasteners at intervals not to exceed 12 inches on center. Hardware shall be adjusted and left in good working order. Doors and drawers shall not stick or bind, but shall operate smoothly and easily. Wardrobes shall be cleaned and protected from damage until acceptance.

DIVISION 11-EQUIPMENT

Platform and Dock Levelers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for replacement, repair, and maintenance of platform and dock levelers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation

procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Replacement Components:

2.1.1 General: Replacement components shall be new and of matching quality and construction. Every replacement part shall be made to definite standards, tolerances, and clearances and to fit in the existing equipment.

2.1.2 Structural Components: All replacement parts of the equipment to be repaired shall be of such design, size, material, and strength as required to carry and sustain the maximum allowable load placed upon it.

2.1.3 Hydraulic System Components: The hydraulic system shall consist essentially of a hydraulic pump, hydraulic rams, pressure relief valve, fluid reservoir, hydraulic control valves including necessary continuous-duty solenoid valves and check valves, and connections. The system shall be installed as a separate and complete system in each platform unit.

2.1.4 Electrical System Components: All electrical components shall comply with the National Electrical Code. Conduit, outlet boxes, and fittings shall be galvanized. Wire shall comply with Fed. Spec. J-C-30. All materials and equipment shall be rated for wet locations. Insulation resistance shall be not less than 1 megohm.

2.2 Permanent, Self-Forming, and Free Standing Adjustable Dock Levelers: Levelers shall comply with DOC ASME MH14.1 for Class A loading. Minimum live load capacity for rollover and crossover travel shall be 12,000 pounds. Physical dimensions and maximum capacity shall be as designated.

2.3 Permanent Manually Operated Dockboards: Permanent manually operated dockboards shall comply with DOC ASME 14.1 for Class B loading. Minimum live load capacity for rollover and crossover travel shall be 12,000 pounds. Physical dimensions and maximum capacity shall be as designated.

3.0 EXECUTION:

3.1 Repair: Repair shall consist of removal and replacement of various defective equipment components. Installation of hydraulic system components shall be such that no leaks exist in any part of the system. All electrical work shall comply with the National Electrical Code.

3.2 Installation of Equipment: The equipment shall be installed by, or under the supervision of, the manufacturer or his licensee. After installation is complete and equipment is properly adjusted, perform operational and load tests per manufacturer's instructions to ensure that the equipment functions properly and has the specified capacity.

Platform and Dock Lifts

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for replacement, repair, and maintenance of platform and dock lifts. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Replacement Components:

2.1.1 Structural Components: All replacement parts of The equipment to be repaired shall be of such design, size, material, and strength as required to carry and sustain the maximum allowable load placed upon it.

2.1.2 Hydraulic System Components: Pipe, tubing, fittings, and hydraulic hose shall be designed and constructed with a minimum safety factor of three based on bursting pressure. Cylinders, pumps, and control valves shall be designed to withstand test pressures of 150 percent of the design operating pressure.

2.1.3 Electrical System Components: All electrical components shall comply with the National Electrical Code. Conduit, outlet boxes, and fittings shall be galvanized. Wire shall comply with Fed. Spec. J-C-30. All materials and equipment shall be rated for wet locations. Insulation resistance shall not be less than one megohm.

2.2 Dock lifts shall comply with ASME 14.1. The replacement lift shall have the same capacity, travel, minimum lowered level, and nominal raising and lowering speed as the existing lift.

2.3 Truck Levelers: The truck leveler shall have a capacity of 40,000 pounds. Leveler shall have a total travel of 36 inches, divided as follows: 18 inches up, 18 inches down.
3.0 EXECUTION:
3.1 Repair: Installation of hydraulic system components shall be such that no leaks exist in any part of the system. All electrical work shall comply with the National Electrical Code.
3.2 Installation of Equipment: The equipment shall be installed by, or under the supervision of the manufacturer or his licensee. After installation is complete and equipment is properly adjusted, perform operational and load tests per manufacturer's instructions to ensure that the equipment functions properly and has the specified capacity.

Platform and Dock Enclosures

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for replacement, repair, and maintenance of platform and dock enclosures. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Fabric shall be hypalon-coated nylon, 5.1 oz. per sq. yd. with 65 percent coating on front and 35 percent on back face. Total weight with coatings shall be 16 oz. per sq. yd.
2.2 Thread shall be polyester, heavy-duty minimum-size FF (Size 139) bonded, complying with Fed. Spec. V-T-285.
2.3 Wood Framing: Lumber shall be air-dried and well seasoned, to contain not more than 19 percent moisture at time of finishing, identified by official grade marks and shall be Douglas Fir-Larch No. 2 or better, Hemlock-Fir, No. 1 or better, or Southern Pine No. 2 or better. Lumber shall be smooth on all sides.
2.4 Pads shall be polyurethane foam with a minimum density of 1.25 pounds per cubic foot and a 35-pound compression factor, open cell construction of an ether base. Foam shall be resilient from -50 F to +180 F. Pads shall be bonded to framing members.
2.5 Bottom Pads and Bumpers: Three polyurethane foam pads with cover fabric and two laminated or extruded rubber dock bumpers mounted to a continuous 2-inch by 12-inch wood frame.
3.0 EXECUTION: (Section not used.)

Platform and Dock Bumpers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of platform and dock bumpers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Timber bumpers shall be dense red oak. Ends shall be smooth and edges rounded to a radius of approximately 1/2 inch. All bolt holes shall be countersunk. Bumpers shall be treated in compliance with AWPA P5. Treating process and results shall comply with Fed. Spec. TT-W-571. Retention shall be a minimum of 0.23 pounds of oxide per cubic foot of treated wood.
2.2 Laminated rubber bumpers shall be resilient rubber material made from rubberized fabric truck tires cut to uniform size pads and punched to receive 3/4-inch supporting rods. The bumpers shall be closed with 3-inch by 2-1/2 inch by 1/4-inch structural steel angles under approximately 1,500 pounds of pressure. Angles shall be welded to 3/4-inch rods at one end and closed with threaded rod and nuts at the other end. Anchor leg of angle shall extend a minimum of 2-1/2 inches beyond rubber surface at either end and contain 2 or 3 anchor bolt holes.
2.3 Extruded rubber bumpers shall be manufactured of extruded ethylene propylene diene monomers (EPDM) hydrocarbon rubber of 70 durometer hardness or higher and with a minimum tensile strength of 2,400 psi. All mounting holes shall be countersunk.
3.0 EXECUTION:
3.1 Removal of Existing Bumpers: Remove existing bumpers in a manner to prevent damage to the

surface on which they are mounted. All existing anchor bolts that have deteriorated or are not in proper position to facilitate mounting of new bumpers shall be cut off flush with the base surface. Existing bumpers that have been mounted by welding shall be removed by cutting torch and the resultant mounting surface power ground smooth and flush prior to installation of the new bumper.

3.2 Installation of New Bumper: All mounting hardware shall be new except existing expansion shields that are properly located and in suitable condition for reuse. Final installation shall be properly aligned, tight and flush against mounting surface.

Platform and Dock Warning Devices

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of platform and dock warning devices. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Pavement marking paint shall comply with Fed. Spec. TT-P-115.

2.2 Glass spheres shall have at least 42 percent reflectivity and shall comply with the State Standard Specifications.

2.3 Reflectors shall be acrylic plastic prismatic reflectors complying with the State Standard Specifications.

3.0 EXECUTION:

3.1 Preparation: Thoroughly clean all pavement areas to be painted by use of hand brooms, rotary brooms, air blast, scrapers, or other acceptable means that will not damage the surface.

3.2 Installation:

3.2.1 Pavement Marking: Apply paint and glass spheres with mechanical equipment. Apply the paint and glass spheres uniformly to form markings of the dimensions and shapes required. Lines shall be true with sharp edges and ends. The length of lines shall be within plus or minus 3 inches; width shall be within plus or minus 1/8 inch.

3.2.2 Reflectors: Install reflectors at the locations and by the method required. Align and orient reflectors so that proper reflectivity is obtained.

Platform and Dock Guardrails and Posts

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of platform and dock guardrails and posts. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Steel Guardrail: Steel plate beam guardrail, end sections, and splice plates shall comply with AASHTO M180. Steel posts, restraints, braces, and plates shall be galvanized.

2.2 Materials for Timber Guardrail and Cable Guard Construction: Treated timber shall comply with the NFPA requirements for 1850F dense southern pine or 1900F dense Douglas fir. Wire rope cable and fastenings shall comply with AASHTO M30, Class A.

2.2.1 Offset spring brackets shall have a deflection of one inch under a compression load of not less than 3,500 pounds and not more than 6,000 pounds applied for one minute perpendicular to the line of the cables with the cables in place. The offset spring brackets shall not collapse under a compression load of 10,000 pounds.

2.2.2 Special offset spring brackets of the blunt, slotted, overlapping nose type shall be fabricated from spring steel, tempered, and drawn. The brackets with steel stay pins shall be slotted for 3 cables. Special offset spring brackets shall have a minimum deflection of one inch under a compression load of 15,000 pounds applied for one minute perpendicular to the line of the cables at the points of attachment of the cables and the bracket with the cables in all slots.

3.0 EXECUTION:

3.1 Guardrail Removal: Sections of guardrail shall be removed as required to provide access to

damaged or deteriorated components.

3.2 Guardrail Fabrication and Erection: New guardrail shall be erected in compliance with AASHTO M180 and the construction requirements for the type of guardrail being erected.

3.2.1 Steel plate beam fabrication shall comply with AASHTO M180. Roll or round the edges of the plates so that they present no sharp edges.

3.2.2 Setting Timber and Steel Posts: Set posts in compacted soil to a minimum depth of 3 1/2 feet. Backfill the holes in minimum 6-inch layers with approved materials. Compact each backfill layer in a manner not to displace the posts from correct alignment.

3.2.3 Painting: Steel surfaces that have not been galvanized shall be shop-coated with rust inhibitive primer paint. Give primed surfaces to be painted two coats of white or aluminum paint after erection. Where the surface will be inaccessible after erection, paint before installation.

3.2.4 Cable Guard: The offset brackets shall be attached to each post by means of one or more bolts not less than 3/4 inch in diameter inserted through the bracket and the post with the threaded end of the bolts at the back of the post. All bolts except adjustment bolts shall be drawn tight, and all bolts shall be sufficiently long to extend at least 1/4 inch beyond the nuts. After the posts and offset brackets have been set, the cables shall be erected and stretched taut by an approved mechanical device. The completed assembly shall provide a smooth, continuous platform and dock guard conforming to the required line and grade. After the cable has been stretched in its final position, the takeup on adjustment bolts, intermediate anchors, and end anchors shall be made as necessary.

Mixing Chambers and Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of water treatment plant mixing chambers and equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Concrete repair material shall be epoxy type grout in compliance with Applicable standards and/or.

2.2 Baffle Repair and Replacement Parts: Material and accessories for baffle repair or replacement parts shall be chemically resistant to the chemicals being mixed in the mixing chamber.

2.3 Air agitation system repair and replacement parts such as diffuser, pipe, and fittings shall match the existing equipment.

2.4 Mixing Chamber Drive Equipment: Multiple V-belt drives shall be furnished in matched sets.

3.0 EXECUTION:

3.1 Preparation: Alternate Mixing Chamber and appurtenances shall be furnished, installed, and removed after completion of work by the Contractor.

3.2 Installation:

3.2.1 Static mixer shall be cleaned and repaired.

3.2.2 Mixing chamber baffles: Drain the mixing chamber and repair or replace the baffles as required.

3.2.3 Mixing Chamber Drive Equipment:

3.2.3.1 Gear Drive: Maintenance and Repair Procedures shall be such that they will result in the equipment being able to operate at its rated capacity.

3.2.3.2 Cleaning: Accumulated dirt, oil, grease, and debris shall be removed from the parts.

3.2.3.3 Testing: Repaired equipment shall be tested ensure that it operates at design conditions and rated capacity. Replace and retest equipment failing to meet test conditions.

Clarifiers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and maintenance of sewage treatment plant clarifiers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Epoxy filler compound for concrete surfaces shall comply with Applicable standards and/or.
2.2 Coal-tar epoxy shall comply with SSPC-PAINT 16.
2.3 Epoxy paint shall comply with Mil. Spec. MIL-P-24441.
2.4 Red-lead base paint shall comply with Fed. Spec. TT-P-86, Type 1.
2.5 Finish coat paint shall comply with Fed. Spec. TT-P-38.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Cleaning: Prior to removing parts or components of the clarifier or appurtenant equipment, clean dust, dirt, grime, and other foreign matter from the surfaces.
3.1.2 Interior concrete surfaces of the clarifier tank shall be cleaned with high pressure water or steam to remove all dirt and residue, allowed to dry, and brush sandblasted in compliance with SSPC-SP 7.
3.1.3 Interruptions of Treatment: Not more than one clarifier shall be taken out of service at a time.
3.2 Installation:
3.2.1 Holes and voids in the concrete surfaces left from the blast cleaning shall be filled by means of troweling and squeeze application of an epoxy filler. The surfacing materials shall be allowed to cure overnight, and then two coats of Coal-tar epoxy shall be applied.
3.2.2 Submerged ferrous metal surfaces, such as piping, ladders, structural steel, equipment, and metal roof surfaces that are exposed to the sludge shall be sandblasted in compliance with SSPC-SP 10 and coated with two coats of coal-tar epoxy.
3.2.3 Clean exterior concrete surfaces of the clarifier by means of brush sandblast in compliance with SSPC-SP 7, blow down the surfaces with air to remove the blasting residue and dust, and apply two coats of epoxy-polyamide paint.
3.2.4 Ferrous metal surfaces that are not submerged shall be cleaned by means of sandblasting in compliance with SSPC-SP 6. Surfaces inaccessible to sandblasting shall be power tool cleaned in compliance with SSPC-SP 3. Surfaces shall be coated with one coat of red-lead base paint. After the base paint has dried sufficiently, two coats of Aluminum finish paint shall be applied.
3.2.5 Startup: After completion of maintenance and repairs, the clarifier shall be started up and operating adjustments shall be made by the Contractor as required to achieve the design flow rate and quality of the effluent.

Aeration Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of water treatment plant aeration equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Media for tray type aeration equipment shall be coke, stone, or factory-made ceramic balls, 2 to 6 inches in diameter.
2.2 Trays: Tray repair and replacement parts shall be of the same kind of material or shall be compatible with existing trays.
3.0 EXECUTION:
3.1 Preparation: Pipe, valves, and fittings to install a bypass around the aerator shall be provided.
3.2 Installation:
3.2.1 Enclosure Repairs: Repair or replace screens, screen frames, and structural parts of the aeration equipment as required.
3.2.2 Defective media shall be removed and new media added, or the defective media shall be replaced with new media.
3.2.3 Repair and Replacement of Trays: Repair or replace trays as required. Drain and clean trays. Remove media, if necessary, to accomplish the repairs, and replace media after the repairs are complete.
3.2.4 Flame Cutting: No cutting by torch or flame shall be done without written authorization from the Authorized Member Representative.
3.2.5 Testing: After repairs are completed, test the equipment to ensure that it will operate at design

conditions.

Chemical Bypass Feeders

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of chemical bypass feeders for water treatment systems. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Bypass feeders shall be used to control corrosion, inhibit lime scale formation, and remove dissolved iron in small water systems.

2.1 In-line mount unit shall be equipped with built-in bypass and shutoff valves and hold pressures up to 125 psi.

2.2 Floor mount unit shall be equipped with 5-, 10-, or 12-gallon capacity feeder tanks, lockable filler cap, one short and one long slotted strainer, flow indicator, drain cock, and shutoff valves. The flow indicator shall consist of a transparent pyrex glass cylinder. The unit shall hold pressures up to 175 psi.

3.0 EXECUTION:

3.1 In-line mount unit feeder shall be installed before the pressure tank to prevent rust deposition. To prevent corrosion, the unit shall be installed on the inlet line to the heater.

3.2 Floor mount unit feeder unit shall be installed in a bypass on the cold water line to the equipment to be protected against corrosion or lime scale problems.

3.2.1 Water Heater Protection: Feeder shall be placed before a water heater but far enough away so that hot water will not flow back into the feeder.

3.2.2 Private Well Systems: The feeder shall be installed before the water storage tank.

3.2.3 Pressure Relief Valve: A pressure relief valve shall be installed on either the inlet or outlet line between the shutoff valve and the feeder when feeding chemicals that generate excess heat and pressure upon contact with water.

Chemical Storage Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of water treatment plant chemical storage equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Solution tank repair material shall be PVC in compliance with ASTM D 1784, polyethylene in compliance with ASTM D 1248, or fiberglass.

2.2 Manhole gasket material shall be chemically resistant to the material stored in the bin.

3.0 EXECUTION:

3.1 Repair and Replacement of Parts: The equipment shall be cleaned and repaired, parts shall be replaced as required, and the equipment lubricated and adjusted to operate properly.

3.2 Stored material shall be removed from the chemical storage bin, the bin cleaned and repaired, and the stored material replaced in the bin.

3.3 Manhole Cover and Gasket shall be removed, gasket sealing surfaces cleaned, new gasket installed, and the manhole cover reinstalled.

3.4 Welding shall comply with AWS D1.1.

3.5 Testing: After repairs are completed, the equipment shall operate at design conditions.

Water Treatment Plant Scales And Weighing Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of water treatment plant scales and weighing equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: (Section Not Used.)
3.0 EXECUTION:
3.1 Testing and Adjustment: Test and adjust controls to have same accuracy as originally guaranteed by the manufacturer.
3.2 Sealing: After testing and adjustment, the scale shall be sealed by the Contractor to prevent unauthorized tampering that might affect its accuracy.

Ion Exchange Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of water treatment plant ion exchange equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Exchange Column Vessels: Welding rods and shell material that are compatible with the steel of the vessel shall be used for leak repair. Welding rods shall comply with ASME Boiler and Pressure Vessel Code, Section II.
2.2 Vessel lining or coating repair material shall be compatible with the existing lining or coating.
2.3 Ion exchange resins, cation, or anion used for replacement shall be as originally specified by the equipment manufacturer or approved equivalent.
3.0 EXECUTION:
3.1 Exchange Column:
3.1.1 Vessel repair welding shall comply with the applicable requirements of ASME Boiler and Pressure Vessel Code, Section IX.
3.1.2 Structural welding shall comply with the applicable requirements of AWS D1.1.
3.2 Controllers and Analyzers: The following equipment shall be cleaned and shall have defective ports repaired or replaced to restore the items to their original operating condition:
Flow Control
Totalizer
Sequence Controller
Time Delay Relay
Drum Controller
Automatic Analyzer
Conducting Meter
Sample Conditioning Equipment

Softening Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of water treatment plant softening equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Concrete repair material for chemical storage bins and sedimentation basins shall comply with Applicable standards and/or.
2.2 Manhole gasket material shall be as recommended by the bin fabricator and shall be chemically resistant to the material stored in the bin.
2.3 Bin vent system repair and replacement parts shall be as recommended by the manufacturer, or equivalent.
2.4 Replacement parts for the sedimentation tank mechanism, drive system, and appurtenances shall be as recommended by the manufacturer of the equipment, or equivalent.
3.0 EXECUTION:
3.1 Carbon Dioxide Diffusion System: Maintenance and repair shall result in the recarbonation system being restored to its design capacity.

3.2 Manhole Gasket: Manhole cover and gasket shall be removed, seated surfaces shall be cleaned, a replacement gasket shall be put in place, and the manhole cover shall be reinstalled.
3.3 Bin Vent System: Parts shall be cleaned and repaired or replaced.
3.4 Testing: Mixers shall be tested to ensure that they operate at their rated capacity. The diffusion system shall be tested for leaks, carbon dioxide flow rate, and pH change in the water. Bin(s), vent system, and appurtenances shall be tested to ensure operation at design conditions. Tanks and connecting lines shall be examined for leaks after being filled to operating level, and leaks shall be repaired.
3.5 Access: Softening equipment parts or appurtenances that interfere with access to or performance of the work shall be removed and replaced after the work has been completed.

Chlorine Contact Tanks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of water treatment plant chlorine contact tanks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Bolts, nuts, and screws removed due to repair work shall be replaced with new bolts or screws of the same type, size, and finish, complying with ASTM A 193, Grade B8. Replacement nuts of the same type, size, and finish shall comply with ASTM A 194, Class 8F.
2.2 Finishes: Items replacing existing items that are galvanized, plated, painted, or otherwise finished, shall be finished with like finish.
2.3 Concrete repair material shall be epoxy type grout in compliance with Applicable standards and/or.
3.0 EXECUTION:
3.1 Tank shall be cleaned and repaired with the corroded parts replaced as required.
3.2 Testing: After repairs are completed, test the equipment to ensure that it operates at designed conditions.

Disinfection Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for water and sewage treatment plant disinfection equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Chlorinator: The chlorinator shall be wall- or cabinet-mounted, shall be a vacuum-operated solution-feed type, and shall include an integral manifold trap complete with a built-in electric heater. The manifold shall have a removable chlorine filter with a 5-square inch filtering area. A positive tight shutoff valve shall be provided within the chlorinator to isolate gas under pressure from the control system should there be a loss of vacuum. An easily removable basket with filter screen shall be included upstream of the inlet valve. A spring-operated pressure relief valve shall be provided to prevent the buildup of pressure within the gas control system. An excess vacuum shutoff valve, which isolates the regulator and gas supply system from the ejector on loss of gas pressure shall be supplied. Provisions for automatic changeover shall be incorporated within the vacuum regulator without the need for an external valve. An indicator shall provide a visual signal when the chlorine gas supply is exhausted or interrupted.
2.2 Gas Injector: The injector of diffuser shall be polyvinyl chloride (PVC) in compliance with ASTM D 1784. The ejector shall be provided with dual check valves as well as an emergency drain valve to protect against flooding of the vacuum regulator.
2.3 The unit shall be supplied with the following accessories: metering tube supply indicator, rate valve, 50 feet of 5/8-inch polyethylene tubing for vent and vacuum lines, insect screen, bottle of ammonia solution, spare gaskets, thread lubricant, a flexible connector, and a universal wrench.
3.0 EXECUTION:

3.1 Installation: The chlorine feeding machines and all equipment appurtenances shall be installed in accordance with the Chlorine Institute, Inc. Chlorine Manual and Pamphlet 6 so as to provide a complete and integrated system.

3.2 Testing: After installation of the chlorine feeding machine and evaporators is complete, operating tests shall be carried out to ensure that the chlorine feeding installation operates properly. All piping shall be tested hydrostatically and for leaks. If any deficiencies are revealed during any tests, such deficiencies shall be corrected, and the tests shall be reconducted.

Gaseous Chemical Metering Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and maintenance of gaseous chemical metering equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Gas injectors shall be PVC plastic in compliance with ASTM D 1784.

2.2 Gas Evaporators:

2.2.1 Electrical heating elements shall be flat rod, immersion type.

2.2.2 Wiring, Switch, Thermostat, and Alarm Switch: Load rating of wiring, switch, thermostat, and alarm switch shall be equal to or greater than the load rating of the wiring, switch, thermostat, and alarm switch to be replaced.

3.0 EXECUTION:

3.1 General: The gas injector, gas evaporator, and chemical metering equipment shall be cleaned and repaired.

3.2 Testing: Each piece of equipment shall be tested and adjusted to operate properly over its capacity range.

3.3 Leak Tests: Piping, tubing, vessels, or jackets that are part of the equipment being repaired shall be tested for leaks at one and a half times normal working pressure.

3.4 Calibration: Metering equipment shall be calibrated in compliance with manufacturer's instructions.

3.5 Safety precautions pertaining to chlorine shall be in compliance with the Chlorine Institute, Inc. Chlorine Manual.

Sewage Ejectors, Submersible

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of submersible sewage ejectors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: The sewage ejectors shall be of the simplex or duplex pneumatic type and shall be complete with receivers, compressors, electric motors, control equipment, piping, and all necessary accessories.

2.1 Sewage Receivers: Sewage receivers shall be of cast-iron or welded-steel construction conforming to the ASME Code, Section VIII for Pressure Vessels. Sewage inflow and outflow pipe connections shall be flanged; air-supply and vent-piping connections shall be screwed. Pipe threads shall conform to Fed. Std. H28 and pipe flanges shall conform to ASTM A 53. The receiver shall be tested at a pressure 50 percent greater than the working pressure. Each receiver shall be provided with suitable support and a manhole or handhole conveniently located. Steel receivers shall be coated inside and outside with coal-tar primer and enamel conforming to the requirements of AWWA C203 in all respects of materials and application, or shall be coated with a Coal-tar Epoxy paint system conforming to the requirements of SSPC-PS 11.01.

2.2 Air Compressor: Each compressor shall be equipped with suction silencer, complete automatic lubrication system, an air filter, and adequate means for cooling. The operating speed of the air compressors shall not exceed 1,800 rpm. Installation of the air compressor shall conform to ASME B19.1.

2.3 Air Reservoir: If the equipment furnished requires a compressed air reservoir for proper operation, the tank shall be constructed in conformance with ASME Boiler and Pressure Vessel Code, Section VIII, with flanged or screwed inlet and outlet connections as required. The storage tank shall be tested at a pressure 50 percent greater than the working pressure. The tank shall be fitted with a pressure gauge, inspection openings, blowoff cock, and a safety valve. The connection to the compressor shall be provided with a check valve and a shutoff valve.
2.4 Electric Motor: Each electric motor shall conform to NEMA MG 1. Temperature rise shall be based on 40 C ambient temperature.
2.5 Controls: An automatic control system shall be provided for each ejector.
2.6 Piping: The sewage influent and effluent lines be flanged cast iron. The air piping shall be wrought iron or steel with malleable-iron units and fittings. Pipe hangers and supports shall be spaced at not more than 10 feet on center.
2.7 Check Valves: AWWA C508, except that valves on the discharge side of the receivers shall be provided with replaceable valve seats.
2.8 Gate Valves:
2.8.1 Cast Iron: AWWA C500, Class 125, Grade A, Design NRS, flanged ends.
2.8.2 Bronze: MSS SP-80, Type I, Class 125.
2.9 Motor Controls: NEMA ICS 2.
2.10 Pipe:
2.10.1 Cast Iron: Fed. Spec. WW-P-421, Class 150, as applicable to pipe barrel only. AWWA C110/A21.10, Class 125, for pipe flange.
2.10.2 Steel: ASTM A 53, Grade B, Type E or S, zinc coated.
2.11 Pipe Fittings:
2.11.1 Cast Iron: ANSI B16.1.
2.11.2 Malleable Iron: Fed. Spec. WW-P-521, Type II.
2.11.3 Malleable Iron Unions: Fed. Spec. WW-U-531, Type B.
2.12 Pipe Hangers and Supports: MSS SP-58 and SP-69.
3.0 EXECUTION:
3.1 Valves: Valves installed in the wrought-iron and steel pipeline shall be bronze with screwed ends and valves installed in the cast-iron pipeline shall have bronze-mounted iron bodies with flanged ends. Gate valves shall be opened by turning counterclockwise.
3.2 Concrete foundations shall be integral with and of the same concrete as the building floor unless otherwise directed. 4,000 psi concrete shall be used in foundations that are entirely separated from the surrounding floor. Foundation bolts, as required, shall be provided for proper positioning during the placement of the concrete.
3.3 Bolts, nuts, anchors, washers, and all other types of necessary supports shall be of wrought iron or steel galvanized according to ASTM A 153.

Centrifuges

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and maintenance of sewage treatment plant centrifuges. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: (Section not used.)
3.0 EXECUTION:
3.1 Preparation: Clean centrifuge thoroughly of sludge and residue prior to commencing maintenance and repair.
3.2 Installation:
3.2.1 Repair and Replacement of Parts: The equipment shall be cleaned and repaired, and parts shall be replaced as required.
3.2.2 Lubrication: Friction parts shall be lubricated with proper lubricants. Oil and grease shall be removed from surfaces and parts not intended to be oiled or greased.

Grit Chambers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of sewage treatment plant grit chambers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Epoxy filler compound for concrete surfaces shall comply with Applicable standards and/or.

2.2 Coal-tar epoxy shall comply with SSPC-PAINT 16.

2.3 Epoxy paint shall comply with Mil. Spec. MIL-P-24441.

2.4 Red-lead base paint shall comply with Fed. Spec. TT-P-86, Type 1.

2.5 Finish coat paint shall comply with Fed. Spec. TT-P-38.

3.0 EXECUTION:

3.1 Interruption of Sewage Treatment: Not more than one grit chamber shall be taken out of service at a time.

3.2 Installation:

3.2.2 Dust Control: Adequate provisions shall be made to prevent the transfer of dust to other equipment and to areas occupied by Member personnel.

3.2.3 Grit Chamber Cleaning and Coating: Grit chamber shall be cleaned and coated as follows:

3.2.3.1 Interior concrete surfaces of the grit chambers shall be cleaned with high pressure water or steam to remove dirt and residue, allowed to dry, and brush sandblasted.

3.2.3.2 Holes and voids in the concrete surfaces left from the blast cleaning shall be filled by means of troweling and squeeze application of an epoxy filler. Apply two coats of Coal-tar epoxy to the surface after the epoxy has cured.

3.2.3.3 Submerged ferrous metal surfaces such as piping, ladders, structural steel, and equipment that are exposed to the sewage shall be sandblasted and coated with two coats of coal-tar epoxy.

3.2.3.4 Exterior concrete surfaces shall be cleaned by means of brush sandblast, the surfaces blown down with air to remove the blasting residue and dust, and two coats of epoxy-polyamide applied.

3.2.3.5 Ferrous metal surfaces that are not submerged shall be cleaned by means of sandblasting. Coat surfaces with one coat of red-lead base paint. After the base paint has dried sufficiently, apply two coats of Aluminum finish paint.

Micro-Screens

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and maintenance of sewage treatment plant micro-screens and filter screens. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Replacement parts shall have the same characteristics as the parts to be replaced, unless otherwise approved.

3.0 EXECUTION:

3.1 General: Screen, wash pumps, controller, drive equipment, and appurtenances shall be repaired or replaced, lubricated, and placed in service as required.

3.2 Waste outlet shall be flushed and cleaned with high pressure water or steam or by rodding.

3.3 Stopping Screen Unit: If, for any reason, the unit must be stopped, it shall be carefully drained down and the fabric shall be cleaned. The drum shall never be left standing for any length of time in a tank of dirty water. To the extent feasible, the interior and exterior water levels shall be maintained nearly equal, the drum kept constantly turning, and the backwashing spray left on until the tank has been drained.

3.4 Startup of Screen Unit: After testing for rotation, admit water at a slow rate to the micro-screen tank. Water levels on both sides of the screen shall be equalized during filling. Keep the drum rotating and turn the washwater supply on. Since initial filling of the tank may entrain many impurities, watch the operation of the unit carefully to avoid problems with backwashing and, if

required, supplement washwater sprays with hose streams to keep the screen clean during the tank filling operation.

3.5 Cleaning Screen:

3.5.1 Cleaning of slime from the filter screen shall be accomplished by shock chlorination using sodium hypochlorite solution or other acceptable methods. After treatment, drain and flush the tank to waste prior to returning the micro-screen to service.

3.5.2 Cleaning of iron or manganese oxide film from the filter screen shall be accomplished by using a n inhibited acid cleanser.

3.5.3 Clean grease from the surface of filter screen panels by the use of steam.

Comminutors and Bar Screens

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of sewage treatment plant comminutors and bar screens. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Motor: Unless otherwise directed, replacement motors shall be rated for continuous operation.

2.2 Electrical Work: Electrical wiring shall comply with the requirements of NFPA 70.

2.3 Cutter blades shall be cobalt-chromium-tungsten alloy faced.

2.4 Fasteners shall be stainless steel.

3.0 EXECUTION:

3.1 Motor bearings shall be lubricated or replaced.

3.2 Welding shall be done by qualified welders in compliance with AWS D1.1.

Rotating Biological Filters

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and maintenance of sewage treatment plant rotating biological filters. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Steel Parts: Steel parts shall be fabricated from new stock conforming to ASTM A 366.

2.2 Hardware:

2.2.1 Bolts and Nuts: ASTM A 307.

2.2.2 Washers, Flat and Lock Type: ANSI B18.22.1.

2.3 Rust Inhibitive Primer: Fed. Spec. TT-P-664.

2.4 Galvanizing: ASTM A 123 and A 153.

3.0 EXECUTION:

3.1 Welding: Welding shall be in conformance with the AWS D1.1. Galvanized or painted surfaces destroyed by welding shall be restored to original surface for corrosion protection.

3.2 Shop Coating: All structural and miscellaneous metal items shall be painted or galvanized as required.

3.3 Lubrication: Lubricate all motors, chains, drive units, and bearings in compliance with the equipment manufacturer's instructions.

Vacuum Filters

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of sewage treatment plant vacuum filters. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Ferrous metal surfaces not exposed to sewage shall be coated with red-lead paint complying with

Fed. Spec. TT-P-86, Type 1, with finish coats of aluminum paint complying with Fed. Spec. TT-P-38.

2.2 Ferrous metal surfaces exposed to sewage shall be coated with a coal-tar epoxy-polyamide paint complying with SSPC Paint 16.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Cleaning: Prior to removing parts or components of the vacuum filter or appurtenant equipment, clean dust, dirt, grime, and other foreign matter from the surfaces.

3.1.2 Interruption of Treatment: Provide temporary bypass piping required during the performance of the work, and remove when no longer required.

3.2 Installation:

3.2.1 Openings in exterior walls or floor left by removal of a piece of equipment shall be closed to the weather. Remove temporary closures upon installation of the equipment.

3.2.2 Ferrous metal surfaces exposed to sewage shall be sandblasted in compliance with SSPC-SP 10. After the necessary surface preparation has been accomplished, apply two coats of Coal-tar epoxy to a dry film thickness of 10 mils per coat.

3.2.3 Ferrous metal surfaces not exposed to sewage shall have a surface preparation in compliance with the manufacturer's instructions and be coated with a primer and finish coat.

Sludge Drying Beds

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of sewage treatment plant sludge drying beds. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Liner Repair Material: Plastic liner and bonding cement shall be compatible with the existing liner.

2.2 Sand: Sand shall have an effective grain size of 0.3 to 0.75 mm and a uniformity coefficient of not over 40.

2.3 Gravel shall be coarse, medium, and fine gravel suitable for supporting sand bed. Top three inches shall be 1/8 inch to 3/4 inch in size.

3.0 EXECUTION:

3.1 Walls shall be restored to original condition. Minor repairs may be made with concrete repair material.

3.2 Gate repair shall be done by qualified welders in compliance with AWS D1.1.

3.3 Liner repair shall comply with liner fabricator's recommendations.

3.4 Underdrain Repair: Clean, unplug, repair, or replace underdrains as required.•11365

Trickling Filter

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and maintenance of sewage treatment plant trickling filters. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Filter media shall be crushed traprock, granite, limestone, hard coal, coke, cinders, blast furnace slag, rot-resistant wood, ceramic, or plastic materials.

2.1.1 Media shall be free of most fine material.

2.1.2 Media size shall comply with ASCE-02, grading size 3-1/2 to 2-1/2 inches.

2.2 Distribution Arms: Pipe, nozzles, and drive parts shall be as recommended by the equipment manufacturer.

2.3 Underdrain System:

2.3.1 Vitrified Clay Underdrain: ASTM C 159.

2.3.2 Concrete Underdrain: ASTM C 654.

2.3.3 Perforated Vitrified Clay Pipe and Fittings: ASTM C 700.
2.3.4 Vitrified Clay Pipe and Fittings: ASTM C 301.
3.0 EXECUTION:
3.1 Filter Media: Place media to avoid damage, displacement, or clogging of the underdrains, in layers not exceeding 18 inches in depth, to ensure uniform vertical and horizontal distribution of size throughout the filter.
3.2 Distribution Arms Seals: Replace mechanical seal parts as recommended by the manufacturer. Replace mercury seals with mechanical seals.
3.3 Underdrain Collection System:
3.3.1 Underdrain blocks shall be arranged in rows without anchoring and with space maintained by lug. Opening shall be free and unobstructed to the passage of water.
3.3.2 Perforated pipe shall be firmly supported with sand bedding.
3.3.3 Open-spaced pipe shall be installed in compliance with ASTM C 12.
3.3.4 Patented filter under drain systems shall be installed as detailed in the manufacturer's published data.

Aeration Tanks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of sewage treatment plant aeration tanks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Coatings:
2.1.1 Epoxy filler compound for concrete surfaces shall comply with Applicable standards and/or.
2.1.2 Coal-tar epoxy shall comply with SSPC-PAINT 16.
2.1.3 Epoxy paint shall comply with Mil. Spec. MIL-P-24441.
2.1.4 Red-lead base paint shall comply with Fed. Spec. TT-P-86, Type 1.
2.1.5 Shall comply with Fed. Spec. TT-P-38.
2.2 Steel plate shall comply with ASTM A 827.
3.0 EXECUTION:
3.1 Interior concrete surfaces of the tank shall be cleaned with high pressure water or steam to remove all dirt and residue, allowed to dry, and brush sandblasted in compliance with SSPC-SP 7.
3.2 Holes and voids in the concrete surfaces left from the blast cleaning shall be filled by means of troweling and squeeze application of an epoxy filler. The surfacing material shall be allowed to cure overnight and coated with two coats of coal-tar epoxy.
3.3 Holes and cracks in steel tank surfaces shall be cut back to solid metal with a torch. Steel plate of thickness equal to, or greater than, the existing steel tank shall be welded to the surface in compliance with AWS D1.1.
3.4 Submerged ferrous metal surfaces that are exposed to liquids shall be sandblasted in compliance with SSPC-SP 10 and coated with two coats of coal-tar.
3.5 The exterior concrete surfaces of the tank shall be cleaned by means of brush sandblast in compliance with SSPC-SP 7. The surfaces shall be blown down with air to remove the blasting residue and dust, and two coats of epoxy-polyamide paint applied.
3.6 Ferrous metal surfaces that are not submerged shall be cleaned by means of sandblasting in compliance with SSPC-SP 3. Surfaces inaccessible to sandblasting shall be power tool cleaned in compliance with SSPC-SP 3. Surfaces shall be coated with one coat of red-lead base paint. After the base paint has dried sufficiently, two coats of Aluminum finish paint shall be applied.

Surface Aerators

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for surface aeration equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required

to support the work.

2.0 PRODUCTS: The floating power assembly shall consist of an aerator motor, motor support-deflector, drive shaft and coupling, replaceable shaft sleeve and bearing, weedless or nonfouling propeller, and mounting hardware to attach the power assembly to the float assembly. The power assembly shall be high or low speed, as required.

2.1 Aerator Motor: The aerator motor shall be a vertical, totally enclosed, fan-cooled motor.

2.2 Motor Support Deflector: Support for the aerator motor shall be provided by a conically shaped, all fiberglass or stainless steel structure designed to carry the static and dynamic forces imposed upon the rotating assembly and the propeller.

2.3 Drive Shaft and Coupling: The propeller drive shaft shall be rigidly coupled with a compression type coupling to the standard motor shaft extension. Each drive shaft shall be equipped with a replaceable austenitic stainless steel shaft sleeve at the apex of the conical motor support-deflector.

2.4 Propeller and Supporting Hardware: The propeller shall be manufactured of cast manganese bronze or stainless steel. Blade design shall be two- or three-blade anti-fouling, with sweptback leading edge.

2.5 Float Assembly: The flotation unit shall be constructed of polyester resin reinforced with fiberglass matte and woven glass roving. It shall be internally filled with high-density polyurethane, foamed-in-place and completely sealed from the external environment.

2.6 Mooring Cable: The aerators shall be moored with 1/4-inch stain-less steel mooring cable. The mooring cables shall be attached to eye bolts anchored into blocks of concrete.

2.7 Electric Cable: Each aerator shall be furnished with the type and amount of underwater electric cable required.

3.0 EXECUTION:

3.1 Operating Performance: Each aerator shall be capable of high oxygenation by entraining and disbursing atmospheric oxygen at designated minimum rate under standard conditions and with the motor not loaded over 100 percent of its rated capacity. The rotating assembly and propeller of each unit shall be statically, dynamically, and hydraulically balanced so that under normal operating conditions, the motor and unit will operate smoothly, and the vibration measured at the top of the motor shall not exceed established limits for industrial equipment of the same horsepower and motor speed. Aerators shall remain stable and not whirl, process, or otherwise exhibit erratic behavior that may result in damage or fatigue to itself or its accessories.

3.2 Maintenance: Aerator units shall be so designed as to require a minimum of maintenance consisting only of lubrications of the upper and lower motor bearings twice a year in accordance with the manufacturer's instructions.

Sludge Digesters

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installing of materials for repair and maintenance of sewage treatment plant sludge digesters. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Coatings:

2.1.1 Epoxy filler compound for concrete surfaces shall comply with Applicable standards and/or.

2.1.2 Coal-tar epoxy shall comply with SSPC-PAINT 16.

2.1.3 Epoxy paint shall comply with Mil. Spec. MIL-P-24441.

2.1.4 Red-lead base paint shall comply with Fed. Spec. TT-P-86, Type 1.

2.1.5 Aluminum finish paint shall comply with Fed. Spec. TT-P-38.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Protection required to prevent damage to adjacent materials, equipment, fixtures, and finishes shall be provided. Purge gas from anaerobic sludge digester tanks, covers, piping, equipment, and control buildings to prevent explosion, fire, or oxygen starvation of personnel.

3.1.2 Interruption of treatment shall be held to a minimum. Not more than one sludge digester shall be taken out of service at a time.

3.2 Installation:

3.2.1 Emptying digester: Specified sludge digester(s) shall be emptied. Sludge digester emptying procedure shall be as follows:

3.2.1.1 Methane formation shall be stopped and existing methane purged from under the digester cover, in the cover, in gas lines, equipment, and control building. After discontinuing the sludge feed, allow 3 days for the partial digestion of the last sludge added. When the rate of gas production indicates that most of the sludge has been digested, sludge heating shall be stopped. The gas space under the cover shall be purged with nitrogen or carbon dioxide. When the methane concentration is well below the lower explosive limit of 5.3 percent by volume, open all cover manholes and withdraw the contents of the digester.

3.2.1.2 When draining an anaerobic sludge digester with a floating or gasholder cover, the Contractor shall continuously observe the cover until the cover is resting on the corbels. If the cover should tilt or bind, withdrawal shall be stopped immediately and the problem corrected prior to resumption of the draining operation. As the cover contacts the corbels, the cover shall be watched for signs of structural failure that could damage piping and equipment in the sludge digester tank.

3.2.2 Digester Cleaning and Coatings:

3.2.2.1 Interior concrete surfaces of the sludge digester tank shall be cleaned with high pressure water or steam to remove dirt and residue, allowed to dry, and brush sandblasted in compliance with SSPC-SP 7.

3.2.2.2 Holes and voids in the concrete surfaces left from the blast cleaning shall be filled by means of troweling and squeeze application of an epoxy filler. Epoxy shall be applied in compliance with the manufacturer's application instructions. Two coats of Coal-tar epoxy shall be applied after the surface material has cured.

3.2.2.3 Submerged ferrous metal surfaces such as piping, ladders, structural steel, equipment, and metal roof surfaces that are exposed to the sludge shall be sandblasted in compliance with SSPC-SP 10 and coated with two coats of coal-tar epoxy.

3.2.2.4 Exterior Concrete Surfaces of the digester shall be cleaned by means of brush sandblast in compliance with SSPC-SP 7, the surfaces blown down with air to remove the blasting residue and dust, and two coats of epoxy-polyamide paint applied.

3.2.2.5 Ferrous metal surfaces that are not submerged shall be cleaned by means of sandblasting in compliance with SSPC-SP 6. Surfaces inaccessible to sandblasting shall be power tool cleaned in compliance with SSPC-SP 8. Surfaces shall be coated with one coat of red-lead base paint. After the base paint has dried sufficiently, two coats of Aluminum finish paint shall be applied.

3.2.3 Hydrostatic Pressure Test: A hydrostatic test shall be made to demonstrate that the sludge digester is gas tight. After a satisfactory test has been made, the digester drained, and maintenance and repair work completed, valves shall be returned to normal operating position, plugs shall be removed, and the sludge digester and appurtenances shall be left ready for use.

3.2.4 Startup of Aerobic or Anaerobic Digester: After maintenance and repair work has been completed and approved, the Contractor shall return the sludge digester to service and operate it to design capacity.

Tertiary Sand Filters

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of sewage treatment plant tertiary sand filters. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Filter Media:

2.1.1 Sand: Silica sand shall be inert to wastewater and bacterial attack and shall have the following characteristics:

2.1.1.1 Sphericity: Not less than 9.0.

2.1.1.2 Porosity: Not more than 0.4.
2.1.1.3 Hardness: Not less than 7.0.
2.1.1.4 Specific Gravity: Not more than 2.65 or less than 2.6.
2.1.1.5 Inertness: Not less than 97 percent of the sand shall remain insoluble after 24 hours in hydrochloric acid.
2.1.2 Support gravel shall be hard, durable, clean, and uniformly spherical particles, free of mica and other thin and flat particles. Depths and sizes shall be as designated.
2.2 Underdrain System:
2.2.1 Vitrified Clay Underdrain: ASTM C 159.
2.2.2 Concrete Underdrain: ASTM C 654.
2.2.3 Perforated Vitrified Clay Pipe and Fittings: ASTM C 700.
2.2.4 Vitrified Clay Pipe and Fittings: ASTM C 301.
2.3 Filter Housing:
2.3.1 Grout shall be metallic, nonshrink type.
2.3.2 Concrete repair material shall be epoxy type complying with Applicable standards and/or.
2.3.3 Concrete Coatings:
2.3.3.1 Outside and above grade shall be epoxy type complying with Mil. Spec. MIL-P-24441.
2.3.3.2 Inside and below grade shall be coal-tar epoxy type complying with SSPC-PAINT 16.
2.3.4 Steel repair material shall be steel plate, to match existing, epoxy cement, or fiberglass cloth.
2.3.5 Steel coatings shall be red-lead base coat complying with Fed. Spec. TT-P-86, Type I and finish coats of aluminum paint complying with Fed. Spec. TT-P-38.
2.4 Loss of head switch shall be of the same model or type, range, and contact rating as the loss of head switch to be replaced.
3.0 EXECUTION:
3.1 Media Placement for Gravity and Pressure Filters:
3.1.1 The filter box or tank and under drain shall be thoroughly cleaned before starting gravel and media placement. Materials becoming dirty shall be removed and replaced.
3.1.2 The bottom gravel layer shall be placed carefully by hand to avoid movement to the underdrain system and to assure free passage for water from the orifices. Each layer shall be completed before the layer above is started. Gravel of differing gradations shall not be mixed. Gravel becoming mixed shall be removed and replaced. Gravel shall be cleaned as necessary by backwashing. For sizes less than 1/2 inch, the gravel shall be leveled to +/- 1/4 inch of the water surface defining its limit. For sizes greater than 1/2 inch, the gravel shall be leveled to +/- 1/2 inch of the water surface.
3.1.3 Media shall be placed in a manner similar to the gravel placement and processed as may be required to achieve the gradation recommended by the manufacturer.
3.2 Underdrain Repair:
3.2.1 Underdrain blocks shall be arranged in rows without anchoring and with space maintained by lug. Opening shall be free and unobstructed to the passage of water.
3.2.2 Perforated pipe shall be firmly supported with sand bedding.
3.2.3 Open-spaced pipe shall be installed in compliance with ASTM C 12.
3.3 Filter Housing Repair:
3.3.1 Filter material shall be removed and inside walls cleaned prior to grouting or coating application.
3.3.2 Welding shall be done in compliance with AWS D1.1.
3.4 Cleaning and Coating:
3.4.1 Interior concrete surfaces of the tank shall be cleaned with high pressure water, steam, or sandblasted to remove all dirt and residue.
3.4.2 Holes and voids in the concrete surfaces left from the blast cleaning shall be filled with an epoxy filler. The surfacing material shall be allowed to cure overnight, and then two coats of Coal-tar epoxy shall be applied to a dry film thickness of 10 mils per coat.
3.4.3 Submerged ferrous metal surfaces, such as piping, ladders, structural steel, equipment, and metal roof surfaces that are exposed to the sludge, shall be cleaned and coated with two coats of Coal-tar epoxy with dry film thickness of 10 mils per coat.
3.4.4 Exterior concrete surfaces of the tank shall be cleaned and two coats of epoxy-polyamide paint shall be applied to a dry film thickness of 5 mils per coat.

3.4.5 Ferrous metal surfaces that are not submerged shall be cleaned and coated with one coat of Red-lead base paint to a dry film thickness of 3 mils. After the base paint has dried sufficiently, two coats of Aluminum finish paint shall be applied to a dry film thickness of 2 mils per coat.
3.5 Manual scouring shall be done during backwash (bed expanding) cycle, using long tined rakes and high pressure hose streams directed at, and into, the expanded bed.
3.6 Chemical cleaning solution from the filter bed shall be discharged to the backwash return tanks.
3.7 Detergents and chemicals shall not be allowed in the maintenance of rapid sand filters. Purging of the underdrain system shall be with caustic detergents (2 to 5 percent caustic soda) or 50 parts per million chlorine solution in slow sand filters.
3.8 Defective wash nozzles shall be replaced in each filter.
3.9 Cleaning of Air or Water Wash Nozzles: Jet and cone shall be removed from each nozzle and punched clean with a wire or rod.
3.10 Distribution laterals shall be flushed for a few minutes by removing the nozzles at the end of laterals.
3.11 General Maintenance of Loss of Head Switch: Connecting tubing shall be purged with clean air or water. Contacts shall be burnished, as required.

Food Service Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of food service equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Food service equipment shall comply with applicable NSF Standards. Gas-burning equipment shall be designed for operation with the type of gas designated and shall be approved by AGAL. Electrically operated equipment shall be in accordance with applicable standards of the UL Electrical Appliance and Utilization Equipment Directory and UL 197.
2.1 Equipment:
2.1.1 Vertical Steam Cooker: Mil. Spec. MIL-C-2354.
2.1.2 Commercial-Type Range: Gas, Fed. Spec. A-A-50064; electric, Fed. Spec. A-A-50035.
2.1.3 Ice Cube Machine: Mil. Spec. MIL-I-11867.
2.1.4 Rinser-Sanitizer: Mil. Spec. MIL-R-19038.
2.1.5 Fry Pan: Gas, ASTM F 1047; electric, ASTM F 1047.
2.1.6 Automatic Coffee Urn: Mil. Spec. MIL-U-43263.
2.1.7 Steam Kettles: Electric, Mil. Spec. MIL-K- 43359; gas, Mil. Spec. MIL-K-43943.
2.1.8 Food Service Cabinets, Warmer-Refrigerator, Roll-Through, Roll-In: Mil. Spec. MIL-C-43427.
2.1.9 Convection Ovens: Gas, Fed. Spec. A-A-50042; electric, Fed. Spec. A-A-50039.
2.1.10 Sanitizing Hot Water Heater: Mil. Spec. MIL-H-43895.
2.1.11 High Pressure Cleaning and Sanitizing Machines: Mil. Spec. MIL-C-43949.
2.2 Materials:
2.2.1 Black Iron Pipe: ASTM A 53.
2.2.2 Brass Pipe: Fed. Spec. WW-P-351, Class 1.
2.2.3 Chromium Plating of Brass Pipe, Valves, and Fittings: Fed. Spec. WW-P-541.
2.2.4 Copper Tubing: ASTM B 88, Type K or L, or ASTM B 75, as required.
2.2.5 Stainless Steel, Nonmagnetic: ASTM A 167 or ASTM A 240.
2.2.6 Stainless Steel Pipe and Tubing: Seamless or welded, of true roundness, and of material specified for stainless steel. Seamless tubing shall be thoroughly annealed, pickled, and ground smooth. Welded tubing shall be thoroughly heat-treated, quenched to eliminate carbide precipitation, and then drawn true to size, roundness, and ground. Tubing shall be given a No. 3 or 4 finish when exposed to view.
2.2.7 Fittings for Copper Tubing: Solder-joint type. Flared joint fittings may be used in specific applications when approved. Cast bronze solder joint fittings shall conform to ANSI B16.22. Wrought copper and wrought bronze solder joint fitting shall conform to ANSI B16.22. Cast bronze fittings for flared joints shall conform to ANSI B16.26.

2.2.8 Fittings for Brass Pipe: Fed. Spec. WW-P-460, Class A or B, as required.
2.2.9 Galvanizing Repair Compound: Mil. Spec. MIL-P-21035.
2.2.10 Silver Solder: Fed. Spec. QQ-B-654, class as applicable.
2.2.11 Steel Structural Shapes for Framing: ASTM A 36. Sections shall be galvanized by the hot-dip process, conforming to ASTM A 123, coating designation G-90.
2.2.12 Tin-Lead Solder: Fed. Spec. QQ-S-571, composition Sn50.
2.3 Garbage Disposal Machine: A floor supported type with cast alloy body supported on adjustable tubular legs. The upper housing shall be removable. The disposal shall be provided with a stainless steel cone with a water swirl inlet. Throat shall have a neoprene silver trap.
2.3.1 The disposal shall be provided with magnetic starter with overload and under voltage protection, 5-minute timer, panel cover interlock, fused disconnect, prewired solenoid, vacuum breaker, water flow controls, positive flushing action and reversing action, or other positive means of preventing jamming. The rotor shall be cast alloy carrying rigid impact bars fixed directly onto motor shaft, or stainless steel swivel impellers and stainless steel undercutter. Disposal machines with a 5 hp or 7-1/2 hp motor shall have a minimum 8-inch diameter rotor.
2.3.2 Control: Control panel box shall be waterproof stainless steel construction.
2.4 Hoods: Design, fabrication, and installation of hoods and duct systems shall conform to NFPA 96 and UL 710 where applicable. Hood duct systems, grease removal devices, and cooking equipment, which may be a source of ignition of grease in the hood or duct, shall be protected with fixed pipe systems and provided with portable fire extinguishing equipment in accordance with NFPA 96, NFPA 17, and as specified. Ducts and hoods shall be secured to building so as to be level and free from vibration under all conditions of operations. Hoods, exposed ducts, and enclosures over dishwashing machines and rinse compartment of pot washing sinks shall be constructed of 18-gauge stainless steel. Hood shall be fabricated so as to form a condensate gutter at the perimeter and shall be provided with a condensate drain terminating at the floor sink location. Exhaust outlet shall be connected to the exhaust system.
2.5 Prefabricated Walk-In Refrigerators: Commercial, walk-in type, intended for use in dining facilities, in accordance with Mil. Spec. MIL-R-43900 except insulation shall provide a maximum "U" factor of 0.0295 Btuh.
2.6 Gas burning equipment shall comply with the applicable requirements of AGAL and ANSI. Each gas-burning appliance shall be connected to the building piping by means of a quick-disconnect device and flexible connector. A manual shutoff valve shall be installed on the building piping, ahead of the supply side of each quick-disconnect device. The quick-disconnect device shall conform to ANSI Z21.41 and the flexible connector to ANSI Z21.45. The length of the flexible connector shall be as required but shall not exceed 72 inches. Flexible connector shall not be concealed and shall not extend from one room to another. Dust caps and plugs shall be provided for quick-disconnect fittings for use when fittings are uncoupled.
2.7 Backflow Preventers: Each item of food service equipment having water supply and waste connections, with the water inlet connected below the flood level of the equipment, shall be supplied with backflow preventer of size and proportions that will allow an ample flow of water to the equipment, but will prevent the backflow of waste or polluted water into the water supply system.
2.8 Paint shall be of a durable, nontoxic, nondusting, nonflaking, and mildew-resistant type, suitable for use with food service equipment and in conformance with NSF 2.
3.0 EXECUTION:
3.1 Installation: Equipment shall be installed in accordance with NSF Installation Manual for Food Service Equipment. The Contractor shall make provision for the plumbing, heating, and electrical connections and for equipment indicated as being furnished and installed by the Member. Equipment connections shall be complete to wall or floor for all utilities. Unless otherwise specified, exposed piping shall be chromium-plated copper alloy or stainless steel. Gas equipment installation shall conform to ANSI Z21.15 and NFPA 54. Electrical work shall comply with NFPA 70.
3.2 Painting: All exterior, galvanized parts, exposed members of framework, and wrought steel pipe, where specified to be painted, shall be cleaned, degreased, primed with rust inhibiting primer, and finished with two coats of epoxy-based grey hammertone paint.

Refrigerators

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of residential refrigerators. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Refrigerators and Freezers: AHAM HRF-1.
2.2 Cords and Plugs: UL 62 and UL 817
2.3 General Electrical: NFPA 70.
2.4 Compressors: UL 984.
2.5 Condensers: UL 250.
2.6 Motors: UL 73.
3.0 EXECUTION: (Section not used.)

Dishwashers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of residential dishwashers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Dishwashers: UL 749.
2.2 Time Control: UL 917.
2.3 Control Valves: UL 429.
2.4 General Electrical: NFPA 70.
2.5 Cords and Plugs: UL 62.
2.6 Motors: UL 73 and UL 547.
2.7 Safety-Interlock Switch: UL 749.
3.0 EXECUTION: (Section not used.)

Garbage Disposers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of residential garbage disposers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Household Garbage Disposal: Fed. Spec. OO-G-1513 and AHAM FWD-1.
2.2 Cords and Plugs: UL 62 and UL 817.
2.3 Motors: UL 73.
2.4 General Electrical: NFPA 70.
3.0 EXECUTION: (Section not used.)

Ranges and Ovens

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of residential ranges and ovens. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Conduit: UL 1.
2.2 Conductors: UL 62, UL 83, and UL 817.

2.3 Switches: UL 20 and UL 917.
2.4 Fuses and Fuseholders: UL 198 and UL 512.
2.5 Connectors: UL 486.
2.6 Ranges: UL 858.
2.7 Thermal Cutoffs: UL 1020.
2.8 General Electrical: NFPA 70.
2.9 Pilot Lights: UL 496 and UL 542.
2.10 Range Hoods: Non-vented, two-speed fan, charcoal filter, light, UL listed.
3.0 EXECUTION: (Section not used.)

Clothes Dryers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of residential clothes dryers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Cords and Plugs: UL 62 and UL 817.
2.2 Thermal Cutoffs: UL 1020.
2.3 General Electrical: NFPA 70.
2.4 Motors: UL 73.
2.5 Home Laundry Equipment: UL 560 and Fed. Spec. OO-W-860.
2.6 Switches: UL 917 and UL 20.
2.7 Lamps and Lamp Holders: UL 496 and UL 542.
2.8 Vent Duct: Plastic wrapped, flexible wire duct of diameter to fit duct pipe of machine.
2.9 Weather Hood: Aluminum construction with backdraft damper.
3.0 EXECUTION: (Section not used.)

Clothes Washers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of residential clothes washers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Cords and Plugs: UL 62 and UL 817.
2.2 Electrically-Operated Valves: UL 429.
2.3 Home Laundry Equipment: UL 560 and Fed. Spec. OO-W-860.
2.4 Lamps and Lamp Holders: UL 496 and UL 542.
2.5 General Electrical: NFPA 70.
3.0 EXECUTION: (Section not used.)

Unit Kitchens

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of unit kitchens. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Electrical components shall comply with applicable UL standards and bear appropriate UL labels. Gas-burning equipment shall comply with ANSI Z21.1 and shall bear the AGA seal of approval.
2.1 Materials: Minimum 22-gauge steel sheet for component body parts, minimum 20-gauge steel sheet for door fronts and liners, and heavier-gauge steel for internal gussets and bracing.
2.2 Components: Electrical components shall be wired for the voltage available and shall terminate at factory-installed terminal boxes. Gas-burning components shall be designed to operate on the

designated fuel. Unit kitchens shall include the following, as required:

2.2.1 Top and sink shall be seamless, one-piece with integral back and end splashes fabricated from 18-gauge AISI Type 302/304 stainless steel with No. 4 brushed finish or 16-gauge minimum titanium steel with acid-resistant porcelain finish. Sink accessories shall include chrome-plated swing spout faucet with aerator, chrome-plated faucet handles, stainless steel cup strainer, and drain outlet with tailpiece.

2.2.2 Food Waste Disposer shall be complete with drain outlet and tailpiece.

2.2.3 Refrigerator and freezer compartments shall be the designated minimum capacity measured in accordance with AHAM HRF-1.

2.2.4 Range: Each cooktop burner shall be rated at not less than 1,250 watts, if electric, or 8,000 Btu, if gas.

2.2.5 Oven: Electric oven "Bake" operation shall be rated at 2,000 watts minimum and "Broil" operation shall be rated at 2,500 watts minimum; gas oven burners shall be rated at 18,000 Btu minimum.

2.2.6 Cabinets shall be under-counter and upper wall-mounted, with shelves, doors, drawers, and hardware.

3.0 EXECUTION: (Section not used.)

Gymnasium Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of gymnasium equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Basketball backstops shall be ceiling-suspended forward-folding, backward-folding, side-folding, wall-braced or fixed type; wall-mounted up-folding, side-folding or fixed type; or floor-mounted portable type as required. Backstop shall come complete with backboard, goal, and all accessories. Backboard material shall be glass, fiberglass, steel or wood as required and rectangular or fan shaped. Movable backstops shall be manually or electrically operated. Backstops, goals, and their accessories shall meet the specifications of the National Collegiate Athletic Association.

2.2 Gym divider curtains shall be constructed of vinyl for the first eight feet (8' 0") above the floor. The remainder shall be 1-3/4 inch mesh, white nylon netting. A chain or other ballast shall be sewn into the bottom hem. Curtains that are drawn shall be manually operated and glide along their own track. Roll-up curtains shall be power-operated.

3.0 EXECUTION:

3.1 Basketball goals shall be securely attached to supporting construction and shall be installed at a height of 10 feet from the rim to the floor.

3.2 Telescoping Bleacher Seating: Verify that areas to receive telescoping bleacher seating are free of impediments interfering with installation and operation. Securely attach to supporting construction.

3.3 Gym Divider Curtains: Verify that areas to receive gym divider curtains are free from interferences and structurally capable of supporting the curtains.

Paint Spray Booth

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of paint spray booths. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work. Contact the Fire Protection Engineering Branch for requirements of paint spray booth protection.

2.0 PRODUCTS: All products shall meet applicable OSHA and NFPA standards.

2.1 Enclosure:

2.1.1 Panels: 18 gauge, ASTM A 568.

2.1.2 Stiffeners and Support Shapes: ASTM A 36.

2.1.3 Exhaust Chamber: 18 gauge, formed to hold filters.

2.1.4 Doors:
2.1.4.1 Access Door: 2 feet 6 inches by 7 feet 0 inches, steel-clad.
2.1.4.2 Entrance Doors for Vehicular Booths: Swing type, two-section, steel-framed with intake air filters, a minimum opening of 8 feet 9 inches in height by 9 feet 10 inches in width, leak-proof seals and a heavy-duty latch.
2.1.4.3 Exit Doors for Vehicular Drive-Through Booths: Swing type, two-section, steel frame, metal-clad, solid, with a minimum opening of 7 feet 9 inches in height by 9 feet 10 inches in width, leak-proof seals, and a heavy-duty latch.
2.1.5 Factory Finish: Galvanized or painted.
2.2 Filtering Equipment:
2.2.1 Arrestor: Disposable, expanded fiber or fiberglass, Class 2 listed by UL.
2.2.2 Water Wash: Complete with pumps, spray nozzles, baffles, and controls.
2.3 Exhaust Fans shall be sized to maintain 100 fpm minimum across the cross sectional area of booth and shall have permanently lubricated bearings and enclosed belts. Fan motors shall be located outside of air stream.
2.4 Lighting: Fluorescent.
2.5 Fans, controls, and lights inside paint booths shall be explosion proof.
1.1 EXECUTION: Installation shall comply with applicable codes and environmental regulations.

DIVISION 12-FURNISHINGS (NOT USED)

DIVISION 13-SPECIAL CONSTRUCTION

Pre-engineered Structures

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of pre-engineered metal buildings. Products shall match existing materials and/or shall be as directed by the Contracting Officer. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Metal buildings shall be the design and product of a recognized metal building manufacturer who is regularly engaged in the fabrication of pre-engineered structures.
2.1 Design Requirements:
2.1.1 Metal buildings shall be designed for the dead load, designated live loads, and combinations of these loads as set forth in the MBMA Low Rise Building Systems Manual.
2.1.2 Framing and Structural Members: Structural steel members shall be designed in accordance with AISC publication, Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings. Structural cold-formed steel framing members shall be designed in accordance with the AISI publication, Specification for the Design of Cold-Formed Steel Structural Members. Framed openings shall be designed to structurally replace the covering and framing displaced. Welding of steel shall be in accordance with AWS D1.1.
2.1.3 Exterior Covering: Maximum wind load deflection for wall sheets shall not exceed 1/180 of the span between supports: Maximum live load deflection for roof sheets shall not exceed 1/180 of the span between supports. Maximum deflections shall be based on sheets continuous across two or more supports with sheets unfastened and fully free to deflect.
2.2 Materials:
2.2.1 Hot-Rolled Structural Shapes: ASTM A 36 or A 529.
2.2.2 Tubing or Pipe: ASTM A 500, Grade B; ASTM A 501; or ASTM A 53.
2.2.3 Members Fabricated from Plate or Bar Stock: 42,000 psi minimum yield strength; ASTM A 529, A 570, or A 572.
2.2.4 Members Fabricated by Cold Forming: ASTM A 607, Grade 50.
2.2.5 Galvanized Steel Sheet: ASTM A 446 with G 90 coating.
2.3 Framing:
2.3.1 Rigid frames shall be hot-rolled structural steel; factory-welded and shop-painted built-up "I" shape or open web rigid frame consisting of tapered or parallel flange beams and tapered columns. Furnish complete with attachment plates, bearing plates, and splice members. Frames shall be

factory-drilled for bolted field assembly.

2.3.2 End wall columns shall be factory-welded, built-up "I" shape or cold-formed sections, fabricated of minimum 14-gauge material, and shop-painted.

2.3.3 Wind Bracing shall be adjustable, threaded steel rods, 1/2 inch in diameter minimum; ASTM A 36 or A 572, Grade D.

2.3.4 Secondary Framing: Purlins, eave struts, end wall beams, and flange and sag bracing shall be minimum 16-gauge rolled formed sections and shop-painted. Base channel, sill angle, end wall structural members (except columns and beams), and purlin spacers shall be minimum 14-gauge cold-formed steel, galvanized.

2.3.5 Bolts shall be ASTM A 307 or A 325 as necessary for design loads and connection details. Bolts shall be shop-painted, except zinc- or cadmium-plated units shall be provided when in direct contact with panels.

2.4 Roofing and Siding: Provide flashings, closers, fillers, metal expansion joints, ridge covers, fascias, and other sheet metal accessories, factory-formed of same material and finish as roofing and siding.

2.4.1 Roof-covering assemblies shall have a wind uplift resistance rating of Class 90 in accordance with UL 580 and shall be listed in the UL Fire Resistance Directory for wind uplift resistance classification.

2.4.2 Steel covering shall be zinc-coated steel conforming to ASTM A 446, Grade C, with G 90 coating complying with ASTM A 525. Steel sheets and panels shall be not less than 26-gauge.

2.4.3 Aluminized steel sheets shall be aluminum-coated, ASTM A 463, Drawing Quality with T1-40 coating. Metal thickness shall be not less than 26-gauge.

2.4.4 Aluminum sheets shall be fabricated from aluminum alloy 3003 or 3004 Alclad with tempering as required to suit forming operations, ASTM B 209. Aluminum sheet thickness shall be not less than 0.032 inch.

2.4.5 Insulated wall panels shall be factory-assembled or field-assembled units, consisting of a central insulating core with metal interior and exterior face sheets securely fastened together with rivets, bolts, studs, "snap-on", or other approved methods of fastening, including interlocking with basic wall units.

2.5 Insulation:

2.5.1 Insulation shall be batts, blankets, and/or rigid material of required thickness and density to provide an overall tested heat transfer U-value as required. Insulation shall have a flame spread classification of 25 or less and a smoke developed rating not in excess of 50 when tested in accordance with ASTM E 84. Exposed insulation shall be faced with a vapor barrier of vinyl film, vinyl reinforced foil, or foil reinforced Kraft.

2.5.2 Rigid or semi-rigid board insulation shall conform to Fed. Spec. HH-I-558, Form A, Class 1 or Class 2. Insulation shall have a white non-dusting and non-shedding painted finish.

2.5.3 Blanket insulation shall conform to Fed. Spec. HH-I-558, Form B, Type I, Class 6. Insulation shall have a white sheet vinyl facing.

2.6 Accessories:

2.6.1 General: Provide coated steel accessories with coated steel roofing and siding; aluminum accessories with aluminum roofing and siding.

2.6.2 Gutters shall be formed in sections, complete with end pieces, outlet tubes, and special pieces that may be required. Finish to match roof fascia and rake.

2.6.3 Downspouts shall be formed in sections, complete with elbows and offsets, and shall be finished to match wall panels.

2.6.4 Circular gravity roof ventilators shall be low-profile, ridge type ventilators, complete with base, bird screen, hood, flashing, closures, and fittings, finished to match roof panels.

2.6.5 Continuous ridge ventilators shall be factory-engineered and fabricated units of continuous heat valve type.

2.6.6 Wall Louvers: Provide units fabricated of not less than 18-gauge steel, finished to match wall panels. Provide bird screens of 1/2-inch x 1/2-inch galvanized steel mesh in rewirable frames on exterior face of louvers. Secure screens with clips to ensure ease of removal for cleaning and rewiring.

2.7 Hollow metal doors and door frames shall comply with Recommended Specifications for Standard Steel Doors and Frames (SDI-100), Steel Door Institute.

2.7.1 Materials: Hot-rolled, pickled, and oiled in compliance with ASTM A 569 and A 568; cold-rolled in compliance with ASTM A 366 and A 568.

2.7.2 Hollow metal units to receive mortised and concealed finish hardware, including cutouts, reinforcing, drilling, and tapping, shall comply with ANSI A115. Locate finish hardware in compliance with BHMA Recommended Locations for Builder's Hardware.

2.7.3 Hardware: Provide hardware for each door, as follows:

2.7.3.1 Hinges: 1-1/2 pair, steel, template hinges, 4-1/2 inches x 4-1/2 inches.

2.7.3.2 Lockset: Cylindrical, key in knob.

2.7.3.3 Threshold: Extruded aluminum (exterior doors only).

2.7.3.4 Weatherstripping: Sponge neoprene or extruded vinyl, enclosed in an aluminum housing. Bottom weatherstripping shall be an aluminum extrusion with vinyl sweep strip.

2.8 Overhead Doors:

2.8.1 Overhead doors shall be industrial type of standard manufacture, fabricated of 24-gauge galvanized steel minimum or 0.032-inch thick aluminum. Accessories shall include galvanized steel track, torsion-spring mechanism, ball-bearing roller, cylinder lock, and weatherstripping. Doors shall be manually operated, except that doors over 144 square feet in area shall be chain hoist or electric motor operated.

2.8.2 Overhead Coiling Doors:

2.8.2.1 General: Provide operating door assemblies as a complete unit produced by one manufacturer, including door curtain, guides, counterbalance, hood, hardware, operators, and installation accessories.

2.8.2.2 Door Curtain: Fabricate overhead coiling door curtain of interlocking slats designed to withstand required wind loading. Slats shall be structural quality, cold-rolled galvanized steel sheets complying with ASTM A 446, Grade A, with G90 zinc coating, complying with ASTM A 525, and phosphate treated before fabrication, or aluminum slats, 5052 alloy, standard mill finish, not less than 0.04 inch thick.

2.9 Windows: Windows shall be of steel in accordance with the Steel Window Institute, The Specifier's Guide to Steel Windows, or of aluminum in accordance with the AAMA 101. Windows shall be complete with operating and locking hardware and glazing.

2.10 Fabrication: Shop fabricate to the required size and section, complete with base plates, bearing plates, and other plates as required for erection, welded in place, and with all required holes for anchoring or connections shop drilled or punched to template dimensions. Shop connections shall be power riveted, bolted, or welded. Field connections shall be bolted.

2.11 Shop Painting:

2.11.1 Clean surfaces to be primed of loose mill scale, rust, dirt, oil, grease, and other matter precluding paint bond. Follow procedures of SSPC-SP3 for power tool cleaning, SSPC-SP7 for brush-off blast cleaning, and SSPC-SP1 for solvent cleaning.

2.11.2 Prime structural steel primary and secondary framing members with rust-inhibitive primer having over 50 percent rust-inhibitive pigment, such as red-lead mixed pigment alkyd varnish (Fed. Spec. TT-P-86, Type II) or zinc chromate iron-oxide alkyd (Fed. Spec. TT-P-664).

2.11.3 Prime galvanized members, after phosphoric acid pretreatment, with zinc dust-zinc oxide primer (Fed. Spec. TT-P-641).

3.0 EXECUTION: Erection shall be in accordance with the approved erection instructions. Dissimilar materials that are not compatible when contacting each other shall be insulated from each other by means of gaskets or insulating compounds. Exposed surfaces shall be kept clean and free from sealant, metal cuttings, and other foreign materials.

3.1 Framing: Erect structural framing true to line, level, plumb, rigid, and secure. Provide rake or gable purlins with tight-fitting closure channels and fascias. Provide diagonal rod or angle bracing in both roof and sidewalls as required. At framed openings provide shapes of proper design and size to reinforce opening and to carry loads and vibrations imposed, including equipment furnished under mechanical or electrical work. Securely attach to building structural frame.

3.2 Roofing and Siding: Arrange and nest sidelap joints so that prevailing winds blow over, not into,

lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line. Protect factory finishes from damage. Provide weather seal under ridge cap; flash and seal roof panels at eave and rake with rubber, neoprene, or other closures to exclude weather.

3.2.1 Roof Sheets: Provide sealant tape at lapped joints of ribbed or fluted roof sheets and between roof sheeting and protruding equipment, vents, and accessories.

3.2.2 Wall Sheets: Apply elastomeric sealant continuous between metal base channel (sill angle) and concrete and elsewhere as necessary for waterproofing. Align bottoms of wall panels and fasten panels with blind rivets, bolts, or self-tapping screws.

3.3 Sheet Metal Accessories: Install gutters, downspouts, ventilators, louvers, and other sheet metal accessories, for positive anchorage to building and weathertight mounting.

3.4 Swing Doors and Frames: Install doors and frames straight, plumb, and level.

3.5 Overhead Doors: Set doors and operating equipment complete with necessary hardware, jamb and head mold stops, anchors, inserts, hangers, and equipment supports. Adjust moving hardware for proper operation.

3.6 Windows: Anchor windows securely in place. Seal entire perimeter of each unit with elastomeric sealant used for panels. Adjust and lubricate operating sash (vents) and hardware for proper operation. Clean surfaces of window units. Mount screens directly to frames with tapped screw clips.

3.7 Glazing: Clean channel surfaces and prime as recommended by sealant manufacturer. Cut glass to required size for measured opening; provide adequate edge clearance and glass bite all around. Install setting blocks at quarter points, set in a bed of sealant if heel-bead is used. Install spacers inside and out, all around, wherever liquid or plastic mastic compounds are used.

3.8 Thermal Insulation: Install blankets straight and true in one-piece lengths and both sets of tabs sealed to provide a complete vapor barrier.

3.9 Field Painting: Apply finish coating to factory-primed items.

Swimming Pool Accessories

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of swimming pool equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Diving stands shall be fabricated of 1-1/2 inch Schedule 40 stainless steel pipe. Their use shall be directed by facility dimensional requirements and shall comply with APHA, USS, NCAA, AAU, and FINA.

2.2 Diving boards shall be fabricated of all aluminum or of laminated wood and fiberglass. All upper surfaces shall be non-skid, and all edges shall be rounded and sealed.

2.3 Ladders shall be fabricated from low carbon Type 304 stainless steel and have raised non-skid treads. Quantities, locations, and clearances shall comply with National Spa and Pool Institute standards.

2.4 Lifeguard chairs shall be fabricated from Type 304 stainless steel (framework and handrails) and have raised non-skid treads and non-skid platforms. Units shall comply with Safety Requirements, published by the National Swimming Pool Institute, and OSHA standards.

2.5 Underwater lights of not less than 0.5 watts per square foot of pool area shall be provided in accordance with Lighting and Wiring, published by the National Spa and Pool Institute, and Article No. 68D of the National Electrical Code.

2.6 Pool covers shall be polyethylene, having a flame spread rating of "0" as per ASTM E 84. Materials shall be non-toxic, non-absorbent, non-permeable, chemical-resistant and have a upper service limit of 110 F. Storage reels shall be constructed of Type 304 stainless steel.

2.7 Slides shall consist of fiberglass bodies with integral continuous flowing water supply, Type 304 stainless steel frames and raised non-skid ladder treads.

3.0 EXECUTION: (Section not used.)

Sludge Incinerators

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and maintenance of sewage treatment plant incinerators. Products shall match existing materials and/or as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Refractory materials shall comply with ASTM C 27.

2.2 Sand for fluidized bed shall be high silica sand having an effective size of 0.20 mm. and a uniformity coefficient of 1.8.

2.3 Repair and replacement parts for burners shall be compatible with the existing burners.

3.0 EXECUTION:

3.1 Cleaning, Lubrication, and Adjustments: Thoroughly clean fan, blower, motor, and damper of dirt, dust, and other foreign material. Parts shall be lubricated and adjusted for proper operation.

3.2 Burner Parts shall be cleaned and primary and secondary air openings shall be adjusted as required for good combustion and to meet the design requirements for excess air to the burner. Adjustments shall be made with the incinerator in normal operation.

3.3 Cleaning of Fuel and Atomizing Lines: Gas, oil, air, and steam lines connected to the burner shall be disconnected, cleaned, and reconnected.

3.4 Startup: After completion of maintenance and repairs, the incinerator shall be started up and operating adjustments shall be made by the Contractor as required to achieve the design flow rate and emission quality of the incinerator.

Settling Chamber

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of water treatment plant settling chambers and weirs. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: (Section not used.)

3.0 EXECUTION:

3.1 Interruptions of Treatment: Not more than one settling chamber shall be taken out of service at a time.

3.2 Installation:

3.2.1 Painting: Exposed new surfaces and surfaces marred during the work shall be painted to match existing color.

3.2.2 Startup: Final adjustments and startup shall be made in such a way as to ensure that all equipment operates at design conditions and rated capacity.

3.2.3 Weir Adjustment: Adjust existing weirs that have a top edge elevation variation of more than 1/32 inch, and all new weirs, to be level throughout their length at the elevation specified.

3.2.4 Weir Repair: Grind metal weir plates smooth and even, if grinding does not exceed amount of available equipment.

Water Treatment Plant Filters

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of gravity and pressure filters for water treatment plants. Products shall match exiting materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Concrete repair materials shall be epoxy type grout in compliance with Applicable standards and/or.

2.2 Steel plate, welding rods and welding electrodes shall be of a composition that complies with Section II of ASME Boiler and Pressure Vessel Code.

2.3 Sequencing controls and solenoid valves shall comply with NEMA ICS and UL 508.
2.4 Filter media shall comply with the requirements of AWWA B100 and shall be equivalent to the existing filter materials.
2.5 Replacement weirs and troughs may be steel, conforming to ASTM A 36, or glass fiber reinforced plastic, in compliance with ASTM D 3841.
3.0 EXECUTION:
3.1 Tank and Trough Repair: Welding repairs shall comply with Paragraph UF-37 of Section VIII of the ASME Boiler and Pressure Vessel Code or AWS D1.1.
3.2 Weirs: Adjust weirs to the elevation required. Weirs may not have a top edge elevation variation of more than 1/32 inch throughout their length. Eroded top edges of metal weir plates shall be ground smooth and even, if grinding does not exceed amount of available adjustment.
3.3 Filter Media: Filtering materials shall be replaced in accordance with AWWA B100.
3.4 Testing: Test leak repairs by hydrostatic pressure or by pneumatic pressure if the leak is in the tank air space. Test sequence controls, solenoid valves, and backwash equipment to ensure that they operate at design conditions.
3.5 Cleaning: Clean tank interior of all sediment and foreign matter after completion of repair and testing. Clean sequence controls and associated electrical contacts.
3.6 Painting: Exposed metal surfaces shall be painted.
3.7 Disinfection: Disinfect piping and filters in accordance with AWWA B100.

Pressure Filters

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and maintenance of pressure filters for water treatment plants. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Steel plate, welding rods and welding electrodes shall be of a composition that complies with Section II of ASME Boiler and Pressure Vessel Code.
2.2 Relief valves shall be set to relieve at 15 psi above the normal operating pressure of the tank.
3.0 EXECUTION:
3.1 General: Welding repairs shall comply with Paragraph UF-37 of Section VIII of the ASME Boiler and Pressure Vessel Code or AWS D1.1.
3.2 Repair of Pin Holes: Weld holes of diameter less than half the plate thickness in compliance with AWS D1.1.
3.3 Repair of Cracks: Patch cracks or holes larger than one half the thickness of the tank shell plate.
3.4 Testing: Test leak repairs by hydrostatic pressure or by pneumatic pressure if the leak is in the air space of the tank.
3.5 Cleaning: Clean tank interior of all sediment and foreign matter after completion of repair and testing.

Backwash Tanks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance for water treatment plant backwash tanks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Bolts and Screws: Existing bolts and screws removed due to repair work shall be replaced with new bolts or screws complying with ASTM A 193, Grade B8 and nuts complying with ASTM A 194, Class 8F of the same type, size, and finish.
2.2 Finishes: Items replacing existing items that are galvanized, plated, painted, or otherwise finished shall be of like finish.
2.3 Steel tank repair parts shall be as specified in ASTM A 36, A 131, A 283, or A 573, depending upon

required thickness.

2.4 Steel tank coatings shall be as specified in AWWA D102.

2.5 Concrete tank repair material shall be epoxy type grout in compliance with Applicable standards and/or.

2.6 Concrete tank coatings shall be a taste-free and odor-free, coal-tar base coating.

3.0 EXECUTION:

3.1 Preparation: Temporary backwash tank and accessories shall be furnished and installed as required to provide uninterrupted service.

3.2 Installation:

3.2.1 Flame Cutting: No cutting by torch or flame shall be done without written authorization from the Authorized Member Representative.

3.2.2 Testing: Test tanks by filling with water and inspecting for leaks. Test piping and valves hydrostatically at one and one half times normal working pressure or 50 psig, whichever is greater.

Sewage Treatment Plant Electrical Controls and Instrumentation

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of sewage treatment plant instrumentation. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Applicable Data: Flow diagrams, loop diagrams, and installation drawings of the existing instruments and sampling systems for which maintenance and repair is to be provided should be requested from the Authorized Member Representative.

2.2 Instrumentation: All instrumentation shall be in accordance with the manufacturer's instructions.

3.0 EXECUTION:

3.1 Scheduling and Coordination: Contractor shall determine that arrangements have been made to take the equipment out of service for the duration of the work.

3.2 General: Perform listed maintenance procedures and repairs on meter and sampling system in compliance with the manufacturer's recommendations.

3.3 Calibration: Calibrate meter over the meter's range and adjust to read correctly.

Water Treatment Plant Electrical Controls and Instrumentation

1.0 Water treatment plant electrical controls and instrumentation. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: Items not specified but required for the proper installation or repair of a specified item of work shall be provided. Items shall be of proper type, size, design, and characteristics for the use intended. Parts shall be factory-made.

2.2 Finishes: Items replacing existing items that are galvanized, plated, painted, or otherwise finished shall be finished with like finish in compliance with the manufacturer's standard practice.

2.3 Electrical controls and instrumentation components for replacement purposes shall be designed for same service as the existing.

3.0 EXECUTION:

3.1 Coordination: Contractor shall determine that requirements for removal of the equipment from service, the bypassing of control valves, and installing of temporary replacements have been coordinated with the Authorized Member Representative. Bypassing of control valves or putting a control instrument in the Remote-Hand-Control mode will be done by the plant operators.

3.2 Power Supplies that may be a hazard during the performance of the work shall be locked out.

3.3 Testing: Check the operation of each instrument after it is returned to service. Adjust each instrument to operate properly over the design range.

Flow Measurement Devices

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of current type, turbine type, compound type, and fire service type meters for the measurement of flow. Products shall match existing materials and/or shall be as directed by Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Current type meters in sizes ranging between 5/8 inch and 6 inches shall conform to AWWA C 700.

2.2 Turbine type meter for customer services in sizes ranging between 1-1/2 inches and 12 inches shall conform to AWWA C 701.

2.3 Compound type meters in sizes ranging between 2 inches and 10 inches shall conform to AWWA C 702.

2.4 Fire service type meters in sizes ranging between 3 inches and 10 inches shall conform to AWWA C 703.

2.5 Current type meters, propeller-driven in sizes ranging between 2 inches and 36 inches shall conform to AWWA C 704.

2.6 Multi-Jet Type Meters in sizes ranging between 5/8 inch and 2 inches shall conform to AWWA C 708.

3.0 EXECUTION: Calibration shall result in the flow measurement device reading correctly over its normal operating range.

Solar Water Heating Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of solar water heating equipment. The solar energy system shall be arranged for preheating of service (domestic and/or process) water using flat plate liquid solar collectors. System components shall include a solar collector array, storage tank, pump[s], automatic controls, instrumentation, interconnecting piping and fittings, uninhibited food-grade propylene-glycol and water heat transfer fluid in a closed loop, potable water heat transfer fluid in an open loop, heat exchanger (for closed-loop), expansion tank (for closed-loop), and accessories required for proper operation of the system.

2.0 PRODUCTS:

2.1 General Equipment Requirements:

2.1.1 Standard Products: Materials and equipment shall be the standard products of a manufacturer regularly engaged in the manufacture of such products and shall essentially duplicate items that have been in satisfactory use for at least 2 years prior to bid opening. Equipment shall be supported by a service organization that is, in the opinion of the Authorized Member Representative, reasonably convenient to the site.

2.1.2 Special Tools: One set of special tools, calibration devices, and instruments required for operation, calibration, and maintenance of the equipment shall be provided.

2.2 Piping System: Piping system shall be complete with pipe, pipe fittings, valves, strainers, expansion loops, hangers, inserts, supports, anchors, guides, sleeves, and accessories.

2.3 Electrical Work: Electric motor-driven equipment specified shall be provided complete with motor, motor starters, and controls. Electrical characteristics shall be as specified or indicated. Motor starters shall be provided complete with thermal overload protection and other appurtenances necessary for the motor control specified. Each motor shall be of sufficient size to drive the equipment at the specified capacity without exceeding the nameplate rating of the motor. Manual or automatic control and protective or signal devices required for the operation specified, and any control wiring required for controls and devices, but not shown, shall be provided.

2.4 Collector Subsystem: Collectors shall be of the flat plate, liquid, internally manifolded type. Each collector shall be provided with cover glazing, an absorber plate, heat transfer liquid flow tubes, internal headers, weep holes, insulation, and a casing. Collectors shall be of weather-tight construction. Solar collectors shall withstand a stagnation temperature of 350 degrees F and a working pressure of 125 psig without degrading, out-gassing, or warping. Collector net aperture area shall be a minimum of 28 square feet. Collector length, width, and volume shall be as shown.

2.4.1 Collector Warranty: Contractor shall provide a minimum 10-year warranty against the following:

failure of manifold or riser tubing, joints or fittings; degradation of absorber plate selective surface; rusting or discoloration of collector hardware; and embrittlement of header manifold seals. The warranty shall include full repair or replacement of defective materials or equipment.

2.4.2 Solar Collector Performance: Thermal performance shall be plotted on the thermal efficiency curve in accordance with ASHRAE 93. The y-intercept shall be equal to or greater than 0.68, and the numerical value of the slope of the curve (FRUL) shall be between 0 and minus 5.7 watts per square meter per degree K (0 and minus 1.0 Btu per hour per square foot per degree F). Manufacturer's recommended volumetric flow rate and the design pressure drop at the recommended flow rate shall be as shown. Manufacturer's recommendations shall allow at least seven collectors to be joined per bank while providing for balanced flow and for thermal expansion considerations.

2.5 Solar Collector Array:

2.5.1 Net Absorber Area and Array Layout: Array shall consist of an assembly of solar collectors as shown. Solar collectors shall be assembled as shown in banks of equal number of collectors. Banks shall consist of no less than 4 and no more than 7 collectors each. Collector array shall be oriented so that all collectors face the same direction and are oriented within 20 degrees of true south and with respect to true south as indicated. Collectors arranged in multiple rows shall be spaced so that no shading from other collectors is evident between 1000 hours and 1400 hours solar time on December 21. Minimum spacing between rows shall be as shown.

2.5.2 Piping: The array piping shall include interconnecting piping between solar collectors, and shall be connected in a reverse-return configuration as indicated with approximately equal pipe length for any possible flow path. Flow rate through the collector array shall be as indicated. Automatic pressure relief valves shall be provided in the array piping system as indicated, and shall be adjusted to open when the pressure within the solar array rises above 125 psig. Each collector bank shall be capable of being isolated by valves, and each bank capable of being separated shall have a pressure relief valve installed and shall be capable of being drained. Manually operated air vents shall be located at system high points, and all array piping shall be pitched a minimum of 0.25 inch per foot as shown so that piping can be drained by gravity. Calibrated balancing valves shall be supplied at the outlet of each collector bank as indicated.

2.5.3 Supports for Solar Collector Array: Support structure for collector array shall be aluminum and shall secure collector array at the tilt angle with respect to horizontal and orientation with respect to true south as shown. Support structure shall withstand static weight of filled collectors and piping, wind, snow, seismic, and other loads as indicated. Support structure shall allow access to all equipment for maintenance, repair, and replacement.

2.6 Storage Tank: Solar system hot water storage tank shall have a storage volume between 1.5 to 2 gallons per square foot of collector area and shall be as shown. Solar system storage tank shall conform to specifications for hot water storage tanks in Section 15401 INTERIOR PLUMBING. Insulation shall have an R value of not less than 30. Tank penetrations shall be designed to allow for connections to copper piping without risk of corrosion due to dissimilar metals, and shall be factory installed as indicated.

2.7 Transport Subsystem:

2.7.1 Heat Exchanger: The heat exchanger construction and testing shall be in accordance with ASME BPV VIII Div 1. Minimum design pressure rating shall be 125 psig. Heat exchanger shall be capable of returning a hot-side exit temperature of 120 degrees F or less given a hot-side approach temperature of 140 degrees F and a cold-side approach temperature of 100 degrees F. Heat exchanger shall be capable of withstanding temperatures of at least 240 degrees F. Heat exchanger shall be capable of operation at the flow rates as shown.

2.7.1.1 Plate Heat Exchanger: Heat exchanger shall be constructed of multiple plates of 316 stainless steel, titanium, copper, copper-nickel, or brass. Plates shall be frame-mounted, mechanically bonded, welded, or brazed at edges. Plate-type heat exchanger shall be able to be cleaned. Gaskets shall be of EPDM rubber or Viton. All plate heat exchanger characteristics shall be as indicated.

2.7.1.2 Tube-in-Shell Heat Exchanger: Heat exchanger shall be [fixed] [removable] bundle, shell-and-tube type. Shell, tube sheets, and end plates shall be constructed of nonferrous, brass, copper-

nickel, or 316 stainless steel. Shell insulation shall have a minimum R value of not less than 12. Tubes shall be seamless copper or copper alloy and shall be mechanically bonded, welded, or brazed to the end tube plates. Tubes shall be straight and supported by tube sheets that maintain the tubes in alignment. Straight tube heat exchanger shall be arranged for mechanical cleaning. All tube-in-shell heat exchanger characteristics shall be as indicated.

2.7.2 Pumps: Circulating pumps shall be electrically-driven, single stage, centrifugal type. The pumps shall be supported on a concrete foundation or by the piping on which installed. The pumps shall have a capacity not less than that indicated and shall be either integrally-mounted with the motor or direct-connected by a flexible-shaft coupling on a cast-iron or steel subbase. The pump shaft shall be constructed of corrosion resistant alloy steel, sleeve bearings and glands of bronze designed to accommodate a mechanical seal. Pumps shall have stainless steel impellers and casings of bronze. The motors shall have sufficient power for the service required, shall be of a type approved by the manufacturer of the pump, shall be suitable for the available electric service and for the heat transfer fluid used. The motors shall be controlled by suitable switches that can be activated by either the differential temperature controller or by manual override (Hand-Off-Automatic). Each pump suction and discharge connection shall be provided with a pressure gauge as specified.

2.7.3 Pipe Insulation: Array piping insulation shall be capable of withstanding 250 degrees F, except that piping within 1.5 feet of collector connections shall be capable of withstanding 400 degrees F.

2.7.4 Expansion Tank: Expansion tank shall be constructed and tested in accordance with ASME BPV VIII Div 1 and as applicable for a working pressure of 125 psig. Tank shall be provided with an elastomeric EPDM bladder which separates the system fluid from the tank walls and is suitable for a maximum operating temperature of 240 degrees F. Expansion tank acceptance volume shall be as a minimum the amount of fluid equal to the fluid volume of the collectors plus piping at the same height or above the collectors. Total tank size and arrangement shall be as shown. Tank shall be provided with 125 psi pressure relief valve. Tank shall be provided with precharge pressure as shown.

2.7.5 Heat Transfer Fluid: Solar collector loop fluid shall be uninhibited USP/food-grade propylene-glycol and shall be mixed with distilled or demineralized water to form a 30 or 50 percent by volume propylene-glycol solution with climates that commonly attain freezing temperatures (those above 4000 heating degree F days) receiving the 50 percent solution.

2.8 Control and Instrumentation Subsystem:

2.8.1 Differential Temperature Control Equipment: Differential temperature control equipment shall be supplied as a system by a single manufacturer. Controller shall be solid-state electronic type complete with an integral transformer to supply low voltage, shall allow a minimum adjustable temperature differential (on) of 8 to 20 degrees F, a minimum adjustable temperature differential (off) of 3 to 5 degrees F, and shall include a switching relay or solid state output device for pump control. Thermostat shall operate in the on-off mode. Controller accuracy shall be plus or minus 1 degree F. Controller shall be compatible with 10-kOhm thermistor temperature sensors. Differential control shall provide direct digital temperature readings of all temperatures sensed. Control shall indicate visually when pumps are energized. Control ambient operating range shall be a minimum of 32 to 120 degrees F.

2.8.2 Sensor and Control Wiring: 18 AWG minimum twisted and shielded 2, 3, or 4 conductor to match analog function hardware. Control wiring shall have 600 volt insulation. Multiconductor wire shall have an outer jacket of PVC.

2.8.3 Flowmeters: Flowmeters shall consist of a venturi, 6 inch dial differential pressure meter, valved pressure taps, and bar stock needle valves. Venturi flow nozzle shall have threaded bronze ends for pipe sizes up to 2 inches and flanged ends for pipe sizes 2-1/2 inches and above. Venturi length shall not be less than 1.6 times the pipe size. Venturi shall be selected to read differential pressure corresponding to 0.5 to 1.5 times the system flow rate. Venturi shall have an accuracy of plus or minus 1 percent of the range. Meter shall have an accuracy of plus or minus 2 percent of the full scale range.

2.8.4 Sight Flow Indicators: Sight flow indicators shall consist of a clear glass window or cylinder and a nonferrous or 316 stainless steel body and impeller. Indicator shall have threaded ends for pipe

sizes up to 2 inches and flanged ends for pipe sizes 2-1/2 inches and above. Maximum operating pressure shall be no less than 125 psi. Maximum operating temperature shall be no less than 250 degrees F.

2.9 Painting and Finishing: Equipment and component items, when fabricated from ferrous metal and located inside the building, shall be factory finished with the manufacturer's standard finish.

3.0 EXECUTION:

3.1 Installation:

3.1.1 Collector Subsystem:

3.1.1.1 Collector Array: Solar collector array shall be installed at the tilt angle, orientation, and elevation above roof as indicated. For installation on flat roofs with rack type collector mounting or for ground mounted collectors, bottom of collector shall be a minimum of 18 inches from roof or ground surface. For mounting on pitched roofs, back of collectors shall be installed a minimum of 2 inches above roof surface. Each solar collector shall be removable for maintenance, repair, or replacement. Solar collector array shall not impose additional loads on the structure beyond the loads scheduled on the structural drawings.

3.1.1.2 Array Piping: Collector array piping shall be installed in a reverse-return configuration so that path lengths of collector supply and return are of approximately equal length.

3.1.1.3 Array Support: Array support shall be installed in accordance with the recommendations of the collector manufacturer. Structural members requiring welding shall be welded in accordance with AWS D1.2 for aluminum and welders should be qualified according to AWS B2.1.

3.1.2 Storage Subsystem: Solar storage tank penetrations shall be installed as shown so that cold water inlet to storage tank and outlet from storage tank to collector array are located near the bottom of the tank, and inlet from collector array and outlet to load are located near the top of the tank.

3.1.3 Transport Subsystem:

3.1.3.1 Flow Rates: Flow rate in the collector loop shall be based on recommended collector flow rate, and shall be as shown. Storage loop flow rate shall be 1.25 times the collector loop flow rate. System flow rate shall be based on recommended collector flow rate, and shall be as indicated. All flow rates shall be below 5 feet per second.

3.1.3.2 Pumps: Pumps shall be installed on foundations, leveled, grouted, and realigned before operation in accordance with manufacturers instructions. Additional pipe supports shall be provided for close-coupled in-line pumps. All base mounted pumps shall have a straight pipe between the suction side of the pump and the first elbow. The length of this pipe shall be a minimum of five times the diameter of the pipe on the suction side of the pump, or a suction diffuser of the proper size shall be attached to the suction side of the pump. All in-line pumps shall have straight pipe between the suction side of the pump and the first elbow. The length of this pipe shall be a minimum of five times the diameter of the pipe size on the suction side of the pump. Drain line sizes from the pumps shall not be less than the drain trap or the pump dirt pocket, but in no case shall the drain line be less than 1/2 inch iron pipe size. Drain lines shall terminate to spill over the nearest floor or open sight drain.

3.1.3.3 Expansion Tank: Expansion tank shall be installed on suction side of pump as shown.

3.1.3.4 Piping, Valves, and Accessories: Piping shall be coded with fluid type and flow direction labels. When a food-grade uninhibited propylene-glycol solution is used to heat potable service water, tamper resistant seals must be attached to all fill ports. All propylene-glycol circuits must be labeled "CONTAINS UNINHIBITED FOOD-GRADE PROPYLENE-GLYCOL: INTRODUCTION OF ANY NONAPPROVED FLUID MAY CONSTITUTE A HEALTH HAZARD." All tamper resistant seals must carry the name of the registered engineer or licensed plumber who certifies that only a 30 or 50 percent food-grade uninhibited propylene-glycol and water solution has been installed in the system. Air vents shall be installed at the high points of the collector array and in the equipment room.

3.1.3.5 Pipe Expansion: Expansion of supply and return pipes shall be provided for by changes in the direction of the run of pipe or by expansion loops as indicated. Expansion loops shall provide adequate expansion of the main straight runs of the system within the stress limits specified in ASME B31.1. Loops shall be cold-sprung and installed where indicated. Pipe guides shall be provided as indicated. Expansion joints shall not be used in system piping.

3.1.3.6 Valves: Valves shall be installed at the locations indicated and where required for the proper functioning of the system. Valves shall be installed with their stems horizontal or above. Gate or ball valves shall be installed at the inlet and outlet of each bank of internally manifolded collectors. Calibrated balancing valves with integral pressure taps shall be installed at the outlet of each bank and at the pump discharge. Final setting for each valve shall be marked on each valve. Ball valves shall be installed with a union immediately adjacent. Gate valves shall be installed at the inlet and outlet of each pump and also at the inlet and outlet of each heat exchanger. A check valve shall be installed at pump discharges. Discharges of relief valves shall be piped to the nearest floor drain or as indicated on system drawings.

3.1.3.7 Foundations: Concrete foundations or pads for storage tanks, Heat exchangers, pumps, and other equipment covered by this specification shall be constructed in accordance with manufacturer's recommendations and be a minimum of 6 inches high with chamfered edges.

3.1.4 Control Subsystem:

3.1.4.1 Differential Temperature Controller: Automatic control equipment shall be installed at the location shown in accordance with the manufacturer's instructions. Control wiring and sensor wiring shall be installed in conduit. Unless otherwise indicated, operators, controllers, sensors, indicators, and like devices when installed on equipment casings and pipe lines shall be provided with stand-off mounting brackets, bases, nipples, adapters, or extended tubes to provide clearance, not less than the thickness of the insulation, between the surface and the device. These stand-off mounting items shall be integral with the devices or standard accessories of the controls manufacturer unless otherwise approved. Clamp-on devices or instruments where direct contact with pipe surface is required shall be exempted from the use of the above mounting items. All control wiring shall be color coded and identified with permanent numeric or alphabetic codes.

3.2 Inspection and Testing:

3.2.1 Inspection: Contractor shall make system available for inspection at all times.

3.2.2 Testing Prior to Concealment:

3.2.2.1 Hydrostatic Test: Contractor shall demonstrate to Authorized Member Representative that all piping has been hydrostatically tested, at a pressure of 125 pounds per square inch for a period of time sufficient for inspection of every joint in the system and in no case less than 2 hours, prior to installation of insulation. Expansion tank and relief valves shall be isolated from test pressure. No loss of pressure shall be allowed. Leaks found during tests shall be repaired by replacing pipe or fittings. Caulking of joints shall not be permitted.

3.2.2.2 Cleaning of Piping: System piping shall be flushed with clean, fresh water prior to concealment of any individual section and prior to final operating tests. Prior to flushing piping, relief valves shall be isolated or removed. Solar collectors shall be covered to prevent heating of cleaning fluid, unless cleaning is performed during hours of darkness. The solution shall be circulated through the section to be cleaned at the design flow rate for a minimum of 2 hours.

3.2.3 Posting Framed Instructions: Framed instructions under glass or in laminated plastic shall be posted where directed. These instructions shall include a system schematic, and wiring and control diagrams showing the complete layout of the entire system. Condensed operating instructions explaining preventative maintenance procedures, balanced flow rates, methods of checking the system for normal safe operation, and procedures for safely starting and stopping the system shall be prepared in typed form, framed as specified above, and posted beside the diagrams. Proposed diagrams, instructions, and other sheets shall be submitted for approval prior to posting. The framed instructions shall be posted before acceptance testing of the system.

3.2.4 Acceptance Testing and Final Inspection: Contractor shall notify the Authorized Member Representative 7 calendar days before the performance and acceptance tests are to be conducted. Tests shall be performed in the presence of the Authorized Member Representative. Contractor shall furnish all instruments and personnel required for the tests. Electricity and water shall be furnished by the Member. A written record of the results of all acceptance tests shall be maintained, to be submitted in booklet form. The tests shall be as follows:

3.2.4.1 As-Built Drawings: The Contractor shall provide as a condition of final acceptance a complete set of as-built system drawings. Drawings shall clearly indicate the actual condition of the installed solar energy system at the time of the final test.

3.2.4.2 Final Hydrostatic Test: Contractor shall demonstrate to Authorized Member Representative that all plumbing has been hydrostatically tested at a pressure of 125 pounds per square inch for a period of time sufficient for inspection of every joint in the system and in no case less than 2 hours. Expansion tank and relief valves shall be isolated from test pressure. Gauges used in the test shall have been calibrated within the 6-month period preceding the test. Test shall be witnessed by Authorized Member Representative. No loss of pressure shall be allowed. Leaks found during tests shall be repaired by replacing pipe or fittings and the system retested. Caulking of joints shall not be permitted.

3.2.4.3 System Flushing: For the final inspection, the system shall be thoroughly flushed of all foreign matter until a white linen bag installed in a strainer basket shows no evidence of contamination and in no case for less than 2 hours. Authorized Member Representative shall inspect the linen bag prior to completion of flushing. System shall be drained prior to final filling.

3.2.4.4 System Filling: System shall be filled through indicated connections with propylene-glycol solution. Solution shall be mixed externally to the solar system and consist of 30 or 50 percent propylene-glycol and 70 or 50 percent water by volume. System pressure at the high point on the roof shall be 10 psig minimum.

3.2.4.5 Operational Test: Operational test shall occur over a period of 48 consecutive hours with sufficient solar insolation to cause activation of the solar energy system during daylight hours. With system fully charged so that pressure at the high point on the roof or the lowest system pressure is a minimum of 10 psig and with fluid and pump[s] energized, sight flow indicator must indicate flow floweret must indicate flow as indicated. Calibrated balancing valves with pressure taps shall indicate bank flow rate as shown.

3.2.4.6 Control Logic: By substituting variable resistors for collector and storage tank temperature sensors, Contractor shall demonstrate the differential temperature controller correctly energizes the system pump[s] when the collector sensor indicates a temperature of 15 degrees F greater than the storage tank temperature, as indicated on the controller display panel. The differential temperature controller shall de-energize the system pump[s] when the displayed temperature of the solar collectors is degrees 5 degrees F greater than the displayed temperature of the storage tank.

3.2.4.7 Temperature Sensor Diagnostics: Contractor shall demonstrate that the controller will correctly identify open and short circuits on both the solar collector temperature sensor circuit and the storage tank sensor circuit.

3.2.4.8 Overall System Operations: Contractor shall demonstrate that the solar energy system will operate properly while unattended for a period of at least 72 hours. The system must demonstrate that the controller will start pump[s] after being warmed by the sun, and that it will properly shut down during cloudy weather or in the evening over a minimum of three complete cycles. Contractor is permitted to manipulate the temperature of the storage tank by the introduction of cold water at local groundwater temperature.

3.3 Field Training: A field training course shall be provided for designated operating and maintenance staff members. Training shall be provided for a minimum period of 16 hours of normal working time and shall start after the system is functionally complete but prior to final acceptance tests. The training shall include discussion of the system design and layout and demonstrations of routine operation and maintenance procedures. This training shall include: normal system operation and control; flow balancing; detection of a nonfunctioning system due to sensor, controller, and/or mechanical failure; filling, draining, and venting of the collector array; replacement of sensors, collectors, and collector components; collector cleaning and inspection for leaks; and heat exchanger cleaning and expansion tank charging if applicable.

Vehicle Barriers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of portable, semi-permanent, permanent, power-assisted or manually deployed vehicle barriers. Type, size and capacity shall be as indicated or shall match existing.

2.0 PRODUCTS:

2.1 Retractable Barriers: In the raised position, the total retractable barrier heights shall be no less

than 28 inches above the roadway surface and the width indicated. In the lowered position, the retractable barrier shall extend no more than 5/8 inch above the roadway surface. Retractable barriers in the lowered position shall be capable of supporting a 32,000-pound axle load or a 16,000-pound wheel load. Design for this load shall be in accordance with AASHTO-01.

2.1.1 Powered retractable barrier shall be capable of 240 complete up/down cycles per hour. Barrier motion shall be instantly reversible and shall be capable of raising the barrier form the lowered position to the raised position within 8 seconds during normal use, and within 2 seconds during an emergency. Barrier shall be capable of being closed from the raised position to the lowered position in not more than 3 seconds. Portable power-assisted retractable barriers shall be equipped with on and off ramps for smooth transition between surfaces.

2.1.1.1 Failure Modes of Operation: The system shall be designed to prevent lowering of the barrier in the event of hydraulic, electrical, or mechanical failure. A manual pump shall be included for operation of hydraulic and/or mechanical barriers without power.

2.1.1.2 Electric Motors: Unless otherwise indicated, electric motors shall have totally enclosed enclosures.

2.1.1.3 System shall be designed to maintain the barriers in the raised position, without inspection, for periods of time of up to 1 week. Equip hydraulic systems with pressure relief valves to prevent overpressure.

2.1.1.4 Hydraulic power unit shall contain hydraulic fluid which maintains its viscosity between 80 to 4000 saybolt universal seconds (SUS) even at constant heaviest use rate, for an ambient temperature range of 20 degrees F to 150 degrees F. Buried hydraulic lines for the connection of the hydraulic power unit to the barrier shall be flexible and/or carbon steel pipe. Flexible and rigid hydraulic line working pressure shall exceed the maximum system relief pressure. PVC pipe and fittings for burial of hydraulic lines shall be in accordance with ASTM D 3034 Type PS 46 with minimum pipe stiffness of 46.

a. Flexible hydraulic lines shall be in accordance with SAE J517.

b. Seamless carbon steel pipe shall be in accordance with ASTM A 106.

2.1.1.5 Hydraulic Power Unit Enclosure: A NEMA Type 3R enclosure as specified in NEMA 250 shall be provided to enclose the hydraulic power unit. The enclosure shall be designed for easy removal of the hydraulic power unit and other accessories without complete removal of the enclosure.

2.1.2 Manual retractable barriers shall be capable of being raised and lowered by manual means such as levers or hydraulics requiring a maximum 60 pounds of force. The manual mechanism shall contain a locking pin that accepts a padlock for securing the barrier when it is in the "UP" position.

2.2 Retractable Bollards: Total bollard height in the raised position shall be no less than 30 inches above the roadway surface and shall have an outside diameter of no less than 8 inches. Bollard system shall consist of a minimum of three bollards spaced no more than 32 inches from centerline to centerline of bollards across a 10-foot roadway. Bollards in the lowered position shall be capable of supporting a 16,000-pound wheel load each. Design for this load shall be in accordance with AASHTO-01.

2.2.1 Powered retractable bollards shall be capable of 240 complete up/down cycles per hour. Bollards shall be capable of being raised or lowered within a 3 to 15-second range during normal use and within 2.5 seconds for emergency operations.

2.2.1.1 Failure Modes of Operation: The system shall be designed to prevent lowering of the barrier in the event of hydraulic, electrical, or mechanical failure. A manual pump shall be included for operation of hydraulic and/or mechanical barriers without power.

2.2.1.2 Electric motors shall have totally enclosed enclosures unless otherwise indicated.

2.2.1.3 System shall be designed to maintain the barriers in the raised position, without inspection, for period of time of up to 1 week. If a hydraulic system is used, it shall be equipped with pressure relief valves to prevent overpressure.

2.2.1.4 Hydraulic power unit shall contain hydraulic fluid which maintains its viscosity between 80 to 4000 saybolt universal seconds (SUS) even at constant heaviest use rate, for an ambient temperature range of 20 degrees F to 150 degrees F. For ambient temperatures below 20 degrees F, a hydraulic oil heater shall be provided so that the oil viscosity remains between 80 to 4000 SUS. Buried hydraulic lines for the connection of the hydraulic power unit to the barrier shall be flexible and/or carbon steel pipe. Flexible and rigid hydraulic line working pressure shall exceed the

maximum system relief pressure. PVC pipe and fittings for burial of hydraulic lines shall be in accordance with ASTM D 3034 Type PS 46 with minimum pipe stiffness of 46.

a. Flexible hydraulic lines shall be in accordance with SAE J517.

b. Seamless carbon steel pipe shall be in accordance with ASTM A 106.

2.2.1.5 Hydraulic Power Unit Enclosure: A NEMA Type 3R enclosure as specified in NEMA 250 shall be provided to enclose the hydraulic power unit. The enclosure shall be designed for easy removal of the hydraulic power unit and other accessories without complete removal of the enclosure.

2.2.2 Manual retractable bollards shall be capable of being raised and lowered utilizing a recessed handle on the top surface of the bollard, with a maximum force of 60 pounds or a manual hydraulic pump requiring a max 60 pounds of force. A recessed panel at the base of each bollard, adjacent to the bollard in the "DOWN" position, shall contain a spring actuated latching mechanism that automatically secures the bollard in either the full "UP" or full "DOWN" position. The panel shall have an access cover with provisions for a padlock to secure the access cover.

2.3 Crash gate shall consist of steel buttresses anchored into the ground and an above grade assembly consisting of a heavy steel structural or a combination of heavy steel and structural aluminum capable of being opened and closed. The height of the gate shall be a minimum of 84 inches from the road surface to the top of the gate frame. The length shall close and protect a minimum 120 inch clear opening. The maximum clear opening between the gate frame and end posts, between the bottom of the gate and finished grade, and between any grill work shall be 3 inches.

2.3.1 Powered Crash Gate: The gate movement shall be controlled by an electromechanical gate operator or a hydraulic gate operator consisting of an operator unit with required control circuits and operator station. The control and operating voltage shall be 24 VAC (nominal).

2.3.2 Failure Mode of Operation: The system shall be designed to prevent opening of the crash gate in the event of electrical or mechanical failure. A disconnect system for the gate drive shall be provided to allow manual operation of the barrier in the event of a power outage.

2.3.3 Manual crash gate shall be capable of being hinged from either side. Hinge points of both buttresses shall each contain a locking pin with padlock acceptance for securing the crash gate in the closed position. The crash gate shall withstand a 10,000-pound vehicle at impact speed of 50 miles per hour, with maximum gate deflection or vehicle penetration of 10 feet.

2.4 Crash beam shall be an above-grade assembly that, in the "DOWN" position, shall present a formidable obstacle to approaching vehicles. The height of the barrier shall be a minimum of 30 inches as measured from the roadway surface to the centerline of the crash beam. The crash beam shall be capable of blocking a minimum road width of 120 inches. The crash beam end shall contain a locking pin with padlock acceptance for securing the crash beam when it is in the "DOWN" position. Crash beam shall withstand a 10,000-pound vehicle at impact speed of 15 miles per hour, with a maximum beam deflection of 20 feet.

2.4.1 Powered crash beam shall be operated by means of a hydraulic power system. The crash beam shall be capable of being raised or lowered within an 8- to 15-second time range.

2.4.1.1 Failure Mode of Operation: A disconnect system for the crash beam shall be provided to allow manual operation of the barrier in the event of an electrical or mechanical failure.

2.4.2 Manual crash beam shall be manually raised and lowered with the aid of a counterbalanced end requiring approximately 60 pounds of force.

2.5 Electrical Work: Motors, manual or automatic motor control equipment except where installed in motor control centers, and protective or signal devices required for the operation specified herein, and wiring required for operation shall be provided in accordance with DIVISION 16 ELECTRICAL Section.

2.6 Control panel and control circuit shall be provided to interface between all barrier control stations and the power unit. The control station is defined as the main control panel and the remote control panel as shown. The control circuit shall contain all relays, timers, and other devices or an industrial programmable controller programmed as necessary for the barrier operation. The control panel shall allow direct interface with auxiliary equipment such as card readers, remote switches, loop detectors, infrared sensors, and gate limit switches. The enclosure shall be as indicated on the drawings. All device interconnect lines shall be run to terminal strips.

2.6.1 Voltage: The control circuit shall operate from a 120 volt 60 Hz supply.

2.6.2 Main control panel shall be supplied to control barrier function. This panel shall have a key-lockable main switch with main power "ON" and panel "ON" lights. Buttons to raise and lower each barrier shall be provided. Barrier "UP" and "DOWN" indicator lights shall be included for each barrier. An emergency fast operate circuit (EFO) shall be operated from a push button larger than the normal controls. The EFO shall also be furnished with an EFO-active light and reset button. The main control panel shall have a key lockable switch to arm or disable the remote control panel. An indicator light shall show if the remote control panel is enabled.

2.6.3 Remote control panel shall have a panel "ON" light that is lit when enabled by a key lockable switch on the main control panel. Buttons to raise and lower each barrier shall be provided. Barrier "UP" and "DOWN" indicator lights shall be included for each barrier. The EFO shall be operated from a push button larger than the normal controls. The EFO shall be interconnected with an EFO-active light. When the remote control panel EFO is pushed, operation of the barrier will not be possible from this panel until reset at the main control panel.

2.7 Miscellaneous Equipment:

2.7.1 Safety Equipment: Red/yellow 8-inch traffic lights shall be supplied for each entrance and exit to alert motorists of the barrier position. Traffic lights are not required for manual barriers. The yellow light shall indicate that the barrier is fully open. All other positions shall cause the light to show red. Brackets shall be supplied to allow the light to be mounted a minimum 4.5 feet above the roadway pavement on a 3.5-inch outside diameter metal post or mounted directly on the crash gate.

2.7.2 Heater: A waterproof barrier heater with a thermostat control and NEMA 4 junction box connection point shall be provided for de-icing and snow melting. The heater shall provide barrier operation to an ambient temperature of minus 40 degrees F. For retractable bollards, a 250-watt heater shall be provided for each bollard.

2.7.3 Signage shall read "Axle Weight Limit 9 Tons" and shall conform to FHWA-01 sign (R12.2).

2.7.4 Vertical arm gates (Traffic Arms) shall have an opening and closing time of less than or equal to 15 seconds. The gates shall be capable of 15 duty cycles per hour as a minimum. Gate shall operate the arm through 90 degrees. Gate operators shall be supplied with single phase 120 volt motors. Each gate shall be capable of being operated from a remote open-close push button station. Gates shall have a hand-crank mechanism that will allow manual operation during power failures. Each gate shall be supplied with a handcrank. Gate arms shall be constructed out of wood, steel, fiberglass, or aluminum, as specified by the manufacturer for the given lengths as shown on the drawings. Gate arms shall be covered with 16-inch wide reflectorized red and white sheeting. Each gate shall be furnished with a spare gate arm. Gate operator cabinets shall be constructed of galvanized steel and shall be painted manufacturers standard color as approved. Each gate operator shall be provided with an obstruction detector that will automatically reverse the gate motor when an obstruction is detected. The obstruction detector shall be any of the following three types: An electronic loop vehicle detector buried in the road, a photocell electric eye mounted on the gate operator, or a safety strip mounted on the lower edge of the arm. The detector system shall be automatically deactivated when the arm reaches the fully lowered position. Slab size and anchorage for gate operator shall be per manufacturer requirements.

2.8 Finish: Surfaces shall be painted in accordance with requirements of DIVISION 9 Section on painting except for materials supplied with manufacturers standard finish. The roadway plate shall have a nonskid surface. The barrier front shall have 6-inch wide reflective yellow stripes 4 inches apart. Bollards shall be painted reflective yellow with 3-inch wide black diagonal stripes. The barrier crash gate shall be painted white and the crash beam shall be painted reflective yellow with 3-inch wide black diagonal stripes.

2.9 Concrete shall conform to DIVISION 3 Concrete section.

2.10 Welding shall be in accordance with AWS D1.1.

2.11 Pavement: After placement of the vehicle barrier, the pavement sections shall be replaced to match the section and depth of the surrounding pavement. Pavement shall be warped to match the elevations of existing pavement. Positive surface drainage, away from the vehicle barrier, shall be provided by pavement slope.

3.0 EXECUTION

3.1 Installation shall be in accordance with manufacturers instructions.

3.2 Buried hydraulic lines shall be placed in polyvinyl chloride (PVC) sleeves. Positive drainage shall be provided from the hydraulic power unit to the barrier for drainage of condensation within the PVC sleeve.

3.3 All controls shall be terminated with compression ring-style terminals. Roundhead screws and lockwashers shall be used to provide vibration-resistant connections. Connections between any printed circuit cards and the chassis shall be made with screw connections or other locking means to prevent shock or vibration separation of the card from its chassis.

DIVISION 14-CONVEYING EQUIPMENT

Passenger Elevators

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of passenger elevators. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Elevators shall be of size, type, and operation directed by the Authorized Member Representative. Elevators shall comply with the requirements of ANSI A17.1 and ANSI A117.1. Elevator cab shall be galvanized metal shell with enamel finish. Elevator doors shall be galvanized metal with enamel finish. Walls of elevator shall have raised plastic laminate panels. Structural and non-exposed Ferrous metal surfaces shall receive two coats of structural grade primer. Elevator shall be complete with protective car pads and hooks.

2.2 Operating Equipment: Motors, pumps, controllers, hydraulic fluid reservoir, cylinder, casing, plunger, piping, guide rails, buffers, buttons, wiring, indicators, hardware, fittings, and all other equipment required to provide a fully operational elevator shall be provided.

2.3 Finishes:

2.3.1 Galvanizing: ASTM A 526, G90 Coating Designation.

2.3.2 Enamel: Shop-applied baked enamel of color as selected by the Authorized Member Representative.

2.3.3 Plastic Laminate: Fed. Spec. L-P-508, color, texture, and pattern as selected by the Authorized Member Representative.

2.4 Wiring: All wiring necessary to connect operating buttons, switches, signals, and all electrical equipment on the car shall be provided. Wiring shall be in accordance with the National Electrical Code and shall, except for traveling cables, be installed in conduit, electrical metallic tubing, or metal wireways, except that flexible conduit may be used for short runs. Traveling cables shall be of the best grade for the service and shall be so installed to provide a proper size loop for the car. Traveling cables shall have a fire-resistant outer braid.

3.0 EXECUTION:

3.1 Preparation: Prior to installation of elevator, ensure that shafts and openings for moving equipment are plumb, level, and in line. Check measurements of space for equipment and means of access for installation and operation.

3.2 Installation: Install machinery, guides, controls, car, equipment, and accessories in accordance with applicable codes and standards. Installation shall provide a quiet, smoothly operating installation, free from sidesway, oscillation, or vibration.

3.3 Inspection: At completion of installation, elevator shall be inspected in accordance with ANSI A17.2. All deficiencies shall be corrected and retested.

Freight Elevators

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of freight elevators. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:
2.1 Elevators shall comply with the requirements of ANSI A17.1. When provisions for the handicapped are required, elevators shall comply with the requirements of ANSI A117.1. Elevator cab shall be galvanized metal shell with enamel finish. Elevator doors shall be galvanized metal with enamel finish. Structural and non-exposed Ferrous metal surfaces shall receive two coats of structural grade primer.
2.2 Operating Equipment: Motors, pumps, controllers, hydraulic fluid reservoir, cylinder, casing, plunger, piping, guide rails, buffers, buttons, wiring, indicators, hardware, fittings, and all other equipment required to provide a fully operational elevator shall be provided.
2.3 Finishes:
2.3.1 Galvanizing: ASTM A 526, G90 Coating Designation.
2.3.2 Enamel: Shop-applied baked enamel.
2.4 Wiring: All wiring necessary to connect operating buttons, switches, signals, and all electrical equipment on the car shall be provided. Wiring shall be in accordance with the National Electrical Code and shall, except for traveling cables, be installed in conduit, electrical metallic tubing, or metal wireways, except that flexible conduit may be used for short runs. Traveling cables shall be of the best grade for the service and shall be so installed to provide a proper size loop for the car. Traveling cables shall have a fire-resistant outer braid.
3.0 EXECUTION:
3.1 Preparation: Prior to installation of elevator, ensure that shafts and openings for moving equipment are plumb, level, and in line. Check measurements of space for equipment and means of access for installation and operation.
3.2 Installation: Install machinery, guides, controls, car, equipment, and accessories in accordance with applicable codes and standards. Installation shall provide a quiet, smoothly operating installation, free from sidesway, oscillation, or vibration.
3.3 Inspection: At completion of installation, elevator shall be inspected in accordance with ANSI A17.2. All deficiencies shall be corrected and retested.

Lifts

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of commercial lifts. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Lifts shall comply with ANSI A17.1.
2.1 Lifts shall be electrically operated traction type with counter-weights, winding drum type, or hand-operated chain or screw drive type for low-capacity, infrequent use as required. The lift shall be manufacturer's standard pre-engineered system.
2.2 Capacity rating shall be 100 pounds, 50 pounds, or as required.
2.3 Speed shall be 50 fpm, with travel distance as required.
2.4 Hoistway doors shall be 2 feet 6 inches wide by 3 feet 0 inches high, or as required.
2.5 Self-supporting Structure: Provide units with structural steel self-supporting hoistway framing that requires vertical-load support only at base and lateral support only at landing levels to coordinate car movement with hoistway doors.
2.6 Machine Locations: Locate lift machines inside the shaft at top or bottom of hoistway as required.
2.7 Electric Control System: Provide standard, fully automatic call-and-send operation that responds to momentary push-button signals at each landing.
2.7.1 Pushbuttons shall be inoperative while car is in transit, for a predetermined time period after car arrival at any given landing, or when any doors are open. Delivery calls shall take precedence over calls for service.
2.7.2 Provide adjustable limited period of time for receiving station to make its access to car, before responding to next station call-for-service. Post notice of limitation at each station.
2.7.3 When delivery has been completed, doors are closed, and no calls-for-service are registered, return car automatically for parking at indicated "home" station.
2.8 Materials and Finishes:

2.8.1 Enameled Steel: Formed steel units with baked synthetic enamel finish.
2.8.2 Primed-for-Paint Steel: Formed steel units with baked metal primertion, free from sidesway, oscillation or vibration.
2.8.3 Stainless Steel: AISI Type 302/304, with directional polish or satin finish.
2.8.4 Plastic Laminate: High-pressure type complying with NEMA LD3, 0.05 inch thickness.
2.9 Car Construction:
2.9.1 General: Provide car construction of either formed, reinforced, and sound-deadened sheet metal with welded joints; or of metal-clad plywood with mechanically riveted or bolted joints, with exposed edges of plywood covered with metal and with internal seams sealed by soldering. Provide shelves, compartments, gates and other features as required.
2.9.2 Car Light: Equip car with recessed incandescent light fixture, located in ceiling near front of car. Provide perforations or glazed port through car gate and hoistway doors near light location, sufficient for observation that car is present at landing.
2.10 Car Gates:
2.10.1 Manual car gates shall be of counterbalanced bi-parting vertical sheet steel with black enamel finish and electrical interlocks.
2.10.2 Power-operated car gates shall be vertical bi-parting gates, equipped with power operator and connecting linkages to operate hoistway doors at landing when car is present.
2.11 Hoistway Doors: Provide flush hollow metal doors and frames of counterbalanced vertical bi-parting design.
2.12 Signal Equipment: Provide signal equipment at each landing hall push-button station; include call button, send button for each landing served, and illuminated "car-in-use" pilot light that flashes when car arrives at landing (until door is opened). Provide recessed station set in face of door jamb with surface-mounted stainless steel face plate.
2.13 Door Buttons: Where power operated doors are required, provide momentary pressure "door open" and constant pressure "door close" buttons.
2.14 Audible Arrival Signal: Provide standard bell or gong system on top of each car, equipped to sound as car approaches landing.
2.15 Audible Call Signal: Provide standard buzzer system on top of car, equipped to sound continuously when any call button is depressed and held, but only if car is located at a landing where hoistway door or car gate is open.
3.0 EXECUTION: (Section not used).

Personnel Lifts

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of personnel lifts. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Personnel Lifts: Personnel lifts shall be electrically operated, electronically controlled platform type. Capacity shall be as directed. Lift shall have a capacity safety factor of 5. Lift speed shall not exceed 30 feet per minute. Platform shall be welded and bolted steel construction. Drive belts and/or chains shall have safeties that automatically lock the carriage to the guide rails in the event of slack or lift belt/chain failure. Lifts shall conform to ANSI A90.1. Lifts shall be complete with necessary screens and guards for moving parts and floor openings.
2.2 Controls: Personnel lifts shall be provided with normal and final limit switches at each stop. Lifts shall have emergency stop switch. 2.3 Motor: Motors shall be sized for capacity of lifts. Motor shall be direct drive, gear type with electric brake. Power requirements shall be as directed.
2.4 Wiring: All wiring necessary to connect operating buttons, switches, signals, and all electrical equipment on lifts shall be provided. Wiring shall be in accordance with the National Electrical Code and shall, except for traveling cables, be installed in conduit, electrical metallic tubing, or metal wireways, except that flexible conduit may be used for short runs. Traveling cables shall be of the best grade for the service and shall be so installed to provide a proper size loop for the car. Traveling cables shall have a fire-resistant outer braid.

3.0 EXECUTION:
3.1 Preparation: Prior to installation of lifts, ensure that shafts and openings for moving equipment are plumb, level, and in line. Check measurements of space for equipment and means of access for installation and operation.
3.2 Installation: Install machinery, guides, controls, lifts and equipment, and accessories in accordance with applicable codes and standards. Installation shall provide quiet, smooth operation free from sidesway, oscillation, or vibration.
3.3 Inspection: At completion of installation, lifts shall be inspected in accordance with ANSI A17.2. All deficiencies shall be corrected and retested.

Chair Lifts
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of chair lifts. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Chair lifts shall be of size, type, and configuration designated and shall be designed for the applicable stair configuration. Chairs applicable shall be padded, vinyl upholstered type. Chair lifts shall comply with the requirements of ANSI A90.1.
2.2 Operating Equipment: Motors, controllers, casings, guide rails, buffers, buttons, wiring, indicators, hardware, fittings, and all other equipment required to provide fully operational chair lift shall be provided.
2.3 Wiring: All wiring necessary to connect operating buttons, switches, signals, and all electrical equipment on chair lifts shall be provided. Wiring shall be in accordance with the National Electrical Code and shall, except for traveling cables, be installed in conduit, electrical metallic tubing, or metal wireways, except that flexible conduit may be used for short runs. Traveling cables shall be of the best grade for the service and shall be so installed as to provide a proper size loop for the chair lift. Traveling cables shall have a fire resistant outer braid.
3.0 EXECUTION:
3.1 Preparation: Prior to installation of chair lifts, ensure that installation surfaces are true to lines and levels. Check measurements of space for equipment and means of access for installation and operation. 3.2 Installation: Install machinery, guides, controls, chair lifts, equipment, and accessories in accordance with applicable codes and standards. Installation shall provide a quiet, smooth operation, free from sidesway, oscillation, or vibration.
3.3 Inspection: At completion of installation, chair lift shall be inspected in accordance with ANSI A17.2 All deficiencies shall be corrected and retested.

Vehicular Lifts
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of vehicular lifts. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Vehicular Lifts: Lifts shall comply with ANSI B153.1. Lifts shall have automatic mechanical lift lock. Lift lock shall be automatically activated when lift is operated to full stroke to prevent accidental lowering.
2.2 Operating Equipment: Motors, controllers, casings, pumps, hydraulic fluid reservoir, cylinder, plunger, piping, buffers, wiring, indicators, hardware, fittings, and all other equipment required to provide a fully operational elevator shall be provided.
2.3 Wiring: All wiring necessary to connect operating buttons, switches, signals, and all electrical equipment on the lift shall be provided. Wiring shall be in accordance with the National Electrical Code and shall be installed in conduit, electrical metallic tubing, or metal wireways, except that flexible conduit may be used for short runs.
3.0 EXECUTION:

3.1 Preparation: Prior to installation of vehicular lifts, ensure that shafts and openings are plumb, level, and in line. Check measurements of space for equipment and clearances for operation.
3.2 Installation: Install machinery, controls, and lift and its equipment and accessories in accordance with manufacturer's instructions and applicable codes and standards, to provide a quiet, smoothly operating installation, free from sidesway, oscillation, or vibration.

Trash Chutes

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of trash chutes. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work. Contact the fire protection engineering branch for the specific requirements of fire protection.
2.0 PRODUCTS:
2.1 General: Chutes shall be gravity type in accordance with the standards of NFPA 82. Intake doors shall bear the UL Class B, 1-1/2 hour, 250 F rating. Doors shall be tested in accordance with ASTM E 152 Fire Endurance Test. 2.2 Chutes: Chutes shall be manufactured of galvanized steel, aluminized steel, or stainless steel, as directed. Galvanized steel and aluminized steel shall be minimum 18 gauge. Stainless steel shall be minimum 0.05 inch thick. Diameter of chute shall be as directed. Chutes shall be provided with necessary supports.
2.3 Intake Doors and Frames: Chutes shall be equipped with Type 302 stainless steel, hand hopper type intake doors bearing the UL Class B, 1-1/2 hour rating. Surfaces of doors and frames shall have satin finish. Doors shall be sized in accordance with the requirements of NFPA 82. Frame trim shall be minimum 0.060 inch thick, Type 302 stainless steel. Doors shall be self-closing and positive latching.
2.4 Outlet Doors: Outlet door shall be UL "B" label 1-1/2 hour fire rated, and equipped with a fusible link to be self closing and self latching.
2.5 Vent: Trash chute shall be provided with a roof vent in accordance with NFPA 82. Vent shall extend 4 feet minimum above roof line and be provided with flashing as required to provide a watertight installation. Vent shall be same diameter and material as trash chute. Vent shall be provided with a rain cap and bird screen.
2.6 Sprinklers: Sprinkler shall be provided as required by NFPA 82 and as directed. Sprinklers shall be installed in accordance with NFPA 13.
2.7 Hopper: Each trash chute shall be provided with a hopper type receptacle.
3.0 EXECUTION:
3.1 Preparation: Prior to installation of trash chute, ensure that shafts and openings are plumb, level, and in line. Check measurements of space for materials and means of access for installation.
3.2 Installation: Install trash chute in accordance with applicable codes and standards. Ensure that installation procedures maintain required fire resistance ratings.

Water Treatment Plant Traveling Screens

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of traveling screens for water treatment intake structures. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Replacement motors and parts shall have the same characteristics and as the motors and parts to be replaced, unless otherwise approved.
2.2 Replacement pumps shall comply with design specifications for head, capacity, material of construction, and motor characteristics of the pumps to be replaced.
2.3 Finishes for items replacing existing items that are galvanized or painted shall be finished with like finish in compliance with manufacturer's standard practice.
2.4 Screen wash nozzles shall be stainless steel, brass, or bronze. Stainless steel shall be Type 316. Brass shall comply with ASTM B 282. Bronze shall comply with ASTM B 255.

2.5 Screen metal fabric shall be stainless steel complying with ASTM A 580.
2.6 Screen frame shall be steel or stainless steel. Stainless steel parts shall comply with ASTM A 193, A 480, and A 564. Steel shall comply with ASTM A
36. Steel fasteners shall comply with ASTM A 307 or A 325.
3.0 EXECUTION:
3.1 General: Screen, wash pumps, controller, drive equipment, and appurtenances shall be repaired, lubricated, and placed back in service.
3.2 Welding shall be done in compliance with AWS D1.1.

Cranes and Hoists

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of cranes and hoists. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Crane: Crane Manufacturers Association of America (CMAA) 70 for electric overhead traveling cranes or ANSI MH27.1 for underhung cranes and monorail systems.
2.2 Hoist: Electric wire rope type, ANSI/ASME HST-4M.
3.0 EXECUTION: The derrick shall be assembled and installed with the guy wires placed in position, hoisting ropes installed, and the derrick made ready for regular operation. Equipment installed outdoors shall be primed and finish-painted with a suitable corrosion-resistant paint on all parts and components not otherwise made of corrosion-resistant materials or otherwise protected.

Ash Hoists

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of ash hoists. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Winches and Sheaves:
2.1.1 Wire rope sheaves shall be iron or steel with bronze bushings, furnished either plain or as an assembly of frame, sheave, swivel hook, and axle as required.
2.1.2 Winches shall be of steel construction with bronze bearings on rotating parts. Winches shall have a capacity of not less than 500 pounds, with band action handbrake and drum width adequate for the quantity and diameter of wire rope to be used. Winches shall be marine type with gear cover and shall have corrosion-resistant parts and finish suitable for outdoor use.
2.1.2.1 Power Winches: NEMA 3 weather-protected, with two speeds (30 or 60 fpm) for lifting and a single speed for lowering, automatic upper-limit switch for hook travel, with push-button control.
2.1.2.2 Hand wench shall have spring-operated holding dogs, free-spooling feature, and adjustable handles.
2.1.3 Wire Rope: Wire rope shall be flexible, hoisting grade composed of approximately 7 strands or bundles of small diameter steel wire with a fiber or independent wire rope core.
2.2 Mast and Boom: Mast, boom, and miscellaneous fabricated components shall be provided as required to complete the unit assembly. Boom shall rotate. Fabricated parts shall be finished with a corrosion-resistant paint.
2.2.1 Mast shall telescope where required. Fully extended mast shall allow transport of ash container from bottom of pit to bed of truck without handling container twice.
2.2.2 Ash-handling pit shall have watertight door covering where required. Doors shall be mechanically linked to mast so that they automatically open and close with the raising and lowering of the mast.
3.0 EXECUTION: The Contractor shall complete the assembly of any equipment furnished partially assembled and place the items in position as directed. The ash hoist shall be assembled and securely bolted in position, hoisting ropes installed, and the hoist made ready for regular operation. The Contractor shall furnish all miscellaneous hardware items required to complete the installation

of all equipment and components. Equipment shall be primed and finish painted with a suitable corrosion-resistant paint on all parts and components not made of corrosion-resistant materials or otherwise protected.

DIVISION 21-FIRE SUPPRESSION

Fire Protection Systems

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of fire protection systems. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Fire protection system materials and components shall be Underwriters' Laboratories (UL) listed and/or Factory Mutual System (FM) approved for their intended use in accordance with all applicable National Fire Protection Association (NFPA) National Fire Codes.

2.2 Test reports shall be submitted for all tests required by referenced publications applicable to the particular materials and components furnished for use in the work.

3.0 EXECUTION:

3.1 The design, fabrication, installation, and testing of fire protection systems shall be in accordance with all applicable NFPA National Fire Codes and their respective appendices. These codes include but are not necessarily limited to the following:
NFPA 12 Carbon Dioxide Extinguishing Systems
NFPA 16A Closed-Head Foam-Water Sprinkler Systems
NFPA 17 Dry Chemical Extinguishing Systems
NFPA 1961 Fire Hose
NFPA 1962 Fire Hose, Care, Maintenance and Use
NFPA 1963 Fire Hose Connections
NFPA 20 Fire Pumps, Centrifugal
NFPA 30 Flammable and Combustible Liquids Code
NFPA 11 Foam Extinguishing Systems•15301
NFPA 11A Foam Systems, Medium and High Expansion
NFPA 16 Foam-Water Sprinkler and Spray Systems
NFPA 12B Halon 1211 Fire Extinguishing Systems
NFPA 12A Halon 1301 Fire Extinguishing Systems
NFPA 24 Private Fire Service Mains
NFPA 231C Rack Storage of Materials
NFPA 13A Sprinkler Systems, Care, Maintenance
NFPA 13 Sprinkler Systems, Installation
NFPA 14 Standpipe and Hose Systems
NFPA 26 Water Supplies, Valves Controlling
NFPA 22 Water Tanks for Private Fire Protection

3.2 Scheduling Interruptions and Coordination: At least 48 hours before commencing work on any specific system, the Contractor shall notify the Authorized Member Representative of all interruptions, if any, that must be made to the system and the estimated period of time the system will be out of service during each interruption. Interruptions shall be made only at the time or times approved by the Authorized Member Representative. Equipment and standby systems shall be provided for building protection during interruption to the existing systems.

3.3 Tests: All field tests required by applicable standards shall be performed in the presence of the Authorized Member Representative.

Sprinkler System

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of wet and/or dry-pipe sprinkler system.. Products shall match existing materials and/or shall be as directed by

the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: System shall interface with building fire and smoke alarm system. System shall meet NFPA 13 specifications.

2.1 Piping Materials: Buried Piping: Cast or Ductile iron. B. Above Ground Inside Building Piping: Steel, Schedule 40, black.

2.2 Gate Vales: Up to and Including 2 Inches: Bronze body, bronze trim, rising stem, handwheel, inside screw, solid wedge or disc, solder or threaded ends. Over 2 Inches: Iron body, bronze trim, rising stem, handwheel, OS&Y, solid wedge, flanged or grooved ends.

2.3 Check Valves: Up to and Including 2 Inches: Bronze swing disc, solder or screwed ends. Over 2 Inches: Iron body, bronze trim, swing disc, renewable disc and seat, flanged ends. Iron body, bronze trim, stainless steel spring, renewable composition disc, screwed, wafer or flanged ends.

2.4 Drain Valves: Bronze compression stop with nipple and cap or hose thread. Brass ball valve with cap and chain, 3/4 inch hose thread.

2.5 Piping Specialties:

2.5.1 Wet Pipe Sprinkler Alarm Valve: Check type valve with electrically or hydraulically operated alarms, with pressure retard chamber and variable pressure trim.

2.5.2 Alarm Gong: Electrically operated vibrating type bell, 8” diameter with weatherproof backbox. To be activated by flow/pressure switch.

2.5.3 Fire Department Connection: Standard wall type; ductile iron; chrome plated finish; thread size to suit fire department hardware; two way threaded dust cap and chain of same material and finish, 3/4 inch (19 mm) automatic drip connected to drain; marked "Sprinkler - Fire Department Connection".

2.5.4 Water flow switch: Vane type with delay adjustments and two contacts (for wet systems only). Provide type as permitted by NFPA 13 for dry systems.

2.5.5 Dry Pipe Valve: Provide dry pipe system in areas subject to freezing. U.L. listed low differential type with protection against accumulation of water above the clapper by an automatic draining device. Provide drains suitable for dry pipe systems according to NFPA 13. Provide dry pendent heads in areas where pendents are used.

2.5.6 Air Compressor: Automatically maintained pressure system capable of restoring normal air pressure in the system within 30 minutes. Provide domestically manufactured assembly. Air compressor shall be single stage for motors below 1-1/2 hp and two stage for 1-1/2 hp and above, capable of producing air at 150 psi. Sixty gallon tanks and larger shall be ASME stamped. Pumps shall be cast iron with metal belt guard, intake air filter, pressure switch control, tank gauge, check valve, tank drain, pressure relief valve and outlet valve. Motor speed shall not exceed 1200 rpm. Magnetic starters and overloads shall be provided for all three phase motors.

2.5.7 Gate Valve and Indicator Post: Gate valves for underground installation shall be of inside screw type with counter-clockwise rotation to open. Indicating valves shall be gate valves with approved indicator post of length to permit the top of the post to be located 35" above finished grade. Gate valves and indicator posts shall be UL or FM listed.

2.5.8 Double Check Valve Assemblies: ASSE 1015, AWWA C510-89; stainless steel body with corrosion resistant internal parts and stainless steel springs; two independently operating check valves with test cocks and two OS&Y shutoff valves. Approved for use in fire protection systems and approved for installation in the vertical position.

2.6 Sprinkler Heads:

2.6.1 Suspended Ceiling Type: Standard pendant type with chrome plated finish, with matching escutcheon.

2.6.2 Exposed Area Type: Standard upright type with chrome plated finish.

2.6.3 Sidewall Type: Chrome plated finish with matching escutcheon.

2.6.4 Fusible Link: Temperature rated for specific area hazard.

3.0 EXECUTION

3.1 Coordinate work of this Section with other affected work and reflected ceiling plan.

3.2 Ream pipe and tube ends to full inside diameter. Remove burrs.

3.3 Remove scale and foreign material, inside and out, before assembly.
3.4 Installation:
3.4.1 Install buried shut-off valves in valve box. Provide post indicator.
3.4.2 Provide vertical type double check valve assembly in sprinkler system riser. Provide tamper switches for each valve and connect to the alarm panel.
3.4.3 Locate fire department connection with sufficient clearance from walls, obstructions, or adjacent siamese connectors to allow full swing of fire department wrench handle.
3.4.4 Locate outside alarm gong on building wall.
3.4.5 Place pipe runs to minimize obstruction to other work.
3.4.6 Place piping in concealed spaces above finished ceilings.
3.4.7 Center heads in one direction only in ceiling tile with location in other direction variable, dependent upon spacing and coordination with ceiling elements.
3.4.8 Slope piping and arrange systems to drain at low points.
3.4.9 Route piping in orderly manner, plumb and parallel to building structure.
3.4.10 Exposed Areas: Paint piping with one coat zinc chromate primer and two coats alkyd enamel to match wall/ceiling color. Provide stencils or pipe markers.
3.4.11 Mechanical Rooms and Concealed areas: Paint piping with one coat zinc chromate primer and two coats red Alkyd enamel.
3.4.12 Connect water flow switch to alarm panel.
3.4.13 Locate outlet of test valve outside building 2'-0" above grade with splash block.
3.4.14 Piping for inspectors test shall **not** be visually installed on exterior walls or in finished areas. Install piping concealed in wall or construct furred out space to conceal piping. Provide access door where needed for access valves.
3.5 Cleaning: Flush entire piping system of foreign matter.
3.6 System Acceptance:
3.6.1 System acceptance shall be in accordance with NFPA 13.
3.6.2 Test shall be witnessed by member.
3.6.3 Test control sequence for operation.
3.6.4 At time of the systems acceptance the contractor shall fill out the Contractor's Material and Test Certificate and submit for final approval.
3.6.5 Backflow preventer assemblies shall be tested in accordance with the International Plumbing Code at the time of installation.

DIVISION 22-PLUMBING

Plumbing

1.0 DESCRIPTION OF WORK: This specification covers the installation, repair or replacement of plumbing systems. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 All work shall comply with the manufacturer’s instructions, industry standards and the Arizona Uniform Plumbing Code (UPC).
2.1 Unless approved by the architect or construction manager, provide related products and accessories from one manufacturer.
2.2 Contractor will provide and install plumbing as shown on drawings and/or as specified by the Mohave member
2.3 The contractor will confirm the following: 1) there is no conflict between the scope of work and building codes, safety codes, and the Arizona UPC; 2) there is no conflict between this work and other trades; 3) what work (if any) that other trades must accomplish prior to this work; 4) that all requirements to meet warranties are being met.
2.4 Contractor agrees to: deliver, store, and transport materials to avoid damage to product or to any other work; reject and return any products or materials delivered damaged or in an unsatisfactory condition.

2.5 Store materials indoors or in a storage facility, protected from vandalism, theft, dirt, dust, moisture, contaminants, etc.

2.6 Sanitary sewer piping within the building line shall be: Polyvinyl Chloride (PVC) pipe, solvent weld joints; Acrylonitrile butadiene styrene (ABS) pipe, solvent weld joints; cast iron pipe, service weight, neoprene gaskets; cast iron pipe, hubless, neoprene gaskets, stainless steel clamps.

2.7 Water supply pipe below grade beyond the building line shall be: 1) copper tubing, type K annealed, wrought copper fittings, compression joints; 2) cast iron pipe, ductile iron fittings, rubber gaskets, mechanical joints, 3/4 inch diameter rods; 3) PVC pipe, schedule 40, minimum 150 psi pressure rating, solvent weld joints.

2.8 Water supply pipe above grade and within the building line shall be: 1) copper tubing, type M, hard drawn, cast brass or wrought copper fittings, soldered joints; 2) Chlorinated Polyvinyl Chloride (CPVC) pipe, CPVC fittings, solvent weld joints; 3) PB pipe, PB, or copper fittings, copper compression rings.

2.9 Natural gas pipe below grade level and beyond the building line shall be steel, schedule 40, black with polyethylene jacket, welded joints.

2.10 Natural gas pipe above grade and within the building line shall be steel, schedule 40 black, malleable iron or forged steel fittings, screwed or welded.

2.11 Provide clearly marked, easily accessible, and tested shut off valves for natural gas as required by the building code.

2.12 Fuel oil pipe below grade shall be steel, schedule 40 black, polyethylene jacket and welded joints.

2.13 Fuel oil piping above ground shall be steel, schedule 40 black, malleable iron or forged steel fittings, screwed or welded.

2.14 Provide clearly marked, easily accessible, and tested shut off valves for fuel oil as required by the building code.

2.15 Water heater(s) will be identified as to size, manufacturer, model number, flue passage, baffle and draft hood, insulation, finish, thermostat, pressure regulator, and safety devices.

2.16 The architect or construction manager will specify gas or electric water heaters. Tie downs as specified by the building code or architect will be installed.

2.17 All work conditions must be as per manufacturer's instructions, trade and workmanship standards, governing building and safety codes, and the Arizona UPC.

2.18 Prepare all vents and related support construction for plumbing and mechanical equipment as required by the owner, architect, and/or construction manager.

2.19 Contractor will install, repair or replace the following: backflow preventers, cleanouts, cleanout tees, connectors, drains (including, but not limited to; floor drains, drains with strainers, gutter drains, rooftop drains, trench drains, sewer control drains), faucets, floor receptors, hydrants, shock absorbers, drinking fountains and support carriers, water closets, traps, pipe support hangers and systems, valves, plumbing fixtures (baths, bidets, drinking fountains, hot water dispensers, eye wash fountains, interceptors, laboratory equipment, lavatories, sinks, urinals, showers, toilets and toilet seats, wash centers and fountains, water closets, water filters), pumps, plumbing appliances (water chillers, water coolers and heaters), and plumbing for fire protection systems, heating and air conditioning systems (HVAC piping).

2.20 Contractor will install, repair, and or replace buried or elevated plastic, cast iron, copper [pipe and tubing], corrosion-resistant, glass, stainless steel, and steel piping.

2.21 Contractor will supply the following: ABS and PVC Drains, ABS and PVC Roof Drains, ABS Cleanout Fittings, ABS Material for Pipe and Fitting), Acid Waste Systems, Adapters, Air Admittance Valves, Airgap Fittings, Automatic Hot Water Delivery System, and Automatic Water Heater Shut-Off Valves.

2.22 Contractor will supply the following: ABS and PVC Drains, ABS and PVC Roof Drains, ABS Cleanout Fittings, ABS Material for Pipe and Fitting), Acid Waste Systems, Adapters, Air Admittance Valves, Airgap Fittings, Automatic Hot Water Delivery System, and Automatic Water Heater Shut-Off Valves.

2.23 The contractor will provide the following: Clamps (Stainless Steel), Cleanouts, Closet & Urinal Spuds, Closet Rings and Supports, Collectors, Connector – Gas, Copper Drainage Tube, Copper Fittings, Corrugated Fittings, Couplings, CPVC Hot & Cold Water Fittings, Pipe & Tubing, Crimp

Style Brass/Copper Fittings, Crosslinked Polyethylene Tubing, Crosslinked Polyethylene Water Distribution Systems, and Cured-In-Place Thermosetting Resin Conduit Liner.

2.24 The contractor will provide the following: Dental Vacuum Pumps, Dielectric Fittings, Diverter Valves, Domestic Thermoplastic Waste Tube & Fittings, Drain Tube & Connectors, Drains & Joints, Drain, Waste and Vent Fittings, Drain, Waste and Vent Internal Cleanout Fittings, and Early Closure Flapper (Retrofit).

2.25 The contractor will provide the following: Expansion Couplings, Extruded Polyolefin Pipe Coatings, Faucets, Valves, Fill Valves, Fittings, Fixture Stops, Flapper Valves, Flexible Water Connectors, Floor Sinks, Flush Valves, Flushing Siphons for Water Closet Tanks, Flushometer Tank, Flushometer Valves, Food Waste Disposer, and Fusion-Bonded Pipe Coatings.

2.26 The contractor will provide the following: Gas Meter Risers & Transition Fittings, Gas Piping Corrugated Stainless Steel Tubing, Gas Service Risers, Gas Supply Connectors, Grease Trap, Hand-Held Showers & Shower Heads, Heat Exchangers, Hose (Dishwasher Waste), Hot Water Circulation Device, Hubless Cast Iron Soil Pipe and Fittings, Hubless Pipe Couplings & Bushings, and Hydrants (Frostproof).

2.27 The contractor will provide the following: Industrial Drains (Stainless Steel), Insulated Protectors (P-Traps, Risers & Supply Stops), Interceptors & Clarifiers, Joint Drain, Waste and Vent Expansion, Piston Driven, Laundry Trays Holding Tanks, Large Diameter Corrugated Polyethylene (PE) Tubing & Fittings, Laundry Trays, Lavatories & Sinks, Leach Line Pipe, and Leaching Chamber.

2.28 The contractor will provide the following: Mechanical Couplings for Polyethylene Piping, Metal Pipe & Tubing Branching Tools, Mop Basins, Non-Pressure Water Hose & Tubing, Odor Removing Toilet, Outlet Boxes, Pedestal Lavatory Traps, Pipes, Pipe Wrap Tapes, Pivoting Shampoo Sinks, Plastic Hangers, Clamps, Plumber's Tape, Plastic Plumbing Fixtures (MHRV), Plate Skimmers, Plumbing Fixtures, Polyethylene Cold Water Pipe or Tubing, Polyethylene Gas Pipe (PE), Polyvinylidene Fluoride Drain, Waste and Vent Pipe, Pool Fittings, Porcelain Enameled Fixtures, Porous Filter Protector for Sub-Drain Weep Holes, Potable Water Distribution Manifold, Pre-Pressurized Potable Water Tank, Pressure Couplings & Fittings, Pumps, PVC Cold Water Compression & Gripper Fittings, and PVC Cold Water Pipe & Fittings.

2.29 The contractor will provide the following: Rainwater Valves, Remote Industrial Floor Box, Restaurant Fire Suppression System, Retractable Water Hose Reel, Roof Drains, Roof Flashings, Roof/Deck Drains, Safety Suction Valves, Seepage Pit Liners & Covers, Septic Tanks, Service Sinks, Sewage Holding Tanks, Sewer Fittings, Sewer Pipe & Fittings Shampoo Basins, Showers, Sink Tailpiece Drain Coupling, Sinks & Lavatories Smoothwall Polyethylene (PE) Pipe, Solar Water Heater, Solder, Solvent Cement & Primers, Spas, Stainless Steel Pipe, Spigots and Joints, Suction Fittings, Sumps and Sewage Ejector Tanks, and Supply Risers.

2.30 The contractor will provide the following: Vacuum Breakers, Vacuum Toilet Systems, Valves, Valves - Backflow Preventer and Relief, Vent Caps, Vitrified Clay Pipe, Fittings, Hubless Pipe Couplings (Unshielded) Bushings & Stoppers, Waste Disposers, Waste Water Trim, Wasteholding Tanks, Water Closets, Water Conditioners, Water Devices, and Water Fill Spouts.

2.31 The contractor will provide the following: Test Plugs, Therapy Pool, Thermoplastic Gas Pipe, Tubing and/or Fittings, Tile Flange Kits, Toilets, Trap Primers, Trench Drains, Tub/Shower Valves, Tubing, Tubular Waste Water Trim), and Urinals.

2.32 The contractor will provide the following: Water Hammer Arresters, Water Heaters, Water Leak Detection System, Water Pressure Regulator, Water Pumps (Hand Actuated), Water Saver P-Trap/Trap Primer, Water Tanks, Whirlpool Bathtub & Piping Systems, Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings-Drain, Waste and Vent, and Wrought Copper.

2.33 Upon completion, perform all required pressure tests, inspections, and approvals of the completed systems. Make all required adjustments and corrections at no added cost to the owner. Sterilize the water system and provide copies of a certificate of performance.

2.34 Provide for the maintenance of the work for one year following final approval by the governing agencies. Maintenance includes all work required in manufacturer's instructions such as inspections, adjustment, repair and replacement of parts as required.

2.35 Operating fixtures must perform smoothly. Repair or replace any defective work or equipment. Repair any work that will be undetectable, if defective; redo any repairs that are still defective, as

directed by the owner, architect, construction manager, or governing regulatory agency.

2.36 Upon completion, clean work area; remove scrap and excess materials from the site.

2.37 After installation, inspect all work for proper installation or damage.

DIVISION 23-HEATING VENTILATION AIR CONDITIONING

Mechanical Piping

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of piping. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Piping shall comply with ANSI B31.1, where applicable. Piping in pressure systems shall comply with requirements of the ASME Boiler and Pressure Vessel Code, where applicable.

2.1 Steel Pipe:

2.1.1 Pipe: Carbon steel pipe shall comply with ASTM A 53 or A 106. Galvanized pipe shall comply with ASTM A 53. Stainless steel pipe shall comply with ASTM A 312.

2.1.2 Fittings: Malleable iron threaded fittings shall comply with ANSI B16.3. Forged steel threaded and socket weld fittings shall comply with ASTM A 181 and shall be fabricated in compliance with ANSI B16.11. Forged stainless steel threaded and socket weld fittings shall comply with ASTM A 182 and shall be fabricated in compliance with ANSI B16.11. Carbon steel butt welded fittings shall comply with ASTM A 234 and shall be fabricated in compliance with ANSI B16.9. Stainless steel butt welded fittings shall comply with ASTM A 403 and shall be fabricated in compliance with ANSI B16.9.

2.1.3 Flanges: Carbon steel flanges shall comply with ASTM A 181 and shall be fabricated in compliance with ANSI B16.5. Stainless steel flanges shall comply with ASTM A 182 and shall be fabricated in compliance with ANSI B16.5.

2.1.4 Bolting: Carbon steel bolting shall comply with ASTM A 307, Grade B, and shall be fabricated in compliance with ANSI B18.2.1 and B18.2.2. Stainless steel bolting shall comply with ASTM A 193, Grade B8, with hex nuts complying with ASTM A 194, Grade 8F, and shall be fabricated in compliance with ANSI B18.2.1 and B18.2.2.

2.2 Copper and Brass Pipe:

2.2.1 Pipe: Seamless copper pipe shall comply with ASTM B 42. Seamless red brass pipe shall comply with ASTM B 43. Copper pipe to be used with brazing or welding shall be oxygen free and shall comply with ASTM B 302 or B 88.

2.2.2 Fittings: Threaded fittings shall comply with ASTM B 249 and shall be fabricated in compliance with ANSI B16.15. Solder fittings shall comply with ASTM B 88 and shall be fabricated in compliance with ANSI B16.18. Butt welding fittings shall comply with ASTM B 302 or B 88 and shall be fabricated in compliance with ANSI B16.9.

2.2.3 Flanges shall comply with ASTM B 61 and shall be fabricated in compliance with ASME B16.24.

2.2.4 Bolting shall comply with ASTM B 36 and shall be fabricated in compliance with ANSI B18.2.1 and B18.2.2.

2.3 Cast and Ductile Iron Pipe:

2.3.1 Pipe: Bell and spigot pipe shall comply with ASTM A 74 and shall be in compliance with ANSI A112.5.1 and AWWA C106. Bell and spigot pipe is not as readily available as other pipe and shall only be used to repair existing bell and spigot pipe. Push-on type pipe shall comply with ASTM A 377 and shall be in compliance with AWWA C151. Mechanical joint pipe shall comply with ASTM A 377, ANSI and AWWA C111 and C151. Flanged pipe shall comply with ASTM A 377, B16.1, and AWWA C115. Threaded pipe shall comply with ASTM A 377 and shall be threaded at both ends for screwed fittings.

2.3.2 Fittings: Bell and spigot fittings shall comply with ASTM A 74, ANSI A112.5.1, and AWWA C110. Bell and spigot pipe is not as readily available as other pipe and shall only be used to repair existing bell and spigot pipe. Push-on type fittings shall comply with ASTM A 126 or A 536 and AWWA C110. Mechanical joint fittings shall comply with ASTM A 126 or A 536 and AWWA C110 and C111. Flanged fittings shall comply with ASTM A 126 or A 536, ANSI B16.1, and AWWA C110. Threaded

fittings shall comply with ASTM A 126 and ANSI B16.4. 2.3.3 Flanges shall comply with ASTM A 126 or A 536, AWWA C115, and ANSI B16.1.

2.3.4 Gaskets: Gaskets for cast-iron soil pipe shall comply with ASTM C 564. Gaskets for mechanical joint or push-on type pipe shall comply with AWWA C111.

2.3.5 Bolting: Alloy steel bolting shall comply with ASTM A 193, Grade B8, and A 194, Grade 8F. Carbon steel bolting shall comply with ASTM A 307, Grade B, and shall be fabricated in compliance with ANSI B18.2.1 and B18.2.2.

2.4 Polyvinyl Chloride Pipe:

2.4.1 Pipe: Pressure rated pipe shall comply with ASTM D 1785. Waste, vent, and drain pipe shall comply with ASTM D 2665. Sewer pipe shall comply with ASTM D 2729.

2.4.2 Fittings: Threaded fittings shall comply with ASTM D 2464. Socket solvent weld type fittings for pressure pipe shall comply with ASTM D 2466 or D 2467. Socket solvent weld type fittings for waste and drain pipe shall comply with ASTM D 2665. Socket solvent weld type fittings for sewer pipe shall comply with ASTM D 2729. 2.4.3 Flange Dimensions shall be in compliance with ASME B16.5.

2.4.4 Bolting shall be alloy steel bolts and nuts complying with ASTM A 193, Grade B8, and A 194, Grade 8F.

2.5 ABS Pipe:

2.5.1 Pipe: Waste and drain pipe shall comply with ASTM D 2661. Sewer pipe shall comply with ASTM D 2751. All other ABS pipe shall comply with ASTM D 1527.

2.5.2 Fittings: Threaded fittings shall be Schedule 80 ABS and shall be industry standard. Socket solvent weld fittings for waste and drain pipe shall comply with ASTM D 2661. Socket solvent weld fittings for sewer pipe shall comply with ASTM D 2751. Socket solvent weld fittings for all other pipe shall be ABS Schedule 40 complying with ASTM D 2468 or ABS Schedule 80.

2.6 Vitrified Clay Pipe:

2.6.1 Pipe: Regular vitrified clay pipe shall comply with ASTM C 700. Perforated vitrified clay pipe shall comply with ASTM C 498.

2.6.2 Fittings shall be regular vitrified clay complying with ASTM C 700. 2.6.3 Compression Joint Sealing Element shall comply with ASTM C 425 and shall be of rubber, plastic, or metal.

2.7 Asbestos cement pipe shall not be repaired but shall be replaced with new piping that does not contain asbestos, as directed by the Authorized Member Representative.

2.8 Polyethylene Pipe:

2.8.1 Pipe: Polyethylene shall comply with ASTM D 2447. Pipe shall be polyethylene SDRPR and shall comply with ASTM D 3035.

2.8.2 Fittings: Butt fusion type fittings shall comply with ASTM D 3261. Socket type heat fusion fittings shall comply with ASTM D 2683. Insert type heat fusion fittings shall comply with ASTM D 2609.

2.9 Conduit Systems:

2.9.1 Carrier Pipe: Carbon steel pipe shall comply with ASTM A 106. Polyvinyl chloride pipe shall comply with ASTM D 1785. Copper pipe shall comply with ASTM B 42. Fiberglass reinforced plastic pipe shall meet commercial standards.

2.9.2 Insulation: For systems 250 degrees or less, polyurethane foam insulation shall comply with commercial standards. For systems over 250 degrees, calcium silicate insulation shall comply with ASTM C 533.

2.9.3 Outer Jacket: For systems 250 degrees or less, polyvinyl chloride outer jacket shall comply with ASTM D 1785 or fiberglass reinforced plastic outer jacket shall meet commercial standards. For Systems over 250 degrees, cast-iron outer jacket shall comply with ASTM A 377, or steel conduit outer jacket shall be epoxy-coated, spiral weld, 10 gauge minimum.

2.10 Gaskets shall comply with ASME B16.21 and/or the following:

2.10.1 Gaskets shall be rubber complying with ASTM C 564.

2.10.2 Gaskets for mechanical joint or push-on type cast-iron or ductile iron pipe shall be rubber complying with AWWA C111.

2.11 Solvent cement for solvent welding of pipe shall comply with ASTM D 2564, except solvent cement for ABS pipe and fittings shall comply with ASTM D 2235.

2.12 Dielectric Unions and Flanges:

2.12.1 Dielectric unions and flanges shall comply with Fed. Spec. WW-U-531 and requirements of ANSI B16.39 and ANSI B16.24.
3.0 EXECUTION:
3.1 Flame Cutting: No cutting by torch shall be done without authorization from the Authorized Member Representative.
3.2 Restoration: All disturbed pavement, sodding, soil, and other objects shall be restored to match original condition. Pavement shall be restored with material to maintain the same load bearing capacity as the original.
3.3 Welding: All welding shall be performed in compliance with ANSI B31.1 and/or ASME Boiler and Pressure Vessel Code Section IX, as applicable.
3.4 Solvent cement joints shall be made in compliance with ASTM D 2855.
3.5 Heat Fusion Joints in polyethylene pipe and fittings shall be made in compliance with ASTM D 2657.
3.6 Concrete linings in cast and ductile iron pipe shall be prepared with cement mortar complying with AWWA C104. Pipe leak clamps shall be ductile iron, split sleeve type.
3.7 Protective covering for replacement underground steel pipe shall be mechanically applied in a factory or field plant especially equipped for the purpose. Specials, valves, and fittings that cannot be coated and wrapped mechanically shall have the protective covering applied by hand. Joints shall be coated and wrapped by hand. The pipe covering shall consist of a coat of coal-tar primer, a coat of coal-tar enamel, a wrapper of coal-tar-saturated asbestos felt, and a wrapper of Kraft paper or a coat of water-resistant whitewash, applied in the order named and complying with the requirements of AWWA C203 in all respects to materials, thicknesses, methods of application, tests, and handling, except that interior lining will not be required. Joints and fittings shall be coated and wrapped in compliance with AWWA C203.
3.8 Hydrostatically test pipe systems where required by ANSI B31.1 or ASME Code.
3.9 Dielectric unions or flanges shall be provided for connections between ferrous and nonferrous metallic pipe or equipment.
3.10 Hubless cast-iron soil pipe shall not be installed under concrete floor slabs or in crawl spaces below kitchen floors.
3.11 Plastic pipe shall not be installed under concrete floor slabs, or in air plenums. Plastic pipe shall not be installed in a pressure piping system in buildings greater than three stories including any basement levels.

Valves

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of valves. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Valve pressure/temperature ratings shall equal or exceed the ratings of the valves being replaced. Pressure/temperature ratings shall be in accordance with ANSI B16.5. Valves shall comply with the ASME Boiler and Pressure Vessel Code where applicable.
2.1 Gate valves shall comply with MIL-V-12126, MIL-V-18110, MIL-V-13803, MIL-V-12125, MIL-V-58039, and MSS SP-80 as applicable.
2.2 Globe valves shall comply with MIL-C-18434 and with MSS-SP-85, MIL-V-24109, MIL-V-17501, MIL-V-24578, and MSS SP-80 as applicable.
2.3 Check valves shall comply with MIL-V-6129 and/or MIL-V-10386 and MSS SP-80.
2.4 Needle valves shall comply with MIL-V-24586 and/or with applicable MSS specifications.
2.5 Ball valves shall comply with MSS SP-72.
2.6 Butterfly valves shall comply with Fed. Spec. WW-V-1967 and/or AWWA C504.
2.7 Pressure relief Valves shall comply with MIL-V-23255 and MIL-V-55341.
2.8 Pressure regulators shall comply with MIL-V-2962, MIL-V-24384, MIL-V-18318, or MIL-V-16733 as applicable.
2.9 Flow control valves shall comply with MIL-V-23254.
2.10 Backflow preventers shall comply with AWWA C506.
2.11 Vacuum breakers shall comply with MIL-V-5461 and MS-87005.

2.12 Solenoid Operated Valves: Coil shall be epoxy encapsulated, manufactured to UL 429, and rated for ac voltage.
2.13 Float valves shall comply with Fed. Spec. A-A-246.
2.14 Stop and waste valves shall comply with MIL-V-22052.
2.15 Plugs and cocks shall comply with MIL-C-1203 and MIL-V-12003.
2.16 Diaphragm valves shall comply with applicable MSS specifications.
2.17 Calibrated balancing valves shall be calibrated so that flow can be determined when the temperature and pressure differential across the valve is known. Valves shall have an integral pointer that registers the degree of valve opening. Each valve shall be constructed with internal seals to prevent leakage and shall be supplied with preformed insulation. Valves Cv rating shall be as indicated. Valve bodies shall be provided with quick connecting hose fittings for a portable meter to measure the pressure differential. One portable differential meter, suitable for the operating pressure specified, shall be provided. The meter shall be complete with hoses, vent, integral metering connections, and carrying case as recommended by the valve manufacturer.
3.0 EXECUTION:
3.1 Flame Cutting: No cutting by torch shall be done without authorization from the Authorized Member Representative. Where flame cutting is authorized, at least one person shall be standing by exclusively with a fire extinguisher within 10 feet of the work and within full view of the area. The fire extinguisher shall have been inspected and certified by a licensed service agency within the last 12 months.
3.2 Welding: All welding shall be performed in compliance with ANSI B31.1 and/or ASME Boiler and Pressure Vessel Code Section IX, as applicable.
3.3 Restoration: All disturbed pavement, sodding, soil, and other objects shall be restored to match original condition. Pavement shall be restored with material to maintain the same load bearing capacity as the original.

Piping Accessories

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of piping accessories. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Filters: Pressure-temperature rating and filter medium particle size retention rating of the replacement filter shall equal or exceed the ratings of the existing filter. Pressure drop at the required capacity shall not exceed that of the replaced filter. Filters shall be constructed in accordance with ASME Code where applicable.
2.2 Strainers shall comply with Fed. Spec. WW-S-2739.
2.2.1 Low pressure Y-type strainers shall have Type 304 stainless steel screens. Bodies of threaded or flanged strainers shall be cast iron. Bodies of butt-weld end strainers shall be Schedule 40 cast carbon steel.
2.2.2 High pressure Y-type strainers shall comply with ASME Code if applicable. Strainers shall have Type 304 stainless steel screens. Bodies of threaded or flanged strainers shall be cast iron. Bodies of butt-weld end strainers shall be Schedule 80 cast carbon steel.
2.3 Traps shall be in accordance with Fed. Spec. WW-T-696, and steam traps shall comply with ASME Code where applicable.
2.3.1 Thermostatic traps shall be constructed of cast brass. Thermostatic element valve cone shall be stainless steel.
2.3.2 Float and thermostatic traps shall have body and cover constructed of cast iron or semi-steel. Thermostatic element shall have stainless steel valve cone and valve seat. Provide stainless steel or seamless copper float.
2.3.3 Inverted bucket traps shall have body and cover constructed of cast iron or semi-steel. Bucket shall be brass or stainless steel, with lever mechanism of heat-treated stainless steel.
2.3.4 Thermodynamic traps shall have body and cover constructed of stainless steel. Disc shall be heat-

treated stainless steel.

2.4 Expansion joints shall comply with standards of the Expansion Joint Manufacturer's Association (EJMA). Replacement expansion joints shall equal or exceed the pressure-temperature ratings of the replaced expansion joint.

2.4.1 Expansion compensators shall have 2 ply phosphor bronze bellows, brass shrouds, and end fittings for copper piping systems, or 2 ply stainless steel bellows, carbon steel shrouds, and end fittings for steel piping systems.

2.4.2 Rubber expansion joints shall be constructed of duck and butyl rubber with full-faced integral flanges, internally reinforced with steel retaining rings.

2.4.3 Slip joints shall comply with MIL-E-17814 and shall be of the type designed for repacking under pressure.

2.4.4 Flexible ball pipe joints shall be designed for 360 degree rotation, with minimum of 30 degree angular flexing movement for sizes 1/4 inch to 6 inches, 15 degrees for sizes 8 inches and larger. Certify carbon steel joints for environmental shock testing in accordance with MIL-S-4456 or MIL-S-901C. Joints shall comply with Section II of ASME Boiler and Pressure Vessel Code and ANSI B31.1 Power Piping for materials and design of pressure-containing parts and bolting.

2.4.5 Expansion joints for grooved piping shall be combination couplings and nipples constructed of cut grooved short pipe nipples and couplings, or slip-type expansion joints constructed of carbon steel pipe and couplings.

2.5 Pipe Supports: Pipe supports shall comply with MSS SP-58 and SP-69. Contact between dissimilar metals shall be prevented in supporting copper tubing. Those portions of pipe supports that contact the tubing shall be copper-plated, rubbber- or vinyl-coated, or stainless steel. All pipe supports located in sewage wetwells shall be 18-8 stainless steel.

2.6 Valve boxes shall be of cast iron, extension sleeve type; shall be not less than 5 inches in diameter; shall have a minimum thickness at any point of 3/16 inch; and shall be provided with cast-iron bases and covers. Covers shall have cast thereon an appropriate name designating the service for which the valve is used. All parts of valve boxes, bases, and covers shall be coated by dipping in bituminous varnish.

2.7 Flexible Hoses:

2.7.1 Flexible hoses for non-ferrous piping shall be bronze hose covered with bronze wire braid with copper tube ends or bronze flanged ends, braze-welded to hose.

2.7.2 Flexible hose for ferrous piping shall be stainless steel hose covered with stainless steel wire braid with NPT steel nipples or 150 psi ANSI flanges, welded to hose.

2.7.3 Rubber flexible hoses shall be rubber and butyl construction with integral full-faced duck and butyl flanges, internally steel wire reinforced, and furnished complete with steel retaining rings.

3.0 EXECUTION:

3.1 Flame Cutting: No cutting by torch shall be done without authorization from the Authorized Member Representative. Where flame cutting is authorized, at least one person shall be standing by exclusively with a fire extinguisher within 10 feet of the work and within full view of the area. The fire extinguisher shall have been inspected and certified by a licensed service agency within the last 12 months.

3.2 Restoration: All disturbed pavement, sodding, soil, and other objects shall be restored to match original condition. Pavement shall be restored with material to maintain the same load bearing capacity as the original.

3.3 Welding: All welding shall be performed in compliance with ANSI B31.1 and with ASME Code Section IX where applicable.

3.4 Y-type strainers shall be located in supply line ahead of the following equipment if integral strainer is not included in equipment.

a. Pumps.
b. Steam traps serving steam main drips.
c. Temperature control valves.
d. Pressure reducing valves.
e. Temperature or pressure regulating valves.

3.5 Installation of Steam Traps: Install strainer ahead of trap if not integral with trap.

3.6 Pipe Support Installation: Concrete inserts or L-shaped anchor bolts shall be used to support piping from new cast-in-place concrete. Expansion anchors shall be used to fasten supports to existing concrete and masonry.
3.7 Valve boxes shall be set plumb. Each valve box shall be placed directly over the valve it serves, with the top of the box brought flush with the finished grade. After being placed in proper position, earth shall be filled in around each valve box and thoroughly tamped on each side of the box.
3.8 Flexible hoses shall be installed on equipment side of shutoff valves, horizontally and parallel to equipment shafts wherever possible.

Pumps

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of pumps. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Worn or damaged pump parts shall be replaced rather than repaired.
2.2 New pump impellers, when required, shall be statically balanced before installation.
2.3 Used impellers shall be checked for balance before reinstallation. Out of balance impellers shall either be balanced or replaced.
2.4 Close coupled pumps, when replaced, shall be replaced complete with motor.
3.0 EXECUTION:
3.1 Before any work is started, the pump driver shall be locked out and tagged to prevent any driving power to the pump. The pump suction and discharge piping shall be valved off, locked, and tagged, or pipe line blanks shall be installed.
3.2 Before any work is performed on pumps in acid or other toxic material service, the pump must be vented and drained (flushed, if possible). Acid-proof personal protection shall be worn until pump and parts have been cleaned and neutralized.
3.3 Gaskets shall be replaced whenever a gasketed joint has been disturbed.
3.4 Flexible coupling alignment shall be required if either the pump or motor mounting has been disturbed and shall be to the tolerances specified by the flexible coupling manufacturer.
3.5 Removal and installation of impellers shall be accomplished using pullers, jacks, crane, or hoist. Impact tools are strictly prohibited.
3.6 Turbine pumps removed from casings shall be lifted vertically to prevent damage to the pump or the pump casing.
3.7 New impeller rings, gaskets, and strainers shall be installed before reassembly of turbine pumps.
3.8 Relief valve in discharge line for positive displacement pumps shall be set and tested at 110 percent of design discharge pressure or as recommended by pump manufacturer for service in which pump is used.

Insulation for Above Ground Pipe

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of insulation for aboveground pipe. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Insulation shall be in accordance with the following.
Service Temperature, F Insulation Material
3,000 Maximum Fiber Blanket, ASTM C 892
1,600 Maximum Calcium silicate, ASTM C 533
1,500 Maximum Expanded perlite, ASTM C 610
1,200 Maximum Preformed mineral fiber, ASTM C 547
800 Maximum Cellular glass, ASTM C 552
225 Maximum Rigid, preformed cellular urethane, ASTM C 591

60 F and below Cellular glass, ASTM C 552 (cold piping) or mineral fiber, Fed. Spec. HH-I-558

2.2 Insulation jacket materials shall have fire hazard ratings that do not exceed 75 for flame spread and 150 for fuel contributed and smoke developed, except where otherwise required by the authority having jurisdiction. Test ratings shall be determined in compliance with ASTM E 84 and NFPA 255.

2.3 Accessory materials, including insulating cements, adhesives, staples, coatings, tapes, bands, and other accessory materials shall be as recommended for the particular application by the manufacturer of the insulation or jacket.

3.0 EXECUTION: Vapor barrier shall be continuous throughout each piping run for cold piping (-30 F to 60 F).

Insulation for Underground Pipe

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of insulation for underground pipe. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Insulation for conduit systems shall be calcium silicate complying with ASTM C 533 or polyurethane foam for low temperature systems (250 F and below).

2.2 Insulation jackets for conduit systems shall be cast iron complying with ASTM A 377 or epoxy-coated spiral weld steel conduit for high temperature systems (above 250 F); or shall be polyvinyl chloride complying with ASTM D 1785 or fiberglass reinforced plastic for low temperature systems (250 F and below).

3.0 EXECUTION:

3.1 Backfill on pipe system shall be 12 inches minimum.

3.2 Ground surface shall be resodded or otherwise restored to the condition existing prior to the work.

Boiler Firebox Insulation

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of boiler firebox insulation. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Block or Board Insulation:

2.1.1 Mineral Fiber Rock, Slag, or Glass in accordance with ASTM C 612.

2.1.2 Fiber blanket, ASTM C 892.

2.1.3 Calcium Silicate in accordance with ASTM C 533.

2.1.4 Cellular Glass in accordance with ASTM C 552.

2.1.5 Cellular Polyurethane in accordance with ASTM C 591.

2.1.6 Expanded Perlite in accordance with ASTM C 610.

2.2 Blanket Insulation: Mineral fiber rock, slag, or glass in accordance with ASTM C 553 or ASTM C 592.

2.3 Loose Fill Insulation:

2.3.1 Mineral Fiber Rock, Slag, or Glass in accordance with ASTM C 764.

2.3.2 Vermiculite in accordance with ASTM C 516.

2.3.3 Perlite in accordance with ASTM C 549.

2.4 Insulating Cement:

2.4.1 Mineral Fiber Rock, Slag, or Glass in accordance with ASTM C 195 or ASTM C 449.

2.4.2 Exfoliated Vermiculite in accordance with ASTM C 196.

2.5 Castable Refractory in accordance with ASTM C 401.

2.6 Spray-Applied Fibrous Insulation in accordance with ASTM C 720 and ASTM C 762.

2.7 Refractory Supports attached to pressure parts of the boiler shall comply with the ASME Boiler and

Pressure Vessel Code.

3.0 EXECUTION:

3.1 Safety: The boiler shall be removed from service, cooled, drained, and purged prior to conducting internal inspection or repairs. No personnel shall enter the boiler until the atmosphere in the boiler has been checked and found to be free of toxic, explosive, or suffocating gases.

3.2 Closing up the Boiler: The repair shall not be covered by replaced or reinstalled materials until authorized.

Ductwork Insulation

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of ductwork insulation. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Rigid fiberglass ductwork insulation shall conform to Fed. Spec. HH-I-558, Form A. It shall consist of rigid fibrous glass board with foil facing, vapor sealed and attached to ducts with mechanical fasteners. Density shall be 3 lb/ft3.

2.2. Flexible fiberglass ductwork insulation shall conform to Fed. Spec. HH-I-558, Form B. It shall consist of 3/4 lb/ft3 density fibrous glass blanket with reinforced foil and Kraft facing lapped and joints sealed vapor tight.

2.3 Ductwork insulation shall have a flame spread rating not exceeding 75 and a smoke developed rating not exceeding 150 as determined by test procedures in ASTM E 84. Components such as adhesives, mastics, and cements must meet the same individual ratings as the minimum requirements.

2.4 Adhesives shall conform to Mil. Spec. MIL-A-3316.

2.5 Vapor barrier shall conform to ASTM C 1136 Type I for exposed ducts and Type I or Type II for concealed ducts.

3.0 EXECUTION: Insulation shall be installed so that finishes are smooth and all joints are tight and sealed.

Interior Plumbing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of interior plumbing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work. Contact the Fire Protection Engineering Branch for requirements of piping material.

2.0 PRODUCTS:

2.1 Drinking Water Dispensers:

2.1.1 Electric water coolers shall comply with ARI 1010 and shall use one of the halogenated hydrocarbons as refrigerant. Top surfaces of the dispenser in contact with water shall be stainless steel or porcelain enameled steel. Piping connections from the shutoff or stop valve and outlet valve arrangement shall be chrome-plated brass, copper tubing, or stainless steel.

2.1.2 Drinking fountains shall comply with Fed. Spec. WW-P-541/6.

2.2 Hot Water Generators and Storage Tanks:

2.2.1 Heating element for the hot water generator shall consist of U-bend coils, a tube sheet, and air element head. The coil shall be seamless tubing inserted into holes in the tube sheet and secured by expanding. The tube sheet shall be copper alloy or other nonferrous metal. Tubing for the heating element shall be light drawn copper tubing complying with ASTM B 75 or copper alloy tubing complying with ASTM B 111, copper alloy No. 706. Element shall be in accordance with Mil. Spec. MIL-H-12322.

2.2.1.1 Copper tubing shall be designed for a working pressure of 150 psig steam and shall withstand an internal hydrostatic pressure of 225 psig for not less than 15 seconds without leaking or any

evidence of damage.

2.2.1.2 Copper alloy tubing shall be designed for a working pressure of 400 psig with 400 F hot water and shall withstand an internal hydrostatic pressure of 600 psig for not less than 15 seconds without leaking or any evidence of damage.

2.2.1.3 The head for the heating element shall be close grained cast iron or fabricated steel for steam service, or cast or fabricated steel for high temperature hot water service. The heads shall be partitioned to separate the steam supply and condensate return. The head shall be equipped with tappings or flanges for the supply, return, air relief, and vacuum breaker connections. The air-relief valve and vacuum breaker connection shall be 1/2 inch pipe size.

2.2.2 New storage tanks shall be constructed, tested, and marked in compliance with the ASME Boiler and Pressure Vessel Code, Section VIII. The tank shall be glass-lined steel. Tanks shall be cathodically protected if required by local conditions. Tanks shall be in accordance with Mil. Spec. MIL-T-12295. The thermal efficiency and standby heat loss shall comply with the requirements of ASHRAE 90A.

2.2.3 Storage tank repair shall comply with the ASME Boiler and Pressure Vessel Code, Section VIII.

2.2.4 Heaters/storage tanks shall be equipped with ASME rated accessories.

2.3 Pneumatic Water Supply Systems:

2.3.1 New pneumatic tanks shall be designed for 125 psig working pressure and shall be constructed in compliance with ASME Boiler and Pressure Vessel Code, Section VIII. Tanks shall be equipped with manhole in head, water gauge glass, pressure gauges, water pressure relief valves, and tapped openings for all piping.

2.3.2 Compressor shall be belt-driven by a motor having a maximum speed of 1800 rpm. The motor shall have a manual across-the-line starter and thermal overload protection. Guards complying with OSHA requirements shall be provided for all exposed moving parts.

2.3.3 Control System: Pressure switches shall be of the adjustable type having an operating range of 30 to 90 psig. The switch shall be three position type.

2.3.4 Bladder-Type Pneumatic Tank: An ASME code constructed tank stamped for 125 psig water working pressure shall be provided, unless otherwise indicated. The tank shall be sized as indicated and have a flexible diaphragm made of material conforming to FDA requirements for use with potable water and shall be factory precharged to meet required system pressure.

2.4 Gas Fired Water Heaters:

2.4.1 Water heater storage tank shall be steel with a copper or glass lining and shall comply with ANSI Z21.10.1. Equipment shall comply with the approval requirements of AGA Directory of Certified Appliances and Accessories. For elevations above 2,000 feet, the AGA rating shall be reduced at the rate of 4 percent for each 1,000 feet above sea level. Safety pilot valve shall be supplied to automatically shut off the main gas supply to the burner or burners in the event that the pilot flame is extinguished.

2.4.2 Flue gas piping shall be single wall metal pipe constructed of not less than No. 24 B&S gauge sheet copper or No. 20 gauge galvanized sheet steel.

2.4.3 Relief valves shall comply with ANSI Z21.22. Relief valves shall be ASME rated.

2.4.4 Thermostat shall be snap action type actuated by water temperature.

2.5 Oil Fired Water Heaters:

2.5.1 Water heater tank shall be glass-lined steel. Tanks of 120-gallon capacity, or less, shall be hydrostatically tested to 300 psig. Tanks shall have vertical flue passages or annular flue passages between the tank and the casing. Tanks shall be cathodically protected if required by local conditions.

2.5.2 Burner shall be mechanical pressure atomizing type.

2.5.3 Controls shall consist of a combustion safeguard (primary control) to shut down the burner in event of ignition failure or flame failure, a limit control to prevent overheating in case of thermostat failure, and a thermostat of the adjustable immersion type to control water temperature.

2.5.4 Relief valve shall comply with ANSI Z21.22. Relief valves shall be ASME rated.

2.5.5 Draft regulator shall be of the automatic, barometric type designed for installation in the chimney or flue connector at the outlet of the water heater. The draft regulator shall meet the requirements of UL 378.

2.5.6 Flue gas piping shall be single wall steel pipe, minimum 28 gauge. Finish shall be zinc coated or oxidized to form blue black color.

2.6 Electric Water Heaters:

2.6.1 Water heater tanks shall be glass-lined steel complying with Fed. Spec. W-H-196, with dual heating elements. Tanks shall be cathodically protected if required by local conditions.

2.6.2 Relief valves shall comply with ANSI Z21.22. Relief valves shall be ASME rated.

2.6.3 Thermostats shall be provided in compliance with UL 174.

2.6.4 Wiring shall comply with NFPA 70.

2.6.5 Heating elements shall be medium watt density commercial grade incoloy sheathed flanged mounted elements with prewired terminal leads, and element fusing per the National Electrical Code.

2.7 Lavatories:

2.7.1 Lavatories shall be first quality vitreous china or enameled cast iron.

2.7.2 Drains and jam nuts shall be cast wrought copper alloy. Strainer shall be copper alloy or corrosion-resisting steel.

2.7.3 Faucets shall be single, center set, combination, or single control mixing type, complying with Fed. Spec. WW-P-541/4.

2.7.4 Stop valves shall be angle or straight type and constructed of copper alloy, chrome plated.

2.7.5 Traps shall be P-type.

2.7.6 Soap dispensers shall be glass or metal type with a capacity of 12 fluid ounces for liquid soap.

2.8 Urinals:

2.8.1 Wall-hung urinals shall have integral trap and extended shield; shall have washout, blowout, or siphon-jet flushing action; and shall be constructed of first quality vitreous china.

2.8.2 Pedestal type urinals shall have integral trap, siphon-jet flushing action, and a bottom outlet for connection to a closet type floor flange. Urinal shall be constructed of first quality vitreous china.

2.8.3 Trough type urinals shall be wall-hung with an integral flushing rim and shall be constructed of first quality vitreous china.

2.9 Water Closets:

2.9.1 Elongated bowl water closets shall be of the siphon jet, floor outlet type, for use with a flush valve and constructed of first quality vitreous china. Seats shall be open front, less cover, constructed of molded plastic or wood.

2.9.2 Regular bowl water closets shall be of the siphon jet, floor outlet type, constructed of first quality vitreous china. The tank shall be separate, secured to and supported by the water closet and shall contain a copper, copper alloy, or corrosion-resisting steel float and flush valve with a refill tube, operating lever, and control valve stop and supply pipe. Seats shall be closed front, with cover constructed of molded plastic or wood.

2.9.3 Fittings: Floor flanges, gaskets, bolts, and screws shall be supplied. Flanges may be copper, copper alloy, or cast iron. Gaskets shall be nonstaining wax.

2.10 Sinks:

2.10.1 Kitchen sink shall be single or double bowl enameled cast iron, porcelain enameled formed steel, or corrosion-resisting formed steel.

2.10.2 Service sink shall be single bowl, trap standard, floor or wall mounting. Sink shall be constructed of enameled cast iron or vitreous china. Rim guard shall be copper alloy or corrosion-resisting steel.

2.10.3 Faucets shall be a single center set or combination type complying with Fed. Spec. WW-P-541/5. Vacuum breaker shall be provided on faucets where required by codes. Handicapped faucets shall be provided with lever or wrist blades.

2.10.4 Drains shall have a removable metal strainer, jam nut, coupling, and tail piece.

2.10.5 Traps for kitchen sinks shall be P-type chrome plated. Exterior surfaces of traps for service sinks shall be as cast or painted.

2.11 Bathtubs shall be enameled cast iron or porcelain enameled formed steel in compliance with Fed. Spec. WW-P-541/3 or shall be fiberglass reinforced plastic. Drains shall be chrome-plated with pop-up or trip lever stopper.

2.12 Laundry Tubs:

2.12.1 Laundry Tubs shall be double bowl enameled cast iron or corrosion-resisting formed steel with

frame, wall, pedestal, or leg support.

2.12.2 Faucet shall be mounted in back of tub and shall be a separate or combination fitting. Combination faucet shall have exposed valve body, union inlet, and swing spout. Finish shall be chrome or nickel plated. Vacuum breakers shall be provided on faucets where required by codes.

2.12.3 Drain shall have a removable metal strainer, jam nut, coupling, and tail piece. Drain shall have a suitable rubber type stopper.

2.12.4 Trap shall be P-type with cleanout plug and shall be chrome-plated.

2.13 Flush Valves: Flush valve shall be a large diaphragm or large piston type exposed style with a side oscillating handle. The flush valve shall have a vacuum breaker; a control stop with or without a cap; a back check in the control stop with or without a cap; a back check in the control stop or anti-siphon within the valve; a flush connection with coupling nuts, gaskets, and spud flanges; and a wall flange or escutcheon. Exposed surfaces of the flush valve shall have a bright chrome-plated finish. The valve shall be capable of operating without chatter or water hammer and shall deliver 2 gallons minimum for urinals and 4 gallons minimum for water closet per flush at any inlet pressure from 10 psi to 50 psi.

2.14 Showers shall be wall mounted, column, bath, free standing cabinet, or emergency type complying with Fed. Spec. WW-P-541/7. Shower heads and handles shall be copper alloy or corrosion-resisting steel. Escutcheons shall be corrosion-resisting steel or copper alloy. Control valves shall be copper alloy and have metal integral parts of copper alloy, nickel alloy, or corrosion-resisting steel. Control valves shall be thermostatic mixing; pressure balancing; mechanical, either mixing or single control; or separate hot and cold water valves. Shower heads shall be nonadjustable.

2.15 Floor Drains:

2.15.1 Cast-iron drains shall comply with ANSI A112.21.1, Figure 3.3. Body shall be cast iron and strainer shall be chrome-plated bronze.

2.15.2 Polyethylene drains shall be constructed of polyethylene complying with ASTM D 1248.

2.15.3 Gaskets shall be neoprene complying with ASTM C 564 or as recommended by the drain manufacturer.

2.16 Wall Faucets: Provide faucets with vacuum breaker, backflow preventer, brass body, 3/4-inch male inlet threads, hexagon shoulder, and 3/4-inch hose connection. Faucet handle shall be securely attached to stem.

2.17 Wall Hydrants: Provide hydrants with vacuum breaker, backflow preventer, nickel-brass or nickel-bronze wall plate, and detachable key handle. Hydrant shall be self-draining and have 3/4-inch exposed hose thread on spout.

2.18 Lawn Faucets: Provide faucets with either straight or angle brass bodies, and shall be of the compression type. Faucet spout shall have 3/4-inch hose threads, and handle shall be securely attached to stem.

2.19 Yard Hydrants: Yard box or post hydrants shall have valve housings located below frost lines. Hydrants shall be bronze with cast-iron box or casing guard. "T" handle key shall be provided.

2.20 Backwater Valves: Valves shall be of the flap type, hinged orpivoted, with revolving disks. Hinge pivots, disks, and seats shall be nonferrous metal.

3.0 EXECUTION:

3.1 Installation of new equipment and repair of existing equipment shall comply with NAPHCC National Standard Plumbing Code. Mounting height of fixtures for use by the physically handicapped shall be in accordance with ANSI A117.1.

3.2 Repair of the pneumatic pressure tank shall comply with ASME Boiler and Pressure Vessel Code, Section VIII.

3.3 Testing of Repaired Tanks: After repairs have been completed, hot water generator storage tanks and pneumatic pressure tanks shall be tested in compliance with ASME Boiler and Pressure Vessel Code, Section VIII.

3.4 Flue Gas Piping: New flue gas piping shall be installed in compliance with NFPA 211. New flue gas vent piping shall be installed in compliance with NFPA 54.

3.5 Faucet repair shall be limited to replacement of washers, renewable seats, or broken handles.

3.6 Air chambers for prevention of water hammer shall be checked to see if they are waterlogged.

Steel Tanks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of steel tanks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Tank materials shall be as required for the service by AWWA D100 or D103 for water tanks, or by API standards for petroleum product tanks.

2.2 New tanks shall comply with AWWA or API standards as applicable for the service. Storage tanks for flammable liquids shall also comply with UL and NFPA requirements.

2.3 Nozzle flange diameters and drillings shall be in compliance with ANSI B16.5.

2.4 Butt weld nozzles shall be in compliance with ANSI B16.25.

3.0 EXECUTION:

3.1 Tank repair and installation work shall comply with applicable requirements of AWWA D100 or D103, or with API standards.

3.2 Welding shall be performed in accordance with AWS D1.1. Pipe welding to nozzles shall be performed in accordance with ASME Boiler and Pressure Vessel Code, Section IX.

Plastic Tanks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of plastic tanks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Tank material shall be reinforced fiberglass polyester in compliance with AWWA D120 for water tanks, or ASTM C 582 for tanks in chemical service. 2.2 New Tanks shall be horizontal, cylindrical tanks and shall comply with AWWA D120 or ASTM D 3299 as applicable. Chemical resistance tests, when required, shall be performed at the fabrication shop in compliance with ASTM C 581.

2.3 Nozzle flange diameters and drillings shall be in compliance with ANSI B16.5.

3.0 EXECUTION: Repair and installation work shall be performed in compliance with recommended procedures and practices of SPII and of PPI, where applicable.

Pool Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of pool equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Electric swimming pool heaters shall be UL listed and shall conform to the ASME Boiler and Pressure Vessel Code. The heating elements shall be constructed of copper and shall be pre-wired with the connection at the element terminal sealed against moisture. Controls shall include a differential thermostat and a high temperature limit manual reset switch.

2.2 Gas-Fired Swimming Pool Heaters shall conform to the ASME Code and shall be approved by the American Gas Association. Heat exchangers shall be two-or four-pass design with copper-finned tubes. The burner shall be constructed of stainless steel and shall be provided with all necessary valving to meet ASME Code requirements.

2.3 Diatomite filtration system shall consist of a centrifugal circulating pump, plastic filter elements surrounded by diatomaceous earth coating, a dry chemical feeder for feeding diatomaceous earth, and a modulating level control valve for the filter inlet line.

2.4 Swimming pool chlorinators shall be the gaseous chlorine cylinder-mounted type. Materials for construction of chlorinators shall be in accordance with recommendations of the Chlorine Institute.

2.5 Swimming pool surge tank system shall include a surge tank, a vertical pump, and an electronic float switch. The surge tank shall be in compliance with ASME Code requirements for unfired

pressure vessels.
2.6 Pool drains shall be constructed of cast iron.
3.0 EXECUTION:
3.1 Personnel shall not begin repairs on the electric swimming pool heater until power to the heater has been disconnected.
3.2 Chlorine gas storage and use shall be in accordance with recommendations of the Chlorine Institute Inc., Chlorine Manual.

Compressed Air Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of compressed air equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 All new compressed air equipment and materials for repair or replacement shall comply with ANSI/ASME B19.3, and ASME Boiler and Pressure Vessel Code, Section VIII.
2.2 New reciprocating air compressors shall be of the single or two-stage, heavy-duty, double-acting, water-cooled or air-cooled, "Y" or "L" cylinder type complete with flange-mounted drive motor. The piston, valve, and cylinder construction shall not require lubrication. Teflon piston rings and Teflon or carbon rider rings shall be used. Compressors shall operate at a speed not in excess of 1,800 rpm.
2.2.1 Bearings: Main crankshaft bearings shall be anti-friction roller or ball type. Connecting rod bearings shall be sleeve type.
2.2.2 Valves: Compressor cylinder valves shall be of the channel, feather, or plate type suitable for service without external lubrication.
2.2.3 Lubrication: Force-feed lubrication system shall lubricate the crankshaft, connecting rod, and crosshead bearings.
2.2.4 Rod Packing: Piston rod packing shall be Teflon or carbon non-lubricating type.
2.2.5 Intake air filter - silencer shall be a pipe-supported dry type capable of removing 95 percent of all particles 10 microns and larger.
2.2.6 Intercooler and after cooler shall be a shell-and-tube or plate type.
2.2.7 Motor shall be squirrel-cage induction, dripproof, NEMA Class B, with split-sleeve bearings.
2.3 New centrifugal and rotary screw compressors shall be of the multi-stag or two-stage type driven by an electric motor through speed-increaser gears.
2.3.1 Intake air filter-silencer shall be a full-capacity dry type capable of removing 95 percent of all particles 10 microns and larger.
2.3.2 Blowoff silencer shall be a full-capacity blowoff vent type.
2.3.3 Bearings: Centrifugal compressor radial bearings shall be of the pivoted shoe type. Axial bearings shall be Kingsbury-type thrust bearings capable of absorbing thrust in either direction. Rotary screw compressor radial bearings shall be anti-friction roller type. Ball thrust bearings shall be provided to carry the axial load.
2.3.4 Seals: Centrifugal compressors shall be labyrinth or carbon ring-type air and oil seals. Rotary screw compressors shall be stainless steel sealing rings.
2.3.5 Intercoolers and after coolers shall be water-cooled shell and tube type.
2.3.6 Vents and Drains: Vents shall be tapped and plugged. Drains shall be complete with drain valves.
2.3.7 Lubricating oil system shall be a shaft-driven main oil pump, motor-driven auxiliary oil pump, dual oil coolers, oil reservoir, dual oil filters, pressure switches and gauges, check valves, valves, and interconnecting piping.
2.3.8 Check valves shall be 150-pound class, carbon steel.
2.4 New control air compressor and dryer shall be air-cooled with a reciprocating compressor and a single receiver constructed in accordance with ASME Code requirements. Motor shall be NEMA Class B design with built-in overload protection. Unit shall include an air gauge, pop safety valve, external check valve, filter, pressure switch, and drain cock. Air dryer shall be refrigerated type

designed for continuous operation with hermetically sealed compressor, heat exchanger, ambient air filter, and automatic drain trap. Oil and water filter shall have aluminum housing with pressure rating of 250 psig at 70 F and include manual drain valve and 10 replacement filters.

2.5 Aftercoolers shall be of the watercooled, shell-and-tube pipeline type with adequate surface area to limit the discharge to the temperature required. The unit shall include moisture separators, gauge glasses, automatic condensate traps, valves, drain piping, and thermal reliefs on the water side.

2.6 Receivers shall meet ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 requirements and shall include pressure gauge, relief valve, shutoff valve, automatic moisture trap, and drain valve. Receivers shall be designed for 200 psi.

2.7 All rotating parts and equipment shall be true, dynamically balanced at the factory, and shall include vibration isolators.

2.8 Safety guards shall meet OSHA requirements.

2.9 Pressure regulators shall be designed for a maximum inlet pressure of 125 psi and a maximum temperature of 200 degrees F. Regulators shall be single seated, pilot-operated with valve plug, bronze body and trim, and threaded connections. Regulator shall include a pressure gauge.

3.0 EXECUTION:

3.1 Repair and replacement work done on receiver tanks shall be in accordance with ASME Boiler and Pressure Vessel Code and the NBBI. Repair procedures shall provide structural integrity as required by NB-23.

3.2 Welding shall be performed in compliance with AWS D1.1 and ASME Boiler and Pressure Vessel Code, Section IX.

3.3 Repaired pressure parts and replacement pressure parts shall be tested after completion of repair or installation in accordance with the ASME Code.

Fire Tube Boilers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of fire tube boilers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Replacement parts and materials shall comply with requirements of the ASME Boiler and Pressure Vessel Code for new construction.

3.0 EXECUTION:

3.1 No personnel shall enter the boiler until the boiler has been removed from service, cooled, drained, and purged and the atmosphere in the boiler has been checked and found to be free of toxic or explosive gases.

3.2 Repair and maintenance work shall be performed in accordance with procedures developed by the Contractor that are in compliance with requirements of the ASME Boiler and Pressure Vessel Code and the NB-132 and have been approved by the Authorized Member Representative.

3.3 Waterside Repairs: Wash drum internals to remove loose scale and soft deposits prior to making repairs.

3.4 Fireside Repairs:

3.4.1 Remove soot and other deposits from furnace tube, fire tubes, and tube sheets.

3.4.2 Cracks at the junction of the furnace tube and tube sheet shall be repaired by welding.

3.4.3 Boiler shell and tube sheet patches shall be designed and installed in compliance with the National Board Inspection Code Chapter VI. All patches shall comply with the requirements for new construction of ASME Boiler and Pressure Vessel Code, Section I or IV.

3.4.4 Damaged fire tubes shall be removed and replaced with new tubes, except for a single leaking fire tube, which may be repaired by plugging at tube sheet at both ends.

3.4.5 Corroded surfaces may be built up by fusion welding in compliance with the NBBI National Board Inspection Code.

3.4.6 Seal welds used for fluid tightness shall be applied in compliance with NB-132.

3.5 Closing the Boiler:

3.5.1 Manholes, Handholes, and Gaskets: Clean seating surfaces, replace old gaskets with new gaskets,

and reinstall or close all manholes and handholes.
3.5.2 Front and Rear Door: Clean seating surface, replace gaskets, and close front and rear access doors.
3.5.3 The repair shall not be covered by replaced or reinstalled materials until authorized.
3.6 Inspection and testing of completed boiler repairs shall be in compliance with the ASME Code.

Water Tube Boilers
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of water tube boilers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Replacement parts and materials shall comply with requirements of the ASME Boiler and Pressure Vessel Code for new construction.
3.0 EXECUTION:
3.1 No personnel shall enter the steam drum or lower drum until the boiler has been removed from service, cooled, drained, and purged and all steam and water valves, including drain and blowdown valves, have been closed, and locked or tagged. No personnel shall enter the boiler until the atmosphere in the boiler has been checked and found to be free of toxic or explosive gases.
3.2 Repair and maintenance work shall be performed in accordance with procedures developed by the Contractor that are in compliance with requirements of ASME Boiler and Pressure Vessel Code and the NB-132 and have been approved by the Authorized Member Representative.
3.5 Waterside (Internal) Repairs: Wash drum internals to remove loose scale and soft deposits. Turbine the water tubes. Perform chemical cleaning by either circulation or soaking.
3.6 Cracks in drums shall be repaired in compliance with the NBBI National Board Inspection Code.
3.7 Tube seat leaks may be repaired by internal seal welding of the tubes in compliance with NB-132.
3.8 Fireside (External) Repairs:
3.8.1 Clean deposits from fireside surfaces by washing with hot alkaline water, brushing, scraping, or air lancing. Surfaces shall be dried immediately after washing.
3.8.2 Corroded surfaces may be built up by fusion welding in compliance with NB-l32, Chapter VI.
3.8.3 Drum shell patches shall be designed and installed in compliance with NB-132.
3.8.4 Minor cracks in tube shall be repaired by replacement of a tube section. Minimum length of replacement tube section shall be 12 inches. Use backing rings when sections are welded into existing tubes. Use the TIG (tungsten-inert-gas) process for the root pass.
3.8.5 For major tube damage, replace entire tube. If only one or two tubes require replacement, the damaged tubes may be removed and the holes plugged if approved by the Authorized Member Representative.
3.8.6 Seal welds used for fluid tightness shall be applied in compliance with NB-132.
3.9 Closing the Boiler:
3.9.1 Manholes, Handholes, and Gaskets: Clean seating surfaces, replace old gaskets with new gaskets, and reinstall or close all manholes and handholes.
3.9.2 The repair shall not be covered by replaced or reinstalled materials until authorized.
3.10 Inspection and testing of completed boiler repairs shall be in compliance with the ASME Code.

High Temperature Water Boilers
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of high temperature water boilers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Replacement parts and materials shall comply with requirements of the ASME Boiler and Pressure Vessel Code for new construction.
3.0 EXECUTION:
3.1 Personnel shall not enter the boiler until it has been removed from service, cooled, drained, and purged.

3.2 Repair and maintenance work shall be performed in compliance with requirements of the ASME Boiler and Pressure Vessel Code and the NBBI National Board Inspection Code, and approved by the Authorized Member Representative.
3.3 Tubes shall be replaced as specified in NB-23.
3.4 Tube joints, headers, and drums shall be repaired as specified in NB-23.
3.5 Material and equipment removed for access to the boiler or to make repairs shall be reinstalled following successful completion of performance tests and authorization of the Authorized Member Representative.
3.6 Repairs to pressure parts shall be inspected and tested as specified in NB-23. The Contractor shall submit the Inspection Certificate to the Authorized Member Representative.

Cast-iron Boilers and Fireboxes

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of cast-iron boilers and fireboxes, and furnishing and installation of cast-iron boilers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Replacement parts and materials shall comply with the requirements of the ASME Boiler and Pressure Vessel Code for new construction.
2.1 Gas-Fired, Oil-Fired, and Combination Gas/Oil-Fired Boilers: Boilers shall be rated and tested in accordance with ANSI Z21.13. Boilers shall meet the requirements of the following safety codes and standards: UL 726, UL 795, and UL 296. Boilers shall be provided with combustion controls.
3.0 EXECUTION:
3.1 No personnel shall enter the boiler until it has been removed from service, cooled, drained, and purged, and the atmosphere has been checked and found to be free of toxic or explosive gases.
3.2 Repair and maintenance work shall be performed in accordance with procedures developed by the Contractor, in compliance with requirements of the ASME Boiler and Pressure Vessel Code and NB-132, and approved by the Authorized Member Representative.
3.3 Clean Fireside Surfaces: Thoroughly clean flueway and firebox surfaces.
3.4 Clean waterside surfaces to remove sludge and sediment.
3.4.1 On steam boilers, open blowdown valve and flush water until clear while under steam pressure. On water boilers, open boiler drain cock to remove sludge and sediment that have settled to the bottom. Then refill boiler to correct water level for steam boilers or correct water pressure for water boilers.
3.4.2 If boiler is shut down, remove plugs and open drain cock. Wash the inside of the boiler with water to remove sludge and sediment. Fill boiler and drain again. Fill boiler to correct level or pressure.
3.5 Replace Damaged Boiler Section: Clean seating surfaces and replace gaskets or sealant before installing boiler sections.
3.6 Repair cracks by brazing in compliance with the ASME Boiler and Pressure Vessel Code, Section IV and Section IX.
3.7 Closing the Boiler:
3.7.1 Manholes, Handholes, and Gaskets: Clean seating surfaces, replace old gaskets with new gaskets, and reinstall or close all manholes and handholes.
3.7.2 Other Materials: The repair shall not be covered by replaced or reinstalled materials until authorized.
3.8 Inspection and testing of completed boiler repairs shall be in compliance with the ASME Code.

Cleaning of Boilers

1.0 DESCRIPTION OF WORK: This specification covers cleaning of boilers. Products and materials used shall be in accordance with the boiler manufacturer's recommendations and/or shall be as directed by the Authorized Member Representative. Cleaning procedures shall be developed by the Contractor and shall be in accordance with the boiler manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:
2.1 Equipment required for cleaning, such as acid feed tank and pump, alkaline feed tank and pump, mixer, neutralizer tank and pump, power brushes, high pressure sprays, and other equipment shall be supplied by the Contractor.
2.2 Chemical Cleaning Materials:
2.2.1 Boilout chemicals shall be trisodium phosphate complying with ASTM D 538, caustic soda complying with ASTM D 456, and soda ash complying with ASTM D 458.
2.2.2 Acid Cleaning Chemicals shall be:
Hydrochloric Acid complying with Fed. Spec. 0-H-765
Ammonium Bifluoride, N2H4F2
Hydroxycetic Acid, CH2OHCOOH, Technical Grade
Formic Acid, HCOOH, Technical Grade
Phosphoric Acid complying with Fed. Spec. 0-0-670
Sulfuric Acid complying with Fed. Spec. 0-S-809
Sulfamic Acid, HSO3NH2
2.2.3 Neutralizing-Passivating Chemicals shall be as follows:
Monosodium Phosphate, H2NaO4P
Di-sodium Phosphate, Na2HPO4
Ammonia, Anhydrous, complying with Fed. Spec. 0-A-445
Hydrazine, Anhydrous, H2NNH2
Sodium Sulfite complying with Mil. Spec. MIL-S-13943
Sodium Nitrate complying with Mil. Spec. MIL-S-322
2.2.4 Flushing water shall be demineralized water with a conductivity end point of 50 micro-ohms.
2.2.5 Pressure draining gas shall be commercially pure, 99.5 percent nitrogen.
2.3 Mechanical Cleaning Materials and Equipment:
2.3.1 Brushes shall be of the type for use with power units.
2.3.2 Washwater shall be hot alkaline washwater for removing ash deposits.
3.0 EXECUTION:
3.1 Clean boilers of all scale and deposits.
3.2 Inspection: After cleaning, the boiler shall be given a visual inspection for effectiveness of scale removal.
3.3 Welding and Burning: No welding or burning shall be allowed during cleaning operations.
3.4 Alkaline Boilout:
3.4.1 Boilout chemicals shall be completely dissolved in water before being introduced into the boiler.
3.4.2 Boilout chemicals shall be trisodium phosphate and caustic soda, 1,500 to 2,500 ppm concentration or caustic soda and soda ash, 3,000 ppm concentration.
3.4.3 Boilout pressure shall be operating pressure for boilers operating at 200 psig and less. For boilers operating at above 200 psig, the boilout pressure shall be 200 psig or one-half the operating pressure, whichever is higher. In no case shall boilout pressure exceed 600 psig.
3.4.4 Concentration of chemicals and duration of boilout will be dependent upon the scale analysis. Boilout time may vary from 8 to 24 hours with boiler water solids purged by blowdown at approximately 4-hour intervals.
3.4.5 Flush unit with demineralized water until the effluent is clear of visible solids.
3.5 Acid cleaning, using either the circulating or soaking method, shall be done in the following sequence.
a. Wash heating surfaces with an acid solvent containing a proper inhibitor.•15560
b. Flush unit with clean water.
c. Neutralize and passivate the unit.
d. Flush the unit with clean water.
3.6 Circulating Method:
3.6.1 Acid Application: Acid cleaning time shall vary from a minimum of 4 hours, depending on scale analysis. Time shall be determined by analyzing samples of return solvent for iron concentration and acid strength.
3.6.2 Flushing: After cleaning, flush unit with demineralized water until pH reaches 6.5.

3.6.3 Neutralization: After flushing, neutralize the unit with ammonia and hydrazine for 2 hours at 200 F.
3.6.4 Final Flush: Final flush with demineralized water until pH reaches 7.5.
3.7 Soaking Method:
3.7.1 Application: Acid cleaning time shall vary from 4 to 8 hours depending on scale analysis. For soft sludges, cleaning time shall be a minimum of 4 hours. Cleaning time shall be 6 hours for thin coatings of hard scale. For heavy deposits, cleaning time shall be a maximum of 8 hours. The time periods noted are actual retention time of the solvent in the unit, including the time of filling and draining. Unit shall be drained under nitrogen pressure.
3.7.2 Flushing: After required cleaning time, flush unit with demineralized water.
3.7.3 Neutralizing: After flushing, the unit shall be neutralized and passivated with a solution of soda ash and boiled out for a period of 4 to 6 hours. The boilout pressure shall be operating pressure for boilers operating at 200 psig and less. For boilers operating at above 200 psig, the boilout pressure shall be 200 psig or one-half the operating pressure, whichever is higher. In no case shall boilout pressure exceed 600 psig.
3.7.4 Final Flush: After boilout, the unit shall be drained and flushed with demineralized water containing sodium nitrate, until the pH reaches 7.5.
3.8 Effluent Neutralization: The solvent effluent drained from the unit shall be neutralized with caustic soda or soda ash to a pH of 6.8 to 8.5.

Firebrick Fireboxes for Boilers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of fire brick fireboxes for boilers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 P PRODUCTS:
2.1 Replacement parts and materials for pressure parts, or for attachment to pressure parts, shall comply with requirements of the ASME Boiler and Pressure Vessel Code for new construction.
2.2 The Following Refractory Materials shall comply with the requirements of ASTM C 27: fire brick, refractory tile, plastic refractory, castable refractory, and refractory mortar.
3.0 EXECUTION:
3.1 Repair and maintenance work shall be performed in accordance with procedures developed by the Contractor that are in compliance with requirements of the ASME Boiler and Pressure Vessel Code and have been approved by the Authorized Member Representative.
3.2 No personnel shall enter the boiler until it has been removed from service, cooled, drained, and purged, and the atmosphere in the boiler has been checked with a Burrel or other suitable instrument and found to be free of toxic, explosive, or suffocating gases.
3.3 Fire Tube Boilers:
3.3.1 When replacing burner throat tile, maintain correct throat diameter and ensure that throat is centered in the furnace.
3.3.2 Repair burner throat and furnace liner tile cracks with high temperature bonding mortar.
3.3.3 Wash coat burner throat and furnace liner tile with high temperature bonding mortar diluted with water.
3.3.4 Patch cracks, 1/8 inch and larger in width, with high temperature bonding mortar or high temperature plastic refractory.
3.3.5 Patch gap between cast refractory and baffle tile with high temperature plastic refractory.
3.3.6 Patch damaged rear door refractory with cast refractory.
3.4 Watertube Boilers: Repair cracks with ceramic fiber. Apply wash coat to burner throat.
3.5 Closing the Boiler: Repairs shall not be covered by replaced or reinstalled materials until authorized.
3.6 Drying Out:
3.6.1 Air Dry: Allow refractory to air dry as long as possible.
3.6.2 Fire Dry: To thoroughly dry refractory by firing, fire boiler intermittently at low rate.•15566

Firebrick for Insulation of Boiler Fireboxes

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of firebrick for insulation of boiler fireboxes. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Replacement parts and materials for attachment to pressure parts of the boiler shall comply with requirements of the ASME Boiler and Pressure Vessel Code for new construction.

2.2 Firebrick, plastic refractory, castable refractory, and refractory mortar shall conform to the requirements of ASTM C 27.

3.0 EXECUTION:

3.1 No personnel shall enter the boiler until it has been removed from service, cooled, drained, purged, and the atmosphere in the boiler has been checked with a Burrel or other suitable instrument and found to be free of toxic, explosive, or suffocating gases.

3.2 Repair and maintenance work shall be performed in accordance with procedures in compliance with requirements of the ASME Boiler and Pressure Vessel Code and NB-132, and approved by the Authorized Member Representative.

3.3 Closing the Boiler: Repairs shall not be covered by replaced or reinstalled materials until authorized.

3.4 Drying Out: Allow refractory to dry as long as possible.

Oil-fired and Gas-fired Burners for Boilers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of oil-fired and gas-fired burners for boilers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Oil-fired burner pipe, tubing, fittings, flanges, valves, and gaskets shall comply with the requirements of ASME B31.1.

2.2 Gas-fired burner pipe, tubing, fittings, flanges, valves, and gaskets shall comply with the requirements of ANSI Z223.1.

2.3 Burner and pilot system and combustion and safety controls shall comply with the requirements of NFPA 85A, 85B, or 85D; or Mil. Spec. MIL-B-18796.

2.4 Electrical Devices: Electrical equipment, control relays, devices, wiring, and enclosures shall comply with the requirements of ANSI C1.

3.0 EXECUTION:

3.1 No personnel shall enter the boiler until it has been removed from service, cooled, purged and the atmosphere in the boiler has been checked with a Burrel or other suitable instrument and found to be free of toxic, explosive, or suffocating gases.

3.2 Before welding, brazing, or cutting, gas piping shall be purged and the atmosphere checked and found to be free of an explosive gas mixture.

3.3 Oil-Fired Burner Repairs: All oil-fired burners, equipment, and control repairs shall be accomplished in compliance with ANSI B31.1 and C1, NFPA 85A or 85D, and Mil. Spec MIL-B-18796. All welding of piping shall comply with the welding procedures and qualifications of ANSI B31.1.

3.4 Gas-Fired Burner Repairs: All gas-fired burners, equipment, and control repairs shall be accomplished in compliance with ANSI Z223.1 and C1, NFPA 85A or 85B, and Mil. Spec. MIL-B-18796. All welding of piping shall comply with the welding procedures and qualifications of ANSI B31.2.

3.5 Inspection and Testing:

3.5.1 Leak Test all piping.

3.5.2 Pressure test all piping in compliance with ANSI B31.1 for oil-fired burners or ANSI B31.2 for gas-fired burners.

Coal-firing Systems for Boilers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of coal-firing systems for boilers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Coal-firing system equipment and materials shall comply with the requirements of ANSI B31.1, ASME Boiler and Pressure Vessel Code Section II, and NFPA 85E.

2.2 Burner and pilot system and combustion and safety controls shall comply with the requirements of NFPA 85E. 2.3 Electrical Devices: Electrical equipment, control relays, devices, wiring, and enclosures shall comply with the requirements of ANSI C1 and NFPA 70.

3.0 EXECUTION:

3.1 No personnel shall enter the boiler until it has been removed from service, cooled, purged, and the atmosphere in the boiler has been checked with a Burrel or other suitable instrument and found to be free of toxic, explosive, or suffocating gases.

3.2 Before welding, brazing, or cutting, coal piping shall be purged and the atmosphere checked and found to be free of an explosive coal/air mixture.

3.3 Coal-fired Burner Repairs: All coal-fired burners, equipment, and control repairs shall be accomplished in compliance with ANSI B31.1 and C1, ASME Boiler and Pressure Vessel Code, Section II, and NFPA 85E. All welding of piping shall comply with the welding procedures and qualifications of ANSI B31.1 and ASME Boiler and Pressure Vessel Code, Section IX.

3.5 Testing: Leak test all piping. Pressure test all piping in compliance with ANSI B31.1 and ASME Boiler and Pressure Vessel Code, Section II.

Draft Control Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of draft control equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Structural Steel shall comply with ASTM A 36.

2.2 Steel Pipe shall comply with ASTM A 53.

2.3 Piping Components shall comply with ASTM A 105.

2.4 Flanges, Fittings, and Valves shall comply with ASTM A 181.

2.5 Seamless Copper Tube shall comply with ASTM B 75.

2.6 Insulation shall comply with ASTM C 547.

2.7 Thermal Insulation and Finishing Cement shall comply with ASTM C 449.

2.8 Welding and brazing materials shall be as specified in Section II of the ASME Boiler and Pressure Vessel Code.

3.0 EXECUTION:

3.1 Safety: Adequate natural or forced ventilation shall be provided during repair activities conducted in confined spaces. Forced or induced draft fans shall be rendered inoperable before performing internal repairs to the fan casing or adjacent ductwork.

3.2 Repairs shall be accomplished in compliance with NFPA 70.

3.3 Welding and brazing shall be performed in accordance with Section IX of the ASME Boiler and Pressure Vessel Code.

3.4 Drive train components shall be repaired or replaced to transmit power free from vibration at the required torque.

Breeching

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of breeching. Products shall match existing materials and/or shall be as directed by the Authorized Member

Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Metal Breeching:

2.1.1 Carbon steel shall comply with ASTM A 568.

2.1.2 Galvanized steel shall be carbon steel complying with ASTM A 568, galvanized in compliance with ASTM A 123.

2.1.3 Stainless steel shall comply with ASTM A 167.

2.1.4 High heat insulating refractory shall be an alumina-silica-base castable refractory complying with ASTM C 27.

2.1.5 Acid resistant liner shall be phenolic, rubber, and polyester resin liner.

2.1.6 Insulation: Calcium silicate block type insulation shall comply with ASTM C 533. Mineral fiber insulation shall be block type complying with ASTM C 612, Class 1.

2.1.7 Bolts and Nuts: Where breeching is connected to stack by means of a flange, bolts shall be high temperature alloy steel bolts complying with ASTM A 193, with hex nuts complying with ASTM A 194.

2.1.8 Paint for prime coats and finish coats for touchup or refinishing shall be of the high heat-resistant type.

2.2 Masonry:

2.2.1 Mortar and grout for repair of cracks in reinforced concrete shall comply with ASTM C 476. Mortar for use in the repair or replacement of brick lining in high heat breeching shall be ground fire clay complying with ASTM C 27. Chemical-resistant mortar shall be resin mortar complying with ASTM C 395.

2.2.2 Brick for lining of high heat breeching requiring acid resistance shall be refractory brick complying with ASTM C 27. Brick for breeching requiring acid resistance shall be chemical-resistant brick complying with ASTM C 279, type H. 2.2.3 Inspection Doors shall be heavy-duty cast iron or steel, lined on interior with insulating, castable refractory complying with ASTM C 64.

2.2.4 Insulation: Calcium silicate block type insulation shall comply with ASTM C 533. Mineral fiber insulation shall be block type complying with ASTM C 612, Class 1.

2.3 Refractory Brick:

2.3.1 Brick shall be high heat refractory type complying with ASTM C 27.

2.3.2 Mortar: Fire clay mortar shall be of high heat, ground type complying with ASTM C 27. Chemical-resistant mortar shall be the silica type complying with ASTM C 466.

2.3.3 Refractory shall be of the insulating, castable type complying with ASTM C 27. Chemical-resistant type castable refractory shall be in compliance with ASTM C 401.

2.3.4 Inspection doors shall be heavy-duty cast iron or cast steel, lined on the interior with insulating castable refractory complying with ASTM C 64.

3.0 EXECUTION:

3.1 Flame Cutting: No cutting by torch shall be done without authorization from the Authorized Member Representative.

3.2 Welding: All welding shall be performed in compliance with AWS D1.1.

3.3 Installation of breechings shall be in compliance with NFPA 211.

Stacks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of stacks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Metal Stacks:

2.1.1 Carbon Steel shall comply with ASTM A 568.

2.1.2 Galvanized steel shall be carbon steel complying with ASTM A 568, galvanized in compliance with ASTM A 123.

2.1.3 Stainless steel shall comply with ASTM A 167.

2.1.4 Insulating refractory shall be alumina-silica base castable refractory complying with ASTM C 27.
2.1.5 cid-resistant liner shall be phenolic, rubber, and polyester resin liner.
2.1.6 Insulation: Calcium silicate block type insulation shall comply with ASTM C 533. Mineral fiber insulation shall be block type complying with ASTM C 612, Class 1.
2.1.7 Insulation Jacket: Canvas jacket shall be 8-ounce standard proprietary canvas jacket. Aluminum jacket shall be 0.016 inch thick, corrugated, embossed, or smooth, complying with ASTM B 209, temper H14, Type 3003 or 5010 with 50-pound polyethylene vapor barrier. Supports for aluminum jacket shall be stainless steel Z-clips and bands 0.016 inch thick by 3/4 inch wide.
2.1.8 Bolts and Nuts: Where breeching is connected to stack by means of a flange, bolts shall be high temperature alloy steel bolts complying with ASTM A 193, with hex nuts complying with ASTM A 194.
2.1.9 Steel rivets shall comply with ASTM A 502.
2.1.10 Steel structural wire rope shall be zinc-coated and shall comply with ASTM A 603.•15577
2.1.11 Paint for prime coats and finish coats for touchup or refinishing shall be of the high-heat-resistant type.
2.2 Masonry Stacks:
2.2.1 Ceramic glazed clay brick shall comply with ASTM C 126.
2.2.2 Chemical-resistant masonry units shall comply with ASTM C 279.
2.2.3 Castable refractory shall comply with ASTM C 401.
2.2.4 Mortar for fireclay brick shall comply with ASTM C 27. Mortar for chemical-resistant applications shall comply with ASTM C 395. Mortar and grout for reinforced masonry shall comply with ASTM C 476.
2.3 Prefabricated stacks shall consist of double-wall vent pipe and fittings. All components shall be UL-listed and shall comply with NFPA 211.
3.0 EXECUTION:
3.1 Installation or repair of all stacks shall be in accordance with NFPA 211.
3.2 Flame Cutting: No cutting by torch shall be done without authorization from the Authorized Member Representative.
3.3 Welding: All welding shall be performed in compliance with AWS D1.2.

Boiler Feedwater Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of boiler feedwater equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Specialty components and parts shall be in accordance with applicable requirements of the ASME Boiler and Pressure Vessel Code.
2.2 Welding and brazing materials shall be as specified in Section II of the ASME Boiler and Pressure Vessel Code.
3.0 EXECUTION:
3.1 Repairs shall be accomplished with either the entire feedwater system or applicable portions isolated from service and drained.
3.2 All isolation valves shall be secured in the closed position, all drain valves secured in the open position, and pumps rendered inoperative before and during repairs to the deaerators, softeners, and chemical feeders.
3.3 Welding shall be performed in accordance with Section IX of the ASME Boiler and Pressure Vessel Code.
3.4 Electrical work shall comply with the requirements of NFPA 70.
3.5 Drive train components shall be repaired or replaced to transmit power free from vibration at the required torque.
3.6 Repair procedures for receiver vessels shall provide structural integrity as specified in NB-23.

Gas Meters and Regulators

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of gas meters and regulators. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Meters: Meters shall conform to Mil. Spec. MIL-M-18294, Style B, without resetable counter. Meters shall be pipe or pedestal mounted.

2.2 Pressure Regulators: Pressure regulators shall have iron or steel bodies and shall be adjustable for changing the downstream pressure. The regulator shall be adjustable with automatic loading, and shall have automatic pressure relief. The pressure relief shall be diaphragm-operated, spring-loaded type with vent for relief.

2.3 Valves: Valves shall conform to API Spec. 6D, Class 150.

3.0 EXECUTION:

3.1 Installation of meters shall conform to ANSI B31.8. Permanent gas meters shall be installed with provisions for isolation and removal for calibration and maintenance.

3.2 Installation of pressure regulators shall be installed with by-pass line and lubricated plug valves installed in the by-pass line and on each side of the regulator between the regulator and by-pass connections.

3.3 Installation of strainer shall be upstream of meter.

3.4 Installation of pressure reducing valve at meter station shall be provided as needed.

Fuel Handling Systems

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of fuel handling systems. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Fuel handling system components shall comply with applicable requirements of API.

2.2 Fuel unloading hose shall be in compliance with applicable requirements of UL 180, 330, 536, and 569 and of ANSI/ASME B31.3.

2.3 Gasoline dispensing pumps shall be in compliance with applicable requirements of UL 79 and 87 and of MIL-P-10406.

2.4 Oil/water separators shall be of the coalescing type, with coalescing media as required for the application. Separators shall be repaired or constructed in compliance with Section VIII of the ASME Boiler and Pressure Vessel Code.

3.0 EXECUTION:

3.1 Repair and replacement work shall be performed in compliance with applicable requirements of NFPA 30, NFPA 70, and the ASME Code.

3.2 Welding shall be performed in accordance with ANSI B31.3 and ASME Boiler and Pressure Vessel Code, Section IX.

3.3 Flushing: Repaired or replaced systems shall be flushed with the same type of fuel intended for use in the system until the outflowing fuel is free of sediment and emulsion and does not appear cloudy or hazy.

Warm Air Furnaces

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of warm air furnaces. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 New furnace shall comply with the AGA Directory of Certified Appliances and Accessories, NFPA 70, and UL 296, 378, 499, 727, 795, and 900 as applicable.
2.2 Filters may be permanent, cleanable type or throw-away type and shall comply with requirements of UL 900. Face velocity of air at maximum flow rate shall not exceed 360 cubic feet per minute for standard velocity filters and 520 feet per minute for high velocity filters.
2.3 Flues shall be double-walled and constructed of galvanized steel complying with ASTM A 526.
2.4 Controls:
2.4.1 Thermostats shall be low voltage type designed to operate on control circuits not exceeding 30 volts.
2.4.2 Limit control for oil or gas furnaces shall be designed and installed to shut down the burner when the bonnet air temperature reaches 200 F. Differential shall be fixed at not less than 10 F and not greater than 25 F.
2.4.3 Blower control shall prevent operation of blower after burner has fired until the discharge air at bonnet reaches a predetermined temperature. Fan "on" setting shall be adjustable within range of 90 F to 140 F. Differential setting may be fixed between 24 F and 36 F or adjustable between 20 F to 50 F. Blower control shall include manual switch.
2.5 Gas Furnaces:
2.5.1 Gas burners shall be of corrosion-resistant steel and shall be designed, adjusted, rated, and certified to fire natural, manufactured, mixed, or propane gas. Burners rated 400,000 Btuh input or less shall be manually or electrically ignited, standing pilot type. Burners rated greater than 400,000 Btuh input shall be electrically ignited, proven pilot type.
2.5.2 Heat exchangers shall be fabricated from steel complying with ASTM A 568.
2.5.3 Gas valves shall be provided with a safety shutoff that will, in the event of flame failure, cause safety shutdown of the burner; an automatic pilot; and except for furnaces firing propane gas, an automatic gas pressure regulator.
2.5.4 Furnace housings shall be constructed of not less than 22-gauge steel complying with ASTM A 424, with baked enamel coating.
2.6 Oil Furnaces:
2.6.1 Burners shall be of flange-mounted high pressure atomizing type. Burner ignition shall be by continuous, automatic, cadmium cell control. The burner shall incorporate an oil pump, burner motor, combustion air fan, and burner tube.
2.6.2 Heat exchangers shall be fabricated from cold-rolled steel complying with ASTM A 568 with radiation shield and combustion chamber of stainless steel complying with ASTM A 167.
2.6.3 Furnace housings shall be constructed of not less than 22-gauge steel complying with ASTM A 424 with baked enamel coating.
2.7 Electric Furnaces:
2.7.1 Heater elements shall be helically coiled, nickel-chromium wire, individually sequenced with individual Thermal limit controls and fusible links for each element. Entire design shall be UL 499 listed and shall comply with NFPA 70.
2.7.2 Furnace housings shall be constructed of not less than 22-gauge steel complying with ASTM A 424 with baked enamel coating.
3.0 EXECUTION:
3.1 New furnace shall be installed in accordance with UL 499, UL 727, or UL 795 as applicable.
3.2 Welding shall be performed in compliance with AWS D1.1.
3.3 Damage to galvanized coatings shall be repaired by application of galvanizing repair paint complying with Mil. Spec. DOD-P-21035.
3.4 Corroded Heat exchangers shall be removed and replaced.
3.5 Flue: Replace corroded sections of flue in compliance with UL 378.
3.6 Controls: Replace defective controls in compliance with NFPA 70.

Gas Unit Heaters

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of gas unit heaters. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product

manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 New unit heater shall comply with AMCA 99 and 210, AGA Directory of Certified Appliances and Accessories; NFPA 70; and UL Electrical Construction Materials Directory and UL 795.

2.2 Heat exchangers shall be fabricated from steel complying with ASTM A 569 to form a unitized, multi-section type heat exchanger and combustion chamber for each burner.

2.3 Burners shall be of a corrosion-resistant steel with unitized rows of burners to provide one burner per heat exchanger section and shall have crossover igniter to provide positive ignition of each burner row.

2.4 Housings shall be fabricated from sheet steel of a thickness to provide sufficient strength to ensure rigidity and shall include a flue connection. The housing shall be provided with means for suspension or floor mounting as required.

2.5 Fans shall be the propeller type, fabricated of aluminum or steel, dynamically balanced, and direct motor driven. Fan motors shall be totally enclosed type, and built-in thermal overload protection shall be provided for single phase motors.

2.6 Controls:

2.6.1 Thermal limit control shall be provided to shut off gas supply in the event normal operating temperatures are exceeded.

2.6.2 Fan delay switch shall be provided for continuous fan operation after burner shutdown until heat exchanger temperature is reduced to prevent excessive heat build-up.

2.6.3 Gas valve with safety shutoff and manual main shutoff shall be provided with automatic pilot and shall automatically regulate gas pressure and, in the event of flame failure, shall cause safety shutdown of burner.

2.6.4 Thermostat shall be wall-mounted, heavy-duty type with enclosed contacts, with a 3-position selector switch to permit manual fan operation independent of temperature control. Control circuit voltage shall not exceed 30 volts as provided by a factory-installed control circuit transformer.

3.0 EXECUTION:

3.1 Welding shall be in compliance with AWS D1.1.

3.2 Blazing shall be in compliance with ASME Boiler and Pressure Vessel Code, Section IX.

3.3 Damage to galvanized coatings shall be repaired by applying galvanizing repair paint complying with Mil. Spec. DOD-P-21035.

Oil Unit Heaters

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of oil unit heaters. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 New unit heaters shall comply with AMCA 99 and 210, AGA Directory of Certified Appliances and Accessories; NFPA 70; UL Electrical Construction Materials Directory; and UL 296.

2.2 Heat exchangers shall be of corrosion-resistant steel and shall include a combustion chamber (primary heating surface) and a heat exchanger (secondary heating surface).

2.3 Burners shall be the high pressure or low pressure atomizing type. The burner shall be completely automatic and shall incorporate an oil pump, burner motor, combustion air fan, burner tube, and automatic ignition.

2.4 Housings shall be fabricated from sheet steel of a thickness to provide sufficient strength to ensure rigidity. The housing shall be provided with means of suspension. Housing shall include a flue connection.

2.5 Fan shall be the propeller type fabricated of aluminum or steel.

2.6 Controls:

2.6.1 Thermal limit control shall be provided to shut off oil supply in the event normal operating temperatures are exceeded.

2.6.2 Fan delay switch shall be provided for continuous fan operation after burner shutdown until heater

exchanger temperature is reduced to prevent excessive heat build-up.

2.6.3 Thermostat shall be unit- or wall-mounted and shall be heavy duty type with enclosed contacts, with a 3-position selector switch to permit manual fan operation independent of temperature control. Control circuit voltage shall not exceed 30 volts as provided by a factory-installed control circuit transformer.

3.0 EXECUTION:

3.1 Welding and brazing shall be in compliance with AWS D1.1.

3.2 Damage to galvanized coatings shall be repaired by applying galvanizing repair paint complying with Mil. Spec. DOD-P-21035.

Air-cooled Condensing Units

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of air-cooled condensing units. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: All products shall be rated in accordance with ARI 210 and 270.

2.1 Compressor: Provide a hermetic or semi-hermetic compressor with crankcase heaters, inherently protected motors, spring mounts, and capacity modulation.

2.2 Condenser Coils: Provide copper tubes with mechanically bonded aluminum fins.

2.3 Fans and Motor: Provide propeller-type with direct drive or belt drive and vertical discharge. Protect fan with heavy-gauge wire guard. Provide motors that are inherently protected, permanently lubricated, and weatherproof. Motors shall be totally enclosed type or dripproof.

2.4 Casing: Furnish a unit designed for outdoor mounting. Fabricate the casing of heavy-gauge steel that is zinc coated and finished with enamel.

2.5 Controls: Provide safety and operating controls, factory-wired and mounted in an enclosure. Include pressure switches and motor overload devices.

3.0 EXECUTION: Follow manufacturer's recommendations.

Condensers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of condensers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Air-Cooled Condensers:

2.1.1 New air-cooled condenser, when required, shall be a factory-fabricated and assembled unit consisting of coils, fans, and electric motor drive. The condenser shall be designed, fitted, and rated in compliance with recommendations and requirements of ARI 460, ASHRAE 20, and UL 207. Sizing of condenser shall be based on a temperature difference between entering outside air and condensing refrigerant not exceeding 30 F. The saturated refrigerant condensing temperature shall not be over 130 F.

2.1.2 Electric motor shall be totally enclosed type located within the enclosure and fully protected from the weather. Motor starter shall be magnetic across the line type with general purpose enclosure. Thermal overload protection shall be the manual reset type.

2.1.3 Housing shall be fabricated from sheet carbon steel complying with ASTM A 569.

2.1.4 Refrigerant piping shall be hard drawn copper, Type L, refrigeration grade complying with ASTM B 75. Valves shall be of brass construction, diaphragm packless or back seating type, specifically designed for refrigeration service.

2.2 Water-Cooled Condensers:

2.2.1 New condensers shall be of shell-and-tube construction. The condenser shall be designed, fitted, and rated in compliance with the recommendations and requirements of ARI 450, ASHRAE 22, and UL 207. The condenser shall be constructed in compliance with Section VIII of ASME Boiler and Pressure Vessel Code.

2.2.2 Refrigerant receiver shall comply with Sections II and VIII of the ASME Boiler and Pressure Vessel Code.
2.2.3 Condenser materials for repairs shall be in compliance with Section II of the ASME Boiler and Pressure Vessel Code.
2.2.4 Condenser tubes shall be fabricated of seamless copper tubing with integral fins, and the tubes shall be individually replaceable and rolled or brazed into the tube sheets of the shell-and-tube unit. The entire bundle shall be removable on shell-and-coil units.
3.0 EXECUTION:
3.1 Condensers shall be repaired and retested in compliance with Section VIII of the ASME Boiler and Pressure Vessel Code.
3.2 Condenser tubes shall be repaired and retested in compliance with Section VIII of the ASME Boiler and Pressure Vessel Code.
3.3 Welding and brazing shall be performed in compliance with AWS D1.1 and Section IX of the ASME Boiler and Pressure Vessel Code.
3.4 Damage to galvanized coatings shall be repaired by application of galvanizing repair paint complying with Mil. Spec. DOD-P-21035.

Refrigerant Equipment
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of refrigerant equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Performance Ratings: The performance rating of each item of the new refrigerant equipment furnished shall comply with the applicable portions of ARI 450, 460, 495, and 590.
2.2 Bearings shall be an exact replacement. Bearing life shall be equal to the bearing to be replaced.
2.2.1 Bearings for reciprocating equipment shall be precision, oil-cooled or babbitted type.
2.2.2 Bearings for centrifugal equipment or rotary screw equipment shall be precision, oil-cooled type.
2.3 Mufflers shall be a hot-gas muffler or an exact replacement as indicated. Muffler shall be able to reduce vibration and noise from pulsation.
3.0 EXECUTION:
3.1 Welding: All welding shall be in compliance with AWS D1.1.
3.2 Damage to galvanized coatings shall be repaired by application of galvanizing repair paint complying with Mil. Spec. DOD-P-21035.
3.3 Controls:
3.3.1 Chiller Controls: Replace, adjust, and recalibrate defective parts and assemblies.
3.3.2 Starter Controls: Replace defective contactors and relays as necessary.
3.3.3 Capacity Controls: Adjust guide vane linkages and actuator control in compliance with the manufacturer's specification.
3.4 Noncondensables: Check accumulation rate of noncondensables in absorption refrigerant equipment for compliance with manufacturer's instructions.

Refrigeration Specialties
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of refrigeration specialties. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Thermostatic expansion valves shall be rated and tested in accordance with ASHRAE 17 or ARI 750.
2.2 Filter driers shall be sealed in-line type or replaceable core type as required. Filter driers shall be tested and rated in accordance with ASHRAE 63 and ARI 710 and shall meet the requirements of UL 207.

2.3 Sight glasses for moisture and liquid indication shall be UL listed.
2.4 Refrigerants shall be designated in accordance with ASHRAE 34.
3.0 EXECUTION: Installation of all refrigeration equipment shall comply with ASHRAE 15.

Natural Draft Cooling Towers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of natural draft cooling towers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 New cooling towers shall be constructed in compliance with NFPA 214 and Mil. Spec. MIL-C-16278.
2.2 Wood Towers:
2.2.1 Framework shall be repaired with or constructed of redwood complying with CTI STD-103, or Douglas fir complying with CTI STD-114. Douglas fir shall have a preservative treatment in compliance with CTI WMS-112.
2.2.2 Louvers shall be repaired with or constructed of redwood, Douglas fir or west coast hemlock. Douglas fir and hemlock shall have a preservative treatment in compliance with CTI WMS-112.
2.2.3 Water basin shall be repaired with or constructed of redwood or Douglas fir. Douglas fir shall have a preservative treatment in compliance with CTI WMS-112.
2.3 Metal Towers:
2.3.1 Framework shall be repaired with or constructed of carbon steel complying with ASTM A 36, hot-dipped galvanized in compliance with ASTM A 123.
2.3.2 Louvers shall be repaired with or constructed of carbon steel complying with ASTM A 366, hot-dipped galvanized in compliance with ASTM A 525.
2.3.3 Water basin shall be repaired with or constructed of carbon steel complying with ASTM A 366, hot-dipped galvanized in compliance with ASTM A 525.
2.4 Glass Fiber Towers:
2.4.1 Framework shall be repaired with redwood complying with CTI STD-103, Douglas fir complying with CTI STD-114, or carbon steel complying with ASTM A 36, hot-dipped galvanized in compliance with ASTM A 123. Douglas fir shall have a preservative treatment in compliance with CTI WMS-112.
2.4.2 Louvers shall be of rigid formed plastic complying with Fed. Spec. L-P-535.
2.4.3 Water basin shall be repaired or constructed of redwood or Douglas fir or of carbon steel complying with ASTM A 366, hot-dipped galvanized in compliance with ASTM A 525. Douglas fir shall have a preservative treatment in compliance with CTI WMS-112.
3.0 EXECUTION:
3.1 Existing cooling tower to be repaired shall be repaired in compliance with NFPA 214.
3.2 Welding and brazing shall be performed in compliance with AWS D1.1.
3.3 Damage to galvanized coatings shall be repaired by application of galvanizing repair paint complying with Mil. Spec. DOD-P-21035.
3.4 Testing: Upon completion of repair work on a cooling tower or installation of a cooling tower, the repaired cooling tower shall be tested for proper operation in compliance with the manufacturer's specifications, and with CTI ATC-105 and ASME PTC 23 for field performance.

Forced Draft and Induced Draft Cooling Towers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of forced draft and induced draft cooling towers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 New cooling towers shall be constructed in compliance with NFPA 214 and Mil. Spec. MIL-C-16278.
2.2 Wood Towers:
2.2.1 Louvers shall be redwood, complying with CTI STD-103 or Douglas fir or hemlock complying with

CTI STD-114. Douglas fir and hemlock shall have a preservative treatment in compliance with CTI WMS-112.

2.2.2 Fill or contact surface shall be redwood, complying with CTI STD-103, or Douglas fir or hemlock complying with CTI STD-114. Douglas fir and hemlock shall have a preservative treatment in compliance with CTI WMS-112.

2.2.3 Drift eliminators shall be redwood, complying with CTI STD-103, Douglas fir or hemlock complying with CTI STD-114, or rigid formed plastic complying with Fed. Spec. L-P-535. Douglas fir and hemlock shall have a preservative treatment in compliance with CTI WMS-112.

2.2.4 Water distribution basin shall be redwood, complying with CTI STD-103 or Douglas fir complying with CTI STD-114. Douglas fir shall have a preservative treatment in compliance with CTI WMS-112.

2.2.5 Water collection basin shall be redwood, complying with CTI STD-103, Douglas fir complying with CTI STD-114, or carbon steel complying with ASTM A 366 and hot-dipped galvanized in compliance with ASTM A 525. Douglas fir shall have a preservative treatment in compliance with CTI WMS-112.

2.2.6 Framework shall be redwood, complying with CTI STD-103, Douglas fir complying with CTI STD-114, or carbon steel complying with ASTM A 36 and hot-dipped galvanized in compliance with ASTM A 123.

2.2.7 Casing shall be carbon steel, complying with ASTM A 366, hot-dipped galvanized in compliance with ASTM A 525.

2.3 Metal Towers:

2.3.1 Louvers shall be carbon steel, complying with ASTM A 366, hot-dipped galvanized in compliance with ASTM A 525.

2.3.2 Fill or wet deck shall be carbon steel in compliance with ASTM A 366 and hot-dipped galvanized in compliance with ASTM A 525, rigid formed plastic complying with Fed. Spec. L-P-535, or stainless steel complying with ASTM A 167.

2.3.3 Drift eliminators shall be carbon steel, complying with ASTM A 366 and galvanized in compliance with ASTM A 525, rigid plastic complying with Fed. Spec. L-P-535, or stainless steel complying with ASTM A 167.

2.3.4 Water distribution basin shall be carbon steel, complying with ASTM A 366, hot-dipped galvanized in compliance with ASTM A 525.

2.3.5 Water collection basin or Pan shall be carbon steel, complying with ASTM A 366 and hot-dipped galvanized in compliance with ASTM A 525 or stainless steel complying with ASTM A 167.

2.3.6 Framework shall be carbon steel, complying with ASTM A 36, hot-dipped galvanized in compliance with ASTM A 123; or stainless steel complying with ASTM A 167.

2.3.7 Casing shall be carbon steel, complying with ASTM A 366, hot-dipped galvanized in compliance with ASTM A 525; or stainless steel complying with ASTM A 167.

2.4 Glass Fiber Towers:

2.4.1 Louvers shall be formed rigid plastic complying with Fed. Spec. L-P-535.

2.4.2 Fill shall be rigid plastic complying with Fed. Spec. L-P-535.

2.4.3 Drift eliminators shall be formed rigid plastic complying with Fed. Spec. L-P-535.

2.4.4 Water distribution basin shall be redwood, complying with CTI STD-103, Douglas fir complying with CTI STD-114, carbon steel complying with ASTM A 36 and hot-dipped galvanized in compliance with ASTM A 123, or carbon steel complying with ASTM A 366 and hot-dipped galvanized in compliance with ASTM A 525. Douglas fir shall have a preservative treatment complying with CTI WMS-112.

2.4.5 Water collection basin shall be redwood, complying with CTI STD-103, Douglas fir complying with CTI STD-114, carbon steel complying with ASTM A 36 and hot-dipped galvanized in compliance with ASTM A 123, or carbon steel complying with ASTM A 366 and hot-dipped galvanized in compliance with ASTM A 525. Douglas fir shall have a preservative treatment complying with CTI WMS-112.

2.4.6 Framework shall be redwood, complying with CTI STD-103, Douglas fir complying with CTI STD-114, or carbon steel complying with ASTM A 36 and hot-dipped galvanized in compliance with ASTM A 123. Douglas fir shall have a preservative treatment complying with CTI WMS-112.

2.4.7 Casing shall be carbon steel, complying with ASTM A 366, hot-dipped galvanized in compliance with

ASTM A 525.
3.0 EXECUTION:
3.1 Existing cooling tower to be repaired shall be repaired in compliance with NFPA 214.
3.2 Welding shall be performed in compliance with AWS D1.1.
3.3 Damage to galvanized coatings shall be repaired by application of galvanizing repair paint complying with Mil. Spec. DOD-P-21035.
3.4 Testing: Upon completion of repair work on a cooling tower or installation of a cooling tower, the repaired cooling tower shall be tested for proper operation in compliance with the manufacturer's specifications, CTI ATC-105, and ASME PTC 23, for field performance.

Coils
1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of coils. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Pressures:
2.1.1 Water coil design working pressure shall be 200 psig.
2.1.2 Steam coil design working pressure shall be 200 psig steam.
2.1.3 Each replacement water or steam coil shall be hydrostatically tested at 250 psig at the factory.
2.1.4 Each replacement direct expansion coil shall be pneumatically tested at the factory under water at not less than 300 psig. Each coil shall be completely dehydrated and sealed at the factory upon completion of pressure tests.
2.2 Water, Steam and Direct Expansion Coils:
2.2.1 Tubing shall be round, seamless, copper tubing, complying with ASTM B 75.
2.2.2 Fins shall be aluminum or copper.
2.2.3 Coil casing shall be made of galvanized sheet steel complying with ASTM A 526, minimum thickness of 14 gauge.
2.2.4 Water or steam coil headers shall be fabricated from steel pipe complying with ASTM A 53, Grade B; extra heavy seamless copper tubing complying with ASTM B 75; or semisteel complying with ASTM A 126, Class C.
2.2.5 Direct expansion coil headers shall be fabricated from extra heavy seamless copper tubing complying with ASTM B 75.
2.2.6 Each water coil shall be provided with a plugged vent tap and drain tap.
2.2.7 Each steam coil shall be provided with a vacuum breaker.
2.3 Electrical Heating Coils (and Heat Strips):
2.3.1 Resistance wire shall be nickel-chromium wire.
2.3.2 Tubular sheath shall be corrosion-resisting in the surrounding medium and suitable for the temperatures required by the particular application. 2.3.3 Insulating Material shall be densely packed, high purity magnesium oxide.
2.3.4 Insulator supports for directly exposed elements shall be ceramic or porcelain.
2.3.5 Grid and heat strip elements shall have the resistance wire surrounded by the insulation material and enclosed within the tubular sheath. The sheath shall be imbedded and completely sealed within the cast aluminum grid. Electrical terminals shall project through the cast aluminum grid and shall be designed to minimize the entrance of atmospheric moisture into the heating element.
2.3.6 Heat strip element resistance wire shall be uniformly spaced along the length of the sheath.
3.0 EXECUTION:
3.1 Fins shall be mechanically bonded or soldered to the tubes. Tubes shall be rolled and bushed, brazed, or welded to headers. Where required, multiple type supports shall be provided to prevent tube sag. The fin tube and header section shall float within the casing to allow free expansion.
3.2 Removing, Saving, Testing, Cleaning, and Recharging Refrigerants:
3.2.1 Refrigerant in a system in which the coil is to be repaired or replaced shall be removed, saved, and reused in recharging the system. When repair or replacement of the coil has been completed, the refrigerant system shall be pressure-tested and recharged with refrigerant.

3.2.2 The repaired coil shall be pressure-tested to 300 psig with dry nitrogen and allowed to stand for 24 hours with no pressure drop after repair or replacement of the coil. Then evacuate the system and/or coil with a vacuum pump capable of pulling 1 mm Hg vacuum absolute. Operate the vacuum pump until a vacuum of 2.5 mm Hg absolute is reached. After evacuation, recharge the system with the refrigerant previously removed. Recharge the refrigerant back into the system through a filter drier with capacity capable of removing foreign materials and moisture in the amount of refrigerant removed. The system shall be replenished with refrigerant to provide a fully charged system.

3.2.3 If the system has lost its full charge of refrigerant, a new suction line and liquid line filter drier, sized as recommended by the condenser manufacturer, shall be provided and the system pressure tested, evacuated, and recharged with refrigerant as specified above.

3.3 Welding shall be in compliance with AWS D1.1.

3.4 Brazing shall be in compliance wit ASME Boiler and Pressure Vessel Code, Section IX.

3.5 Damage to galvanized coatings shall be repaired by application of galvanizing repair paint complying with Mil. Spec. DOD-P-21035.

3.6 Testing: Hydrostatically test repaired water and steam coils at 1-1/2 times the maximum working pressure.

Steam and Hot Water Unit Heaters

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of steam and hot water unit heaters. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 New unit heaters shall comply with the requirements of AMCA 99 and 210; NFPA 70; and UL Electrical Construction Materials Directory.

2.2 Coils:

2.2.1 Coils shall be constructed of round seamless copper tubing complying with ASTM B 75, mechanically or hydraulically bonded or expanded into fins constructed of copper or of aluminum complying with ASTM B 209. Tube joints shall be made with high temperature brazing alloys complying with ASTM E 56.

2.2.2 Coil headers shall be fabricated from seamless carbon steel pipe complying with ASTM A 53, extra heavy seamless copper tubing complying with ASTM B 75 or B 251, or semi-steel complying with ASTM A 126, Class C.

2.3 Housings shall be fabricated from sheet steel complying with ASTM A 569 of a thickness and of sufficient strength to ensure rigidity. Unit heater housings shall be provided with means of suspension or floor mounting as required.

2.4 Fan and Drive:

2.4.1 Propeller and centrifugal fans shall be fabricated of aluminum or steel.

2.4.2 Centrifugal Fan shaft shall be sized for maximum fan speed.

2.4.3 Fan bearings on belt-driven units shall be self-aligning, permanently lubricated, or the periodic lubricating type with accessible lubricating means. Bearings shall be designed to withstand radial and thrust working loads.

2.5 Controls: Unit heaters shall be furnished with unit-mounted line voltage thermostats to provide ON/OFF fan control.

3.0 EXECUTION:

3.1 Welding shall be in compliance with AWS D1.1.

3.2 Brazing shall be in compliance with ASME Boiler and Pressure Vessel Code, Section IX.

3.3 Damage to galvanized coatings shall be repaired by applying galvanizing repair paint complying with Mil. Spec. DOD-P-21035.

Cleaning of Heat Exchangers

1.0 DESCRIPTION OF WORK: This specification covers the cleaning of Heat exchangers. Products and

materials used shall be in accordance with the heat exchanger manufacturer's recommendations and/or shall be as directed by the Authorized Member Representative. Cleaning procedures shall be developed by the Contractor and shall be in accordance with the heat exchanger manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS

2.1 Equipment required for cleaning such as acid feed tank and pump, alkaline feed tank and pump, mixer, neutralizing tank and pump, power brushes, power cutters, and other related items shall be supplied by the Contractor.

2.2 Chemical Cleaning Materials:

2.2.1 Acid cleaning chemicals shall be hydrochloric acid complying with Fed. Spec. O-H-765, ammonium bifluoride NH4HF2, and sulfuric acid complying with Fed. Spec. O-S-809.

2.2.2 Neutralizing chemicals shall be one percent soda ash solution complying with ASTM D 458 and one percent caustic solution complying with ASTM D 456.

2.2.3 Flushing water shall be potable having not more than 1,000 ppm total solids.

2.3 Mechanical Cleaning Materials and Equipment:

2.3.1 Hot water shall be used for high velocity wash.

2.3.2 Powered brushes shall be of the type for use with power units.

2.3.3 Nylon brushes shall be of the type blown with high pressure water.

3.0 EXECUTION:

3.1 General: Clean heat exchangers of all scale and deposits. Straighten and clean fins on finned tubes.

3.2 Inspection: After heat exchanger cleaning operation, tubes will all be given a visual inspection by the Authorized Member Representative for effectiveness of scale removal.

3.3 Welding and Burning: No welding or burning shall be allowed during cleaning operation.

3.4 Acid wash time may vary from four to eight hours depending on scale analysis. Time shall represent actual retention of the solvent in the unit, including filling and draining time.

3.5 Effluent Neutralization: Solvent effluent drained from the unit shall be neutralized with caustic in compliance with ASTM D 456 or soda ash in compliance with ASTM D 458, to a pH of 6.8 to 8.5.

Packaged Heat Pumps

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of air-cooled packaged heat pumps, including through-wall and roof top type units with supplemental electric heat. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Capacity and performance shall be based on standard air density (0.075 pounds per cubic foot). Fans shall have a peak static efficiency of not less than 60 percent. Capacity ratings shall be in accordance with ARI 240 and 270.

2.2 Casings shall have a corrosion protective coating. Casing shall have 1/2-inch thick minimum thermal insulation, and the compressor compartment shall have acoustical insulation.

2.3 Compressors shall be direct drive semi-hermetic with a maximum operating speed of 1,750 rpm. Each compressor shall have an independent refrigeration circuit with integral sub-cooling unit. Refrigerant accessories shall include a reversing valve and suction line oil/gas accumulator.

2.4 Evaporator coils shall be copper tubing with aluminum fins. New coils shall be pressure and leak tested at 1.5 times the working pressure.

2.5 Filters shall be 2-inch thick throwaway type.

2.6 Condensers shall have copper tubes and aluminum fins. New condensers shall be leak tested at the factory at 1.5 times the working pressure. A separate direct drive fan shall be included for each refrigeration circuit.

2.7 Auxiliary heating coil shall be low watt density, fin-tubular construction, protected by thermal safety switches.

2.8 Controls shall provide for automatic switchover between cooling and heating cycles.

3.0 EXECUTION:

3.1 Welding shall be performed in accordance with AWS D1.1 and/or ASME Boiler and Pressure Vessel

Code, Section IX.
3.2 Brazing shall be performed in accordance with ASME Boiler and Pressure Vessel Code, Section IX.
3.3 Damage to galvanized coatings shall be repaired with paint complying with Mil. Spec. DOD-P-21035.

Humidity Control Equipment

1.0 DESCRIPTION OF WORK: This section covers the furnishing and installation of humidifiers and dehumidifiers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Humidifiers shall be pneumatic modulating type.
2.1.1 Steam separator shall be designed to remove water droplets and particles larger than 3 microns when humidifier is operating at full capacity.
2.1.2 Control valve shall be stainless steel plug type with pneumatic operator.
2.1.3 Distribution manifold shall provide uniform dry steam distribution throughout its entire length.
2.1.4 Strainer shall be Y-type.
2.1.5 Steam trap shall be as recommended by the manufacturer of the steam humidifier and shall be preceded by a drip leg.
2.2 Dehumidifiers shall be free-standing self-contained plug-in type units that are UL listed.
2.2.1 Components shall be housed in a portable 22-gauge steel cabinet.
2.2.2 Capacity ratings shall be in accordance with AHAM DH-1. Overflow cutoff control shall be provided.
3.0 EXECUTION:
3.1 Steam supply manifold for humidifier shall be installed either perfectly level or extending upward vertically in duct. Discharge holes shall point upstream against airflow.
3.2 Welding shall be performed in accordance with AWS D1.1 and ASME Boiler and Pressure Vessel Code, Section IX, where applicable.

Radiators

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of radiators. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 New radiators shall comply with AGA Directory of Certified Appliances and Accessories; IBR Testing and Rating Code for Finned Tube (Commercial) Radiation, if applicable; NFPA 70; and UL 499 or UL 795, as applicable.
2.2 Cast-iron radiators:
2.2.1 Core shall be small tube section constructed of cast iron complying with ASTM A 48.
2.2.2 Core sections shall be assembled with malleable iron or polytetrafluoroethylene coated steel push nipples.
2.3 Baseboard-Fintube Radiators:
2.3.1 Nonferrous fintube shall be fabricated of seamless copper tubing, complying with ASTM B 75 and mechanically expanded into aluminum fins.
2.3.2 Ferrous fintube shall be fabricated of steel pressure tubing complying with ASTM A 450 and mechanically expanded into fins of steel sheet complying with ASTM A 568.
2.3.3 Enclosure, dampers and element supports shall be fabricated from carbon steel complying with ASTM A 568.
2.4 Radiant Radiators:
2.4.1 Gas plenum shall be carbon steel with a porcelain enameled finish complying with ASTM A 424 and Fed. Spec. PPP-P-600, or galvanized in compliance with ASTM A 526.
2.4.2 Air mixer shall be carbon steel with a corrosion-resistant finish complying with ASTM A 526 or ASTM A 568.

2.4.3 Venturi shall be carbon steel complying with ASTM A 526 or ASTM A 568 with a corrosion-resistant finish.
2.4.4 Enclosure shall be carbon steel complying with ASTM A 526 or ASTM A 568.
2.5 Convector Radiators:
2.5.1 Electric heating element shall be constructed of nickel chromium wire enclosed within a metal sheath and electrically insulated in the sheath with a densely compacted refractory material.
2.5.2 Hydronic/steam heating elements shall be constructed of seamless copper tubing complying with ASTM B 75 mechanically expanded into aluminum fins. The tube and fin assembly shall be encased in a frame of steel complying with ASTM A 568. Tube headers shall be steel or brass joined to the tubes by high temperature brazing alloys complying with ASTM E 56.
2.5.3 Enclosure, dampers, element supports, and access doors (when applicable) shall be fabricated from carbon steel complying with ASTM A 568.
3.0 EXECUTION:
3.1 Welding shall be performed in accordance with AWS D1.1.
3.2 Damage to galvanized coatings shall be repaired by application of galvanizing repair paint complying with Mil. Spec. DOD-P-21035.

Induction Units

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of induction units. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturers recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 New induction units shall include cabinet, primary air plenum with inlet collar, air balancing damper, multi-stage nozzles, coil, drain pan, and discharge stack. Units shall be tested and rated at the factory in accordance with ARI 445.
2.2 Cabinet and primary air plenum shall be constructed of or repaired with 4 gauge galvanized steel with die-cast support frame members. Plenum shall be lined with 3/8-inch thick, 25-pound density insulation, black plastic bonded fiberglass, mat-faced.
2.3 Nozzles shall be provided in vertical strips, precision-molded from heat-resistant thermoplastic material. Nozzles shall be designed for temperature range encountered with pressures up to 3-1/2 inch wg. Nozzle strips shall be mechanically sealed and locked to nozzle frame.
2.4 Dampers shall be multiple hole design and shall extend the full length of the plenum. Adjustment shall be provided by manual push-pull operator located next to the primary air inlet.
2.5 Coils shall be designed for 300 psi working pressure.
3.0 EXECUTION:
3.1 Induction units shall be installed level, using shims if required, and anchored to the floor.
3.2 Damage to galvanized coatings shall be repaired in compliance with Mil. Spec. DOD-P-21035.

Air Handling Units

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of air handling units. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Built-up air handling units (AHUs) shall consist of casings, fan sections, coils, filter boxes, mixing boxes, dampers, and other equipment as required. All AHUs shall be certified in accordance with ARI 430. Coils shall be certified in accordance with ARI 410. Electric heating coils shall meet the requirements of UL and the National Electric Code. AHUs shall also conform to the requirements of NFPA 90A and all applicable SMACNA standards.
3.0 EXECUTION:
3.1 Air handling units shall be installed to conform with NFPA 90A and applicable SMACNA standards.
3.2 Welding shall be performed in compliance with AWS D1.1.

Centrifugal Fans

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of centrifugal fans. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Fan Performance:

2.1.1 New fans shall comply with AMCA 210, 300, and 301.

2.1.2 Capacity and performance of new or repaired fans shall be based on standard air density (0.075 pounds per cubic foot). Fans shall have a peak static efficiency of not less than 60 percent.

2.2 Fan wheel and Shaft:

2.2.1 Aluminum Fan wheels shall comply with Fed. Spec. QQ-A-596. Fan wheels for wall exhaust fans shall be constructed of aluminum complying with ASTM B 209. Steel for the Fan wheels shall comply with ASTM A 366.

2.2.2 Fan shaft shall be turned, ground, and polished carbon steel alloy.

2.2.3 Fan shaft shall be tubular with swaged ends accurately finished.

2.3 Fan housing:

2.3.1 Fan housing shall be carbon steel sheet complying with ASTM A 569, except wall exhaust Fan housings shall be spun aluminum complying with ASTM B 209.

2.3.2 When the fan discharge of the existing housing to be replaced is changeable, discharge of the new housing shall be easily changed in compliance with AMCA 99.

2.4 Inlet Boxes: Steel for repairs shall be carbon steel sheet complying with ASTM A 569.

2.5 Bearings:

2.5.1 Precision antifriction bearings shall comply with Fed. Spec. FF-B-171.

2.5.2 Sleeve bearings shall be self-aligning sleeve bearings.

2.5.3 Roller bearings shall be self-aligning, high load capacity, grease-lubricated, heavy-duty, pillow block type.

2.5.4 Wall exhaust fan bearings shall be sealed-in lubrication, antifriction type adequate for both radial and thrust loads occurring in the mounting.

2.6 Fan belts shall comply with RMA Engineering Standards for Multiple V-Belt Drives. Belts for multiple belt drives shall be installed in matched sets only.

2.7 Insulation in Fan housing shall be mineral fiber complying with Fed. Spec. HH-I-558, Form B, Type 1. Adhesive shall be fire resistive adhesive complying with Mil. Spec. MIL-A-3316.

3.0 EXECUTION:

3.1 Balancing: Centrifugal Fan wheels, repaired or new, shall be balanced statically and dynamically.

3.2 Welding shall be performed in compliance with AWS D1.1.

3.3 Damage to galvanized coatings shall be repaired by application of galvanizing repair point in compliance with Mil. Spec. DOD-P-21035.

Axial Flow Fans

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of axial flow fans. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Capacity and performance shall be based on standard air density (0.075 pounds per cubic foot). Fans shall have a peak static efficiency of not less than 60 percent. New fans shall comply with AMCA 210, 300, and 301.

2.2 Fan wheel repair material shall be sheet aluminum complying with ASTM B 209. New wheels shall be of airfoil design and shall be statically and dynamically balanced at the factory.

2.3 Fan shafts shall be turned, ground, and polished steel of suitable size to operate well below first critical speed.

2.4 Fan housing shall be 22 gauge, welded carbon steel complying with ASTM A 569.

2.5 Propeller guards, when required, shall be sheet metal complying with ASTM A 366 or hot-dip

galvanized were complying with ASTM A 641.
2.6 Bearings shall be sealed-in lubrication, anti-friction type adequate for both radial and thrust loads occurring in the mounting.
2.7 Fan belt shall comply with RMA Engineering Standards for Multiple V-Belt Drives. Belts for multiple belt drives shall be installed in matched sets only. Belt guards shall comply with OSHA.
2.8 Insulation in Fan housing shall be mineral fiber complying with Fed. Spec. HH-I-545. Adhesive shall be fire resistive adhesive complying with Mil. Spec. MIL-A-3316.
3.0 EXECUTION:
3.1 Welding shall be performed in compliance with AWS D1.1.
3.2 Damage to galvanized coatings shall be repaired by application of galvanizing repair in compliance with Mil. Spec. DOD-P-21035.

Power Roof Ventilators

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of power roof ventilators. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 PRV Performance:
2.1.1 New PVRs shall comply with AMCA 210, 300, and 301.
2.1.2 Capacity and performance of new and repaired PRVs shall be based on standard air density (0.075 pounds per cubic foot). Fans shall have a peak static efficiency of not less than 60 percent.
2.2 Fan wheel shall be centrifugal, axial flow, or turbine type, non-overloading, constructed of aluminum complying with ASTM B 209.
2.3 Fan shaft shall be turned, ground, and polished steel of suitable size to operate well below first critical speed.
2.4 Bearings shall be sealed-in lubrication, anti-friction type adequate for both radial and thrust load occurring in the mounting.
2.5 Fan housing shall be spun aluminum complying with ASTM B 209. The housing shall be weatherproof with 360 degrees discharge air pattern.
2.6 Fan belt shall comply with RMA Engineering Standards for Multiple V-Belt Drives. Belts for multiple belt drives shall be installed in matched sets only.
2.7 Insulation in fan housing shall be mineral fiber complying with Fed. Spec. HH-I-558, Form B, Type 1. Adhesive shall be fire resistive adhesive complying with Mil. Spec. MIL-A-3316.
2.8 Roof curb shall be prefabricated, with continuous welded water-tight seams. The curb shall be of the roofed-over, flashing type, with built-in cant strip.
2.9 Back draft dampers for installation in the roof curb shall be multiple blade type, constructed of aluminum complying with ASTM B 209.
3.0 EXECUTION:
3.1 Balancing: Centrifugal Fan wheels, repaired or new, shall be balanced statically and dynamically. Propeller fans shall be statically balanced.
3.2 Welding shall be performed in compliance with AWS D1.1.
3.3 Damage to galvanized coatings shall be repaired by application of galvanizing repair paint in compliance with Mil. Spec. DOD-P-21035.

Diffusers, Registers, Grilles and Louvers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of diffusers, registers, grilles, and louvers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Supply air ceiling diffusers shall be constructed of aluminum or steel and shall be furnished with

volume control dampers. Provide ceiling-mounted diffusers with rubber gasket sponge and ceiling frames for anti-smudging protection.

2.2 Supply air slot diffusers for sidewall, sill, or floor mounting shall have 1/2-inch bar spacing with 0 degrees or 15 degrees deflection. Construction shall be extruded aluminum. Furnish with volume control damper.

2.3 Return air registers shall be constructed of aluminum or steel and shall be furnished with opposed blade volume control dampers.

2.4 Return air ceiling registers shall be constructed of aluminum with aluminum or plastic egg crate grille.

2.5 Grilles shall be as specified for registers, without volume control damper.

2.6 Louvers shall be in accordance with SMACNA Duct Construction Standards - Metal and Flexible. Louvers shall be constructed of aluminum or steel and shall be furnished with birdscreens. Louvers shall bear the AMCA Certified Ratings Seal for air performance and water penetrations ratings as described in AMCA 500.

2.7 Inlets and outlets shall be sound rated and certified in accordance with ADC 1062R4 in sound power level, dB referenced to 10 to the minus 12 watt, in octave bands 2 through 8. Performance shall be certified in accordance with ADC 1062R4.

2.8 Inlets and outlets shall follow recommended noise levels as stated in SMACNA Manual for HVAC Systems Duct Design.

3.0 EXECUTION: Diffusers and registers shall be installed in accordance with applicable SMACNA Standards.

3.1 Return air registers/grilles shall be similar to supply air registers/diffusers when applicable.

Air Cleaning Devices

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of air cleaning devices. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Throwaway panel filters shall be constructed of glass, paper, or fabric media with a UL listing of Class 2 and shall be 1 or 2 inches thick as required. The filters shall have an initial resistance not greater than 0.30 inch w.g. at a face velocity of 500 fpm.

2.2 Extended surface self-supporting filters shall be constructed of UL-listed Class 1 or Class 2 fibrous media, integral media support, and a rigid galvanized steel frame. Nominal thickness shall be 12 inches. Filter dustspot efficiency shall be rated in accordance with ASHRAE 52 Test Standard.

2.2.1 Filters rated at 60-65 Percent Dustspot Efficiency shall have an initial resistance not greater than 0.50 inch w.g. at 500 fpm face velocity.

2.2.2 Filters rated at 80-85 Percent Dustspot Efficiency shall have an initial resistance not greater than 0.60 inch w.g. at 500 fpm face velocity.

2.2.3 Filters rated at 90-95 Percent Dustspot Efficiency shall have an initial resistance not greater than 0.70 inch w.g. at 500 fpm face velocity.

2.3 Extended surface non-supported filters shall be constructed of UL-listed Class 1 or Class 2 fibrous media. Individual bags shall be retained by a galvanized steel frame. Filter dustspot efficiency shall be rated in accordance with ASHRAE 52 Test Standard.

2.3.1 Filters rated at 60-65 Percent Dustspot Efficiency shall have an initial resistance not greater than 0.35 inch w.g. at 500 fpm face velocity.

2.3.2 Filters rated at 80-85 Percent Dustspot Efficiency shall have an initial resistance not greater than 0.45 inch w.g. at 500 fpm face velocity.

2.3.3 Filters rated at 90-95 Percent Dustspot Efficiency shall have an initial resistance not greater than 0.55 inch w.g. at 500 fpm face velocity.

2.4 Automatic renewable roll filters shall be constructed of 2-inch thick, viscous-coated, UL-listed Class 1 or Class 2 fibrous media. Filter initial resistance shall be not greater than 0.50 inch w.g. at 500 fpm face velocity. Filter efficiency shall be 80-85 percent when tested in accordance with ASHRAE

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2.5 Permanent washable panel filters shall consist of galvanized steel media and frames, 1-inch or 2-inch thickness as required. Filters shall have an initial resistance not greater than 0.10 inch w.g. at 500 fpm face velocity.

2.6 HEPA filters shall be constructed of UL-listed Class 1 glass fiber media sealed in a rigid casing. Filters shall be rated by the DOP Test Method on 0.3 micron particles. Filter initial resistance shall not be greater than 1.0 inch w.g. for the rated airflow. Filters shall be furnished complete with necessary gaskets.

2.6.1 Filter rated for 150 fpm Face Velocity with 95 percent DOP efficiency; 6-inch filter depth.

2.6.2 Filter rated for 250 fpm Face Velocity with 95 percent DOP efficiency; 12-inch filter depth.

2.6.3 Filter rated for 150 fpm Face Velocity with 99.99 percent DOP efficiency; 6-inch filter depth.

2.6.4 Filter rated for 250 fpm Face Velocity with 99.99 percent DOP efficiency; 12-inch filter depth.

2.7 Activated carbon filters shall be constructed of epoxy-coated perforated steel trays containing the activated carbon. Individual trays shall mount in a gasketed side access housing. The unit shall have an initial resistance of 0.35 inch w.g. at 500 fpm face velocity.

2.8 Electronic air cleaners shall consist of an electrostatic agglomerator section and a renewable fibrous glass collector. The unit shall provide a dustspot efficiency of 90 percent at 500 fpm face velocity. Typical operating resistance shall be 0.40 inch w.g.

2.9 Dust collectors shall be the dry centrifugal type complete with integral blower, dust separator, and hopper.

3.0 EXECUTION: Install filters in accordance with applicable sections of NFPA 70, 90A, and 90B.

Tailpipe Exhaust Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of tailpipe exhaust equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Capacity and performance shall be based on standard air density (0.075 pound per cubic foot). Fans shall have a peak static efficiency of not less than 60 percent.

2.2 Blowers and accessories shall comply with AMCA 210, 300, and 301. Fan impellers shall be constructed of heavy gauge steel and accurately balanced both statically and dynamically when installed in the assembled fan unit. Impeller and housing in the air stream shall be coated with neoprene, epoxy, phenolic resins, or other material suitable to resist the corrosive gases and temperatures encountered. Fans to be mounted on exterior of building shall be provided with weatherproof covers.

2.3 Exhaust duct and fittings for vehicle tailpipe exhaust systems shall be constructed of galvanized sheet steel. Sheets shall conform to Fed. Spec. QQ-S-775, Class D or ASTM A 525. Ductwork shall be constructed with minimum metal gauge thickness and reinforced as required in the SMACNA Duct Construction Standards - Metal and Flexible.

2.3.1 Tailpipe adapter shall be not less than 20-gauge corrosion-resisting steel. The adapter shall be of the tapered cone type with spring clip or other suitable device for exhaust pipe attachment.

2.3.2 Flexible exhaust tubing shall be 0.012 minimum thickness galvanized sheet steel or heat-resistant, reinforced wire, fiberglass, and neoprene tubing.

2.3.3 Dampers shall be of the circular disk type with quadrant locking device or blast gate type.

2.3.4 A flexible tubing suspension system shall be furnished and installed for repaired tailpipe exhaust systems where no such suspension system exists. The flexible tubing suspension system shall suspend the flexible tubing overhead when not in use, allowing it to be lowered to the operating level, when required. The suspension system installed shall be complete with cable, pulleys, and operating mechanism.

3.0 EXECUTION:

3.1 Ductwork joints in galvanized sheet steel ductwork shall be soldered or otherwise sealed. The lock seam in straight sections shall be located on top of the duct. Seams shall be suitable for 10-inch

water gauge static pressure. Ductwork shall be constructed with minimum metal gauge thickness and reinforced as required in the SMACNA Duct Construction Standards - Metal and Flexible.

3.2 Weather-resistant finishes of items located outdoors shall meet the requirements of ASTM B 117.

Ductwork and Accessories

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of ductwork and accessories. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Metal duct and equipment casings, housing, and plenums shall be fabricated in accordance with SMACNA Duct Construction Standards - Metal and Flexible and shall comply with NFPA 90A, 90B, and 91. Metal gauge shall generally be in accordance with SMACNA standards but in no case shall be less than existing duct gauge.

2.1.1 Galvanized steel shall comply with ASTM A 527 and with ASTM A 525 for zinc coating.

2.1.2 Black steel shall comply with ASTM A 569.

2.1.3 Aluminum shall comply with ASTM B 209.

2.1.4 Stainless steel shall comply with ASTM A 167.

2.2 Fibrous glass duct shall be fabricated in accordance with SMACNA Fibrous Glass Duct Construction Standards.

2.3 Flexible duct shall be in accordance with NFPA 90A and SMACNA Duct Construction Standards - Metal and Flexible and shall be UL listed.

2.4 Flexible connectors shall be in accordance with NFPA 90A and shall be UL listed.

2.5 Sealants shall be in accordance with SMACNA Duct Construction Standards - Metal and Flexible.

2.6 Hangers and supports shall be constructed of galvanized steel or other corrosion-resistant material in accordance with SMACNA Duct Construction Standards - Metal and Flexible.

2.7 Ductwork accessories shall be in accordance with SMACNA Duct Construction Standards - Metal and Flexible.

2.8 Paint for repair of galvanized surfaces shall comply with Mil. Spec. DOD-P-21035.

3.0 EXECUTION:

3.1 Ductwork: Damaged sections of duct shall be repaired by patching or by replacing complete sections. Work shall comply with the applicable sections of SMACNA Duct Construction Standards - Metal and Flexible, and NFPA 90A, NFPA 90B, or NFPA 91.

3.2 Flame Cutting: No cutting by torch or flame shall be done without authorization from the Authorized Member Representative.

3.3 Welding shall be performed in compliance with AWS D1.1.

3.4 Damage to galvanized coatings shall be repaired by application of galvanizing repair paint.

Control and Fire Dampers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of control and fire dampers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 New control dampers may be of parallel or opposed blade design and shall be tested in accordance with the requirements of AMCA 500 for the specific performance characteristics required. Construction shall be in accordance with the requirements of SMACNA construction standards, as well as ASHRAE recommendations pertaining to construction of duct accessories.

2.2 New fire dampers may be of single blade, multi-blade, or curtain design and shall be tested in accordance with the requirements of UL 555. Fire dampers shall be UL listed and/or FM approved for their intended use. Fire dampers shall also conform to the requirements of the SMACNA Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems.

3.0 EXECUTION:

3.1 Control damper installation and repair work shall be in compliance with applicable portions of details of construction, as shown in ASHRAE and SMACNA standards.

3.2 Fire damper installation and repair work for dampers in air conditioning and ventilating duct openings, through walls and floors, shall be in compliance with the requirements of NFPA 90A and the SMACNA Fire, Smoke and Radiation Damper Installation Guide for HVAC Systems. Fire damper installation and repair work for dampers in wall openings without ducts shall be repaired or replaced in compliance with the requirements of NFPA 80, when such openings are not passageways.

Sound Attenuators

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of sound attenuators. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Sound attenuators shall be constructed of galvanized steel with acoustical baffle as required to provide the desired attenuation. Methods for presenting sound attenuation data shall be consistent with the ASHRAE Handbook Series.

3.0 EXECUTION: Installation shall comply with the SMACNA duct construction standards.

Control Devices for Mechanical Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of control devices for mechanical equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Controls may include sensors, transducers, controllers, controlled devices, and other accessories as required. Typical items include thermostats, humidistats, aquastats, controllers, control valves, dampers, specialized control packages, air supply packages, tubing, control wiring, and panels. Where a complete control system is replaced, all new control components shall be by the same manufacturer.

2.2 Offeror may provide a computer workstation, only when designed to monitor specific data points, equipment or levels throughout the HVAC system. The workstation must meet the following minimum specifications; CPU will be 1ghz Pentium III (or equal) or higher, CD-ROM speed will be 36x, or higher, operating system will be Windows NT 3.51 or Windows 2000 (or equal) or higher, and will be preinstalled by offeror, systems will be Energy Star compliant, AC power adapter will be standard, minimum of 128MB of RAM or higher, 512KB level 2 cache, or better, 10 GB hard drive or better, Parallel port for connection to printer, 15" 1024x768 SVGA video display, or better, mouse or pointing device, full size standard keyboard, parallel Ink jet / Bubble Jet color printer, 300 dpi or better.

2.3 Battery backup and surge suppression unit shall be included. This unit shall protect the connected equipment from electrical spikes, surges, brown outs and related problems. It shall also provide a minimum of 5 minutes battery power to allow for proper shutdown during electrical outages. The unit shall allow for the connection of at least two devices. The unit shall be manufactured by APC, or other well known manufacturers of equal or better quality.

3.0 EXECUTION:

3.1 All control components other than those located in finished spaces shall be clearly tagged.

3.2 Control valves shall be mounted horizontally with operator up unless otherwise directed by the Authorized Member Representative.

3.3 Instrument air for pneumatic controls shall be clean, dry, oil-free compressed air.

3.4 It shall be possible to group system alarms by type and category, with categories being subsets of each type.

3.5 The system shall be programmed to dial at least 5 different digital pagers when selected alarms occur. Because the member may have multiple sites (now or in the future), the system shall send a minimum 3-digit code to pagers to identify the site where the alarm exists. The member will define these pager number and codes.

3.6 It shall be possible, based on time of day, date and holiday schedules to disable the alarm dial out to pagers.

3.7 System software will allow dial in from a remote location at a communications rate of 28.8 kbaud or higher.

3.7 The system shall have a user defined remote access password for protection against unauthorized dial-in to the system. This remote access password shall be different from passwords used by individual system operators for onsite access to the system.

3.8 System software shall log all incoming alarms, sorted by system site, in chronological order and shall store the last 250 alarms for each system site. The receipt of an alarm shall be announced by a visible screen indication and also by an audible beep. The visible and audible alarm indications shall continue until the alarm is acknowledged by the HVAC monitoring system operator. Alarms shall be stored in separate logs for each site.

3.9 Programming on global controllers shall reside in EEPROM or battery backed memory. The battery shall preserve programming for at least 15 days.

3.10 It shall be possible to enter or modify programming at all levels of the system, including UCs, while the system is operating by using the HVAC monitoring system to download programming over system communication lines. It shall also be possible to perform these same functions from a remote dial-in site as well.

3.11 The system software shall be capable of executing any control sequence that can be flow charted in a time sequential manner.

3.12 It shall be possible for the system operator to enter unique heating and cooling occupied set points for each zone.

3.13 It shall be possible to install just one outdoor temperature sensor on the system and use the value from that sensor for optimal start for all zones.

3.14 To perform an optimal start of a zone the software shall consider the outside temperature and the indoor zone temperature and shall calculate, based on the indoor/outdoor temperature difference and historical minutes/degree information for that particular zone, the amount of time required for a cool down or warm-up from the current zone temperature to the occupied zone temperature set point. The software shall then calculate the Optimal Start Time for the zone by beginning with the occupied time given in the time schedules and subtracting the time required for a cool-down or warm-up. The Optimal Start software shall then actually start the zone at the calculated Optimal Start Time.

3.15 All calculations for Optimal Start shall be totally automatic and self-learning and shall require no input from either the offeror or system operator.

3.16 For each a/c unit, the system shall produce an alarm if it takes too long for morning warm-up or cool-down. The amount of difference that will create an alarm shall be a global value for each typical a/c system and shall be programmable by the system operator. The purpose of this alarm is to identify a/c units that start unusually early thereby causing central plant equipment to run longer than necessary.

3.17 The system shall have a minimum of 10 security levels and 30 passwords. Each password shall consist of a minimum of 4 alphanumeric characters. Each password shall have a system operators name and a security level associated with it.

3.18 Passwords shall never be displayed on the monitor unless someone authorized to change passwords has logged onto the system and requested to see the passwords.

3.19 It shall be possible to assign one of the 10 security levels to each of the following system functions for the purpose of controlling access to those functions: Acknowledgement of alarms, creation or changing of time schedules, creation or changing of holiday schedules, viewing any field generated display, creation or changing of field generated displays, computer backup functions, assignment of point types, electric demand limiting, ddc software, energy logging, current alarm listing, alarm history, assignment of alarm types/categories to each point, viewing trendlogs, creation or

changing of trendlogs, computer peripheral configuration, changing system time and date, viewing transmission error summary, viewing or editing passwords or password assignments, viewing operator activity log.

3.20 The system shall have an operator activity log that automatically records all system operator activity. It shall time sequentially record all control actions taken at the system keyboard and shall record who took those actions. As a minimum, the system shall store the most recent 200 items of operator activity.

3.21 If there is no keyboard activity for a period not greater than 15 minutes then the system shall assume the operator has forgotten to log off. The system shall automatically log off all operators currently logged in at the inactive terminal.

3.22 A minimum of 100 different time schedules shall be available for controlling system functions based on time of day and type of day. It shall be possible to assign a nearly unlimited number of points to each time schedule. It shall be possible to assign a unique name of up to 40 characters to each time schedule to identify the purpose of the schedule.

3.23 Each time schedule shall have room for a different set of entries for each of eight days, the 7 days of the week and a holiday. It shall be possible to have at least 6 on-off events per day.

3.24 There shall be a minimum of 20 holiday schedules. A holiday schedule shall be a list of consecutive dates on which the holiday time schedule is applied.

3.25 It shall be possible to assign a nearly unlimited number of points or a/c systems to each holiday schedule.

3.26 For each individual digital output, analog output, or set point, it shall be possible to assign one time schedule and one holiday schedule.

3.27 It shall be possible for the system operator to create dynamic full screen graphic displays on the system monitor. The system operator shall have complete control over the type and arrangement of information displayed. It shall be possible to display such static information as floor plans, piping and duct arrangements, equipment locations, etc. It shall also be possible to overlay dynamic information such as on/off status of points, temperatures, flow rates, etc on a static display. On any graphic is shall be possible to locate as many target points as desired within the physical space limits of the graphic.

3.28 For floor plans, it shall also be possible for the owner to create static portions of graphic displays using AutoCAD and then use the system graphics capability to overlay dynamic data onto the imported AutoCAD displays.

3.29 When the system operator initially displays a graphic on the screen the information shown on the graphic shall be current. This information shall be updated at any time by the system operator, by the simple push of a button. Dynamic graphic information shall automatically update at least once every thirty seconds.

3.30 It shall be possible to link any one graphic to one or more different graphics through the use of target points. A target point is a physical location on a graphic on which a movable cursor can be located. When the cursor is positioned on a target point it shall be possible to display the graphic assigned to the target point by clicking on the point with a mouse.

3.31 There shall also be a dedicated previous function key for the purpose of displaying the graphic that was most recently displayed prior to the currently displayed graphic. This function key will allow a system operator to step backwards in reverse order through a series of graphics that he has previously displayed.

3.32 For any output point shown on a graphic, it shall be possible for the system operator to manually override the point to any desired value while simultaneously observing the graphic. Such commands shall include digital commands such as on/off and/or analog commands such as changes in set point values.

3.33 As part of the initial system installation the system installer shall include, but not be limited to the following graphic displays; One for each fan coil or air handler or a/c unit, one for the central plant showing a/c system piping and automatic valves, one (or more) for each chiller showing all points of system interface, including open protocol points if applicable, site plan with target points on each building, one (or more if necessary) for each building showing room numbers with target points on each room.

3.34 For wall mounted room temperature sensors it shall be possible for the system operator to program an independent override time in one hour increments up to at least 16 hours for each sensor override button. It shall be possible to program 10 hours override if no override from a sensor override button is authorized.

3.35 It shall be possible to assign more than one a/c unit to any one override button.

3.36 If equipment assigned to an override button is already on or in the occupied mode, due to either time schedules or a previous push of an override button, the system shall ignore additional user overrides.

3.37 If equipment assigned to an override button is off or in the unoccupied mode when the button is pushed then the equipment shall be commanded on or be switched to the occupied mode for the programmed override time period.

3.38 The system shall be able to simultaneously sample and store the values of at least 300 input-output points, either digital or analog. It shall be possible to program data sampling intervals over a range from one minute minimum to at least sixty minutes in one minute increments. It shall also be possible to program trend logs to sample only when an analog changes value by a minimum programmable amount, or when a digital point changes state.

3.39 The trend log for each input-output point shall store not less than 1500 samples. When a trend log becomes full the most recent samples shall continue to be stored and the oldest samples shall be dropped from the log as required to make room for the most recent samples.

3.40 It shall be possible for the owner to do an automatic a/c unit performance test. The test shall have 2 segments; a cooling segment and a heating segment. In the cooling segment, the heat is off and cooling is on 100%. In the heating segment, the cooling is off and the heat is on 100%. This test is intended to be applicable only for the typical a/c unit, not for kitchen makeup, central plant a/c, electrical rooms, or other non-typical systems.

3.41 Initiation of a performance test shall automatically enable the central plant, if applicable, and shall cause the plant to operate so that design water temperatures are produced during tests.

3.42 The maximum time for each segment shall be separately programmable by the Owner. The time for each segment shall be globally programmable for all a/c units by changing one point on the system display.

3.43 For each a/c unit, the system shall record and display the difference between room temperature and supply air temperature at the end of the heating and cooling segments of the most recent test as an indication of performance of the a/c unit.

3.44 It shall be possible for the system operator to enter a global alarm differential temperature set point for the heating segment. If the differential temperature attained is not greater than the alarm differential a heating alarm will occur. Likewise, it shall be possible to enter a global alarm differential temperature set point for the cooling segment. If the differential temperature attained is not greater than the alarm differential a cooling alarm will occur. The alarm differential temperature set point for cooling shall be initially programmed at 16°F. Thus if supply air temperature at the end of the cooling segment is not at least 16° below room temperature a cooling alarm will occur. The alarm differential temperature set point for heating shall be initially programmed at 20°F. Thus if supply air temperature at the end of the heating segment is not at least 20° above room temperature a heating alarm will occur.

3.45 It shall be possible for the system operator to manually prevent either segment of the full test, either heating or cooling, from occurring by simply operating a point on the system display.

3.46 To avoid setting an electrical demand peak, not all a/c units shall be tested at the same time. A/C units shall be placed in logical groups for purposes of this testing. While one group is being tested, other groups shall be prevented from testing. Tests shall be implemented one group at a time on command of the system operator. It shall also be possible to implement the test on one a/c unit at a time.

3.47 To avoid setting an electrical demand peak, not all a/c units shall be tested at the same time. A/C units shall be placed in logical groups for purposes of this testing. While one group is being tested, other groups shall be prevented from testing. Tests shall be implemented one group at a time on command of the system operator. It shall also be possible to implement the test on one a/c unit at a time.

3.48 The system shall not perform a test unless the chilled water (CHW) and/or hot water (HW) supply temperature to the building is within design water temperature limits. Design temperatures shall be entered by the system installer and shall be changeable by the system operator. If during a test the CHW supply temperature rises more than two degrees above design, or if HW supply temperature drops more than five degrees below design, the system shall terminate the test and notify the system operator. Results of a test terminated due to inadequate water temperature shall not be recorded.

3.49 The system shall not start a heating segment unless the a/c units room temperature is less than 80°F at the start of the segment. The system shall not start a cooling segment unless the a/c units room temperature is greater than 75°F at the start of the segment. This start/no start decision shall be made automatically by the system on a unit by unit basis. If a unit is prevented from performing a segment by these temperature limits it shall have no affect on tests for other a/c units in the group, and the results of the previous test shall continue to be displayed for that a/c unit. If room temperature goes outside these limits after a segment has started the segment shall continue without interruption. These room temperature limits shall be global set points applicable to all a/c units. These set points shall be entered by the system installer and shall be changeable by the system operator.

3.50 The system shall monitor fan running hours on all fan coils, air handlers, and outside air fans, plus all central plant equipment such as pumps, cooling tower fans, and chillers. Either it shall be possible for the system operator to program maintenance alarms based upon calendar dates or running hours for all equipment start/stop controlled or status monitored by the system.

3.51 The system operator shall be able to create a maintenance work order for each item of controlled or status monitored equipment. To save programming time, it shall be possible to assign the same work order to more than one a/c unit or item of equipment. The work order shall automatically print when a maintenance alarm occurs on a unit to which the work order is assigned.

3.52 HVAC system software shall allow operation, programming and configuration of BACnet components along with non-BACnet components.

3.53 HVAC system software shall as a minimum support Point-to-Point (PTP) and either Ethernet or ARCnet BACnet LAN types. It shall communicate directly via these BACnet LANs as a native BACnet device. HVAC system software shall be of BACnet conformance class 6 and support all BACnet services.

3.54 Energy management software provided must provide direct digital control and monitoring of a wide range of HVAC equipment such as water chilling units, boiler systems, controlling pumps and cooling towers. Software must have the ability to control equipment from more than one manufacturer. If a software license is necessary to gain access to any equipment, the cost of that license [or password] will be included in any initial quotation to a Mohave member.

3.55 All components and systems being proposed may be based on the BACnet or comparable protocols. If the equipment being proposed is based on these protocols, please indicate that in the appropriate specification section and in the pricing information.

3.56 Any components being proposed using the BACnet protocol will comply with BACnet standard ANSI/ASHRAE 135-1995.

3.57 Any components, products or systems being proposed with the BACnet or comparable protocols will indicate the following information; conformance class supported (Class 1-6), functional groups supported, standard application services supported, standard object types supported; data link layer options, character sets supported, routing capabilities, property range descriptions and any other special information. Please include this information after the applicable performance specification.

Testing and Balancing of HVAC Systems

1.0 DESCRIPTION OF WORK: This specification covers testing and balancing of HVAC systems.

2.0 PRODUCTS: (Section not used.)

3.0 EXECUTION:

3.1 Test and balance contractor shall be certified by the National Environmental Balancing Bureau (NEBB) or the Associated Air Balance Council (AABC).

3.2 Certified test reports shall be submitted by the Contractor to the Authorized Member

Representative. Test reports shall comply with the standards, listed below, of the selected test and balance association.

3.2.1 NEBB-01, Procedural Standards for Testing - Adjusting - Balancing of Environmental Systems.

3.2.2 AABC National Standards for Total System Balance (AABC MN-1).

3.3 Test and balance work shall be in accordance with the standards of the selected test and balance association. The work shall also comply with the recommendations of ASHRAE pertaining to instruments, measurements and procedures and with SMACNA-07, HVAC Systems - Testing, Adjusting and Balancing.

3.4 Systems shall be tested at near maximum load conditions. Cooling systems shall be tested in summer; heating systems shall be tested in winter.

3.5 Equipment settings including dampers, valves, and similar equipment shall be marked to show final positions at the completion of balancing.

DIVISION 26-ELECTRICAL

Wiring Systems Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of wiring systems equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Copper Wire: ASTM B 3, ASTM B 8.

2.2 Aluminum Wire: ASTM B 230, ASTM B 231.

2.3 Busways and Fittings: UL 857, NEMA BU 1.

2.4 Plugs and Receptacles: UL 498, NEMA WD 1 and NEMA WD 6.

2.5 Conduit: ANSI C80.1, C80.3, and C80.5 and NEMA RN 1.

2.6 Enclosures: NEMA ICS 6 and OS 1.

2.7 Specific Purpose Wiring Devices: NEMA WD 1, NEMA WD 6.

2.8 General Electrical: NFPA 70.

2.9 Flexible Metal Conduit: UL 1.

2.10 Surface Metal Raceways and Fittings: UL 5.

2.11 Liquid-Tight Flexible Steel Conduit: UL 360.

3.0 EXECUTION:

3.1 Coordination: Contractor shall determine that the wiring system has been de-energized. Before de-energization, the Contractor shall ensure that equipment served by the wiring system will not be damaged by the power outage.

3.2 Clearances: Working clearances shall comply with NFPA 70.

Motor Generator Sets

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of motor generator sets. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Batteries: SAE J537 and UL 1236, and IEEE 484 and 485, as applicable.

2.2 Instrument Transformers: ANSI C12.11.

2.3 Motor and Generator: NEMA MG 1 and MG 2.

2.4 Battery Charger: UL 1236.

2.5 Switchgear: NEMA SG 5.

2.6 Electrical Instruments: ANSI C39.1.

3.0 EXECUTION:

3.1 Coordination and Scheduling: Outages shall be scheduled and coordinated in advance with the

Authorized Member Representative.

3.2 Protection: Take precautions to prevent injury to personnel and to avoid damage to equipment and other property in compliance with ANSI C2.

3.3 Maintenance, Repair, or Replacement Work: The Contractor shall check the generator sets in accordance with the manufacturer's instructions and Mil. Std. MIL-STD-705, MIL-HDBK-705, IEEE-43, IEEE-115, and SSPC-PA-1. As a result of the testing or for preventive maintenance, the Contractor shall maintain, repair, or replace any piece of equipment requiring work.

Electrical Distribution System Substation Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of electrical distribution system substation equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: The maintenance and repair work shall include, but not be limited to the following major equipment:

a. Power Transformers.
b. Station Service Transformers.
c. Automatic Tap Changing Transformers.
d. Switchgear.
e. Oil Circuit Breakers.
f. Isolating Switches.
g. Metering Equipment.
h. Relaying Equipment.
i. Station Battery System.
j. Articulated Secondary Unit Substation.
k. Integral Transformer-Load Center.
l. Sulfur Hexafluoride (SF6) Circuit Breakers.

2.1 Power Distribution Panel: NEMA PB 1, U.L. 67.

2.2 Insulating Oil, Electrical (For Transformers, Switches, and Circuit Breakers): ASTM D 923.

2.3 Distribution, Power, and Regulating Transformers: ANSI 462 series as applicable.

2.4 Instrument Transformers: ANSI C57.13.

2.5 Installation and Maintenance of Oil-Immersed Transformers: ANSI/IEEE C57.12.00.

2.6 Voltage Air Switches, Bus Supports, and Switch Accessories: ANSI/IEEE C37.30, C37.34.

2.7 Low-Voltage AC Power Circuit Breakers: ANSI C37.50.

2.8 Electrical Analog Indicating Instruments: ANSI C39.1.

2.9 Primary Unit Substation: NEMA 201.

2.10 Secondary Unit Substation: NEMA 210.

2.11 Molded Case Circuit Breakers: NEMA AB1.

2.12 Watthour Meters: ANSI C12.10.

2.13 Switchboards, Dead Front Distribution: NEMA PB 2.

3.0 EXECUTION:

3.1 Coordination and Scheduling: Outages shall be scheduled and coordinated in advance with the Authorized Member Representative.

3.2 Protection: Precautions shall be taken to prevent injury to personnel and to avoid damage to equipment and other property in compliance with ANSI C2.

3.3 Workmanship: Work shall be completed in accordance with NFPA 70.

3.4 Interruptions: During interruptions, equipment and standby systems shall be provided to maintain existing electrical service.

3.5 Fences shall be checked for security. Gates and locks shall be checked for proper operation and grounding.

3.6 Oil Handling and Disposal: Oil and oil-contaminated materials shall be handled and disposed of to comply with the latest federal and state requirements.

Transformers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of transformers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Transformer assemblies and components for replacement purposes shall be designed for the same service as existing.

2.2 Transformers covered under this specification are as follows:

2.2.1 Dry Type Transformers.

2.2.2 Instrument Transformers.

2.2.3 Control Transformers.

2.2.4 Grounding Transformers.

2.2.5 Liquid-Filled Transformers.

3.0 EXECUTION:

3.1 Safety: Take precautions in compliance with the National Electrical Safety Code (ANSI/IEEE C2); execute work in compliance with NFPA 70.

3.2 Coordination: Coordinate the work schedule with the Authorized Member Representative.

3.3 Repairs: Repair and retighten burnt or broken lugs, windings, loose bolts, nuts, and screws. Repair windings in accordance with NEMA ST 20.

3.4 Testing: Perform electrical insulation tests to verify the integrity of any repairs prior to re-energization of the transformers, unless written permission is obtained from the Authorized Member Representative stating otherwise.

3.5 Oil Handling and Disposal: Handle and dispose of oil and oil contaminated materials in compliance with the latest Environmental Protection Agency requirements.

3.6 Deficiencies, Safety Hazards, and Code Violations: Should the Contractor find or observe any deficiency, safety hazard, or code violation in the existing electrical system, equipment, devices, or installations that is not indicated or specified to be corrected under the contract, it shall be promptly reported to the Authorized Member Representative. The Contractor may submit recommendations for correction of the deficiency, safety hazard, or code violation with his report.

3.7 Additional Execution Requirements Specific to Each Type of Transformer:

3.7.1 Dry Type Transformers:

3.7.1.1 General: replacement transformers shall have a winding configuration identical to that of the existing transformer and shall comply with NEMA ST 20 and ANSI C57.12.22.

3.7.1.2 Noise isolation pads shall be checked for excessive wear and replaced if necessary.

3.7.1.3 Dust shall be cleaned from transformer winding and enclosure ventilation louvers.

3.7.2 Instrument Transformers:

3.7.2.1 Current transformers shall be manufactured in compliance with NEMA EI 21.1 and EI 21.2 and shall have an accuracy Class of 0.6 at burden designation of B-0.1 and B-0.2 and an accuracy of 1.2 at B-0.5 as defined in ANSI C57.13 for instrument transformers.

3.7.2.2 Potential transformers shall have an accuracy of 0.3W, 0.3X, 0.3Y, 1.2Z as defined in ANSI C57.13 for instrument transformers.

3.7.2.3 Fuses: Potential transformers shall be protected on the high and low voltage side by fuses.

3.7.2.4 Repair: No attempt to repair current or potential transformers shall be made.

3.7.3 Control Transformers:

3.7.3.1 Core shall be in compliance with UL 506.

3.7.3.2. Fuses: All ungrounded conductors of primary and secondary of potential transformers shall be protected by fuses.

3.7.3.3 Repair: No attempt to repair control transformers shall be made.

3.7.4 Grounding Transformers:

3.7.4.1 Replacement zig-zag grounding transformers shall be three-phase zig-zag autotransformers or six single phase transformers connected zig-zag and shall comply with UL 506.

3.7.4.2 Replacement Wye-delta grounding transformers shall be three-phase transformers or three single

phase transformers connected wye-delta and shall be in compliance with ANSI C57.12.00.
3.7.4.3 Core shall be in compliance with ANSI C57.12.00.
3.7.5 Liquid-Filled Transformers:
3.7.5.1 Replacement oil-filled transformers shall have a winding configuration identical to the existing transformer and shall comply with ANSI C57.12.00.
3.7.5.2 Gaskets shall match existing type removed.
3.7.5.3 Oil added to transformers shall be the same type as existing or shall be an oil recommended by the transformer manufacturer. Dielectric strength of oil shall not be less than 30 kV. Mineral oil shall comply with NEMA TR P8. Mineral oil shall not be added to high fire point oils such as askarel and silicone.
3.7.5.4 Repair leaks by cleaning the leak area and welding or by applying 1/4-inch thick steel plate patch and welding in place. After welding, check the repaired area for leaks, reweld if leaking, reclean, and touch up with paint. Welding shall comply with AWS D1.1.
3.7.5.5 Gaskets, vacuum and liquid level gauges found to be defective shall be replaced.
3.7.5.6 Ground resistance test readings shall be performed across phase-to-phase windings and phase-to-ground windings. Tabulate results, and submit them to the Authorized Member Representative.
3.7.5.7 Dielectric test shall be performed on oil samples taken from top and bottom filter press connections. Record and submit results to the Authorized Member Representative.
3.7.5.8 Transformer liquid levels shall be checked for correct level and filled if low. Oil added to transformers shall be same type as existing oil or shall be an oil recommended by the transformer manufacturer. Dielectric strength of oil shall not be less than 30 kV. Mineral oil shall comply with ANSI/IEEE C57.91 and C57.92. Mineral oil shall not be added to high fire point oils such as askarel and silicone.
3.7.5.9 Transformer tap connections and tap changer shall be tightened.
3.7.5.10 Pressure of inert gas in cylinders used to maintain positive pressure inside transformer tank shall be checked. Replace cylinder if pressure fails below transformer manufacturer's recommended level for gas cylinder pressure.
3.7.6 Outages and Testing of Transformers:
3.7.6.1 Service interruptions shall be held to a minimum. De-energization will be accomplished by others.
3.7.6.2 Preinstallation Test: Existing transformers that have undergone major maintenance and/or repair shall be subjected to insulation resistance tests and insulation high potential tests. The results of the tests shall be furnished to the Authorized Member Representative.
3.7.6.3 Oil Test: Transformers shall have insulating oil tested.
3.7.6.4 Insulation Test: Transformers shall have insulation tested.

Electrical Distribution Transformers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of electrical distribution transformers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Poles-Mounted Transformers: ANSI/IEEE C57 series as applicable.
2.2 Pad-Mounted Transformers: NEMA/IEEE C57 series as applicable.
2.3 Transformer Oil for Oil-Filled Units: ASTM D 923.
3.0 EXECUTION:
3.1 Outages shall be scheduled and coordinated in advance with the Authorized Member Representative.
3.2 Protection: Take precautions to prevent injury to personnel and to avoid damage to equipment and other property in compliance with ANSI C2.
3.3 Preventive Maintenance, Repair or Replacement Work: The Contractor shall perform all required tests in accordance with applicable codes and standards and the manufacturer's instructions. The Contractor shall perform preventive maintenance work, repair, replacement of any defective part, or furnish new material when required.

3.4 Oil Handling and Disposal: Oil and oil-contaminated materials shall be handled and disposed of in compliance with the latest Environmental Protection Agency requirements. Oil tests shall be in accordance with ASTM standards.
3.5 Reports: Upon completion of the work, a report of the results of the tests made shall be furnished to the Authorized Member Representative.

High-voltage Disconnecting Devices

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of high-voltage disconnecting devices. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Insulating Oil: ASTM standards applicable to the oil in use.
2.2 General Electrical: ANSI/IEEE C2.
2.3 Power Fuses and Fuse Disconnecting Switches: ANSI C37.46, NEMA SG 2.
2.4 Automatic Circuit Reclosers For AC Systems: ANSI C37.60.
2.5 Automatic Line Sectionalizers For AC Systems: ANSI C37.63, NEMA SG 13, ANSI C37.63.
2.6 Power Switching Equipment: NEMA SG 6.
2.7 Distribution Cutouts and Arrestor Combination Mounting: ANSI C37.36B, ANSI C37.42.
3.0 EXECUTION:
3.1 Scheduling and Coordination: Contractor shall ensure that power interruptions have been scheduled and approved.
3.2 Protection: Precaution, in compliance with ANSI/IEEE C2, shall be taken to prevent injury to personnel and to avoid damage to equipment and property.
3.3 Oil Handling and Disposal: Oil and oil contaminated materials shall be handled and disposed of to comply with the latest federal and state regulations.

Overhead Electrical Distribution Systems

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of overhead electrical distribution systems. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Conductors: ANSI C8.35, QQ-W-343; ANSI/IEEE C2, ASTM B 8, B 228, B 229, B 230, B 231, B 232; NEMA WC3, WC5, and WC7.
2.2 Insulators: ANSI C29.1, C29.2, C29.3, C29.4, C29.5, C29.6, C29.7, C29.8, C29.9, and NEMA HV 2.
2.3 Poles: ANSI 05.1; AWPA C4, C25, P1, P8, P9; and CSA A14.
2.4 Crossarms: REA DT-5B, AWPA C25, ANSI C2, ANSI C135.33.
2.5 Hardware: EEI TDJ-1, TD-2, TDJ-3, TD-4, TDJ-5, TDJ-6, TDJ-7, TDJ-9, TDJ-10, TD-11, TD-12, TDJ-17, TDJ-22, and TDJ-23 as applicable.
3.0 EXECUTION:
3.1 Scheduling and Coordination: Contractor shall ensure that power interruptions and blocking of thoroughfares have been scheduled and approved.
3.2 Line Clearing: Chemicals used in line clearing operations shall be in compliance with the latest federal and state requirements.
3.3 Safety Precautions: Precautions shall be taken to prevent injury to personnel and to avoid damage to equipment and other property in compliance with ANSI/IEEE C2.

Underground Electrical Distribution Systems

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of underground electrical distribution systems. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative.

Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Conductors: ASTM D 4727, ASTM D 1352, ASTM D 1679, ACIE NO. 1-68, ICEA NO. S-19-81, NO. S-66-524, and NO. S-68-516, NEMA WC 7 and NEMA WC 8, and UL 854, as applicable.

2.2 Conduits: NEMA TC 2 and NEMA TC 6, UL 6, UL 514B, and UL 543 as applicable.

2.3 Tape: U.L.

2.4 Insulators: ANSI C29 8 and C29 9.

2.5 General Electrical: ANSI C2, NFPA 70.

2.6 Testing: IEEE 48.

2.7 Concrete: Aggregate, ASTM C 33; Portland cement, ASTM C 150, Type 1; compressive strength 4,000 psi at 28 days.

3.0 EXECUTION:

3.1 Coordination: Contractor shall ensure that power interruptions and blocking of thoroughfares have been scheduled and approved.

3.2 Tests: All underground lines, splices, and terminations that have undergone maintenance, repair, or are new installation shall be tested before placement in service.

3.3 Ductbank: No dips or low points that retain water are permissible. Conduit shall be encased with not less than 3 inches of concrete when not direct-buried.

3.4 Manholes and Handholes shall be spaced and installed so as not to exceed the pulling tensions of the cables to be pulled. Maximum pulling tensions shall be as recommended by the cable manufacturer.

Electrical Distribution System Grounding

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of electrical distribution system grounding. Products shall match existing materials and/or shall be directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: (Section not used.)

3.0 EXECUTION:

3.1 Coordination and Scheduling: Contractor shall ensure that power interruptions have been scheduled and approved.

3.2 Outages: Service interruptions shall be limited in number and duration, and the extent of lines involved shall be held to a minimum.

3.3 Protection: Take precautions, in compliance with ANSI C2, to prevent injury to personnel and to avoid damage to equipment and other property.

3.4 Workmanship: Installation shall be in compliance with IEEE 80 and 142. Install protective molding, staples and conduit as recommended by these standards.

3.5 Trenching: Exercise care when digging trenches for installation or testing of ground equipment. Protect adjacent structures and properly shore excavations.

3.6 Grounding shall comply with NFPA 70, ANSI C2, and IEEE 80 and 142. Ground neutral conductors, cable shields, metallic cable sheaths and armor, metallic conduits, pothead bodies, junction boxes, lightning arresters, fence enclosures, and noncurrent-carrying metallic parts of equipment. Ground rods shall be made of copper, or copper-clad steel not less than 1-inch by 8 feet long and, except those installed in manholes, shall be driven into the earth at least 9 feet. Ground connections in earth shall not be backfilled until after inspection by the Authorized Member Representative. Repairs and maintenance of the grounding system shall include resistance measurements and tightening of all bolted connections.

Electrical Distribution System Capacitor Banks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of electrical distribution system capacitor banks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance

with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Material: New capacitors shall comply with NEMA CP 1 and shall not use impregnant containing polychlorinated biphenyls (PCB).

3.0 EXECUTION:

3.1 Outages shall be scheduled and coordinated in advance with the Authorized Member Representative.

3.2 Protection: Take precautions to prevent injury to personnel and to avoid damage to equipment and other property in compliance with ANSI C2.

3.3 Maintenance and Repair Work: Workmen shall allow the capacitor time to discharge and then short capacitor terminals together and ground before touching any live parts. Capacitors shall be checked in accordance with NEMA CP 1 and NFPA 70. Perform the necessary preventative maintenance, repair, or replacement of any of the components.

3.4 Oil Handling and Disposal: Oil and oil-contaminated materials shall be handled and disposed of to comply with he latest Environmental Protection Agency requirements.

Electrical Distribution System Voltage Regulators

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of electrical distribution system voltage regulators. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Material: New regulators shall comply with ANSI C57.15. New oil shall comply with ASTM D 923.

3.0 EXECUTION:

3.1 Outages shall be scheduled and coordinated in advance with the Authorized Member Representative.

3.2 Protection: Take precautions to prevent injury to personnel and to avoid damage to equipment and other property in compliance with ANSI C2.

3.3 Maintenance and Repair Work: All maintenance and repair work shall be accomplished and in compliance with applicable ANSI C57-series and ASTM standards.

3.4 Oil Handling and Disposal: Oil and oil-contaminated materials shall be handled and disposed of to comply with the latest Environmental Protection Agency requirements.

3.5 Test Reports on field tests made in compliance with ANSI C57.15 shall be submitted to the Authorized Member Representative.

Interior Low-voltage Disconnecting Devices

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of interior low-voltage disconnecting devices. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Switch Box (Enclosed): UL 98.

2.2 Fuse Holders and Fuses: ANSI/UL 512, 198.2, 198B, and ANSI C97.1 as applicable.

2.3 Molded Case Circuit Breakers: NEMA AB 1.

2.4 General Electrical: NFPA 70.

3.0 EXECUTION:

3.1 Coordination: Contractor shall determine that the disconnecting device has been de-energized. Before de-energization, the Contractor shall ensure that equipment served by the disconnecting device will not be damaged by the power outage.

3.2 Clearances: Work clearances required by NFPA 70 shall be provided.

Panelboards and Load Centers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of panelboards and load centers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Panelboards: NEMA PB 1, and PB 1.1.

2.2 Fuses and Fuse Holders: ANSI/UL 512, 198.

2.3 Molded Case Circuit Breakers: NEMA AB 1.

2.4 General Electrical: NFPA 70.

2.5 Enclosures Beyond Repair: Replace with the same size and type in compliance with NEMA ICS. Carbon steel, ASTM A 366; stainless steel, ASTM A 176; galvanized sheet steel, ASTM A 526.

3.0 EXECUTION:

3.1 Coordination: Contractor shall determine that equipment served by panelboards and load centers will not be damaged before or after power is cut off and that power to the panelboards and load centers has been disconnected or cut off.

3.2 Clearances: Working clearances required by NFPA 70 shall be provided.

3.3 Tests: All devices and systems that have undergone maintenance, repair, or are new installation shall be tested before placement in service.

Electric Motors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of electric motors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: Parts shall be factory-made. Existing bolts and screws that are rusted, corroded, cross-threaded, or otherwise defective and are removed due to repair work shall be replaced with new bolts and screws.

2.2 Motor assemblies and components for replacement purposes shall be designed for same service as existing. Repaired rotors shall be balanced. Brushes worn to within 20 percent of usable length shall be replaced with same type and size brushes.

2.3 New motor shall be of like kind and of the same size, performance rating, and characteristics as the existing motor to be replaced and shall comply with NEMA MG 1 and UL 1004.

2.4 Products included in these specifications are:

2.4.1 Single Phase Induction Motor.

2.4.2 Universal Motor.

2.4.3 Polyphase Squirrel-Cage Induction Motor.

2.4.4 Polyphase Wound Rotor Induction Motor.

2.4.5 Polyphase Synchronous Motor.

2.4.6 Direct Current Motor.

3.0 EXECUTION:

3.1 Compliance: Take precautions in accordance with the National Electrical Safety Code. Workmanship shall be executed in compliance with NFPA 70.

3.2 Scheduling and Coordination: Contractor shall determine that required notices have been given and that equipment served by the motor will not be damaged due to motor shutdown.

3.3 Lubrication, Operation, and Adjustment: Before operational testing, thoroughly clean electric motor of all foreign material, and lubricate all electric motors or parts requiring lubrication with the types of lubricants recommended by the electric motor manufacturer.

3.4 Deficiencies, Safety Hazards, and Code Violations: Should the Contractor find or observe any deficiency, safety hazard, or code violation in the existing electrical system, equipment, devices, or installations that is not indicated or specified to be corrected under the contract, it shall be

promptly reported to the Authorized Member Representative. The Contractor may submit recommendations for correction of such deficiency, safety hazard, or code violation with his report.

3.5 Requirements Specific To Each Motor Type:

3.5.1 Single Phase Induction Motors:

3.5.1.1 Single phase Induction Motors shall comply with ANSI/IEEE 114.

3.5.1.2 Frame sizes shall comply with NEMA MG 13.

3.5.2 Universal Motors:

3.5.2.1 Armature: Core of armatures shall be built up of annealed and insulated laminations. Commutator shall be built up of hard drawn, hard rolled copper segments insulated from each other by mica in compliance with NEMA MG 1.

3.5.2.2 Armature assembly shall be dynamically balanced for smooth operation in compliance with NEMA MG 1.

3.5.2.3 Bearings shall be sleeve bearing or ball bearing type complying with NEMA MG 1.

3.5.2.4 Brushholders shall be in compliance with NEMA MG 1.

3.5.2.5 Brushes shall be in compliance with NEMA CB 1.

3.5.2.6 Shaft shall be in compliance with NEMA MG 1.

3.5.3 Polyphase Squirrel-Cage Induction Motors:

3.5.3.1 Polyphase squirrel-cage induction motors shall comply with NEMA MG 1.

3.5.3.2 Frame size shall comply with NEMA MG 13.

3.5.4 Polyphase Wound Rotor Induction Motors:

3.5.4.1 Polyphase wound rotor induction motor shall comply with NEMA MG 1.

3.5.4.2 Frame size shall comply with NEMA MG 13.

3.5.4.3 Brushes shall be in compliance with NEMA CB 1.

3.5.4.4 Stator shall be rewound with conductors of same gauge and material as the existing stator.

3.5.4.5 Rotor shall be rewound with conductors of same gauge and material as the existing rotor.

3.5.5 Polyphase Synchronous Motors:

3.5.5.1 Polyphase synchronous motor shall comply with NEMA MG 1.

3.5.5.2 Frame size shall comply with NEMA MG 13.•16480

3.5.5.3 Brushes shall comply with NEMA CB 1.

3.5.6 Direct Current Motors:

3.5.6.1 Armature core shall be built up of annealed and insulated laminations. Commutator shall be built up of hard drawn, hard rolled copper segments insulated from each other by mica in compliance with NEMA MG 1.

3.5.6.2 Armature assembly shall be dynamically balanced for smooth operation in compliance with NEMA MG 1.

3.5.6.3 Bearings shall be ball bearing or sleeve bearing type in compliance with NEMA MG 1.

3.5.6.4 Brushholders shall be in compliance with NEMA MG 1.

3.5.6.5 Frame size shall comply with NEMA MG 13.

3.5.6.6 Shaft shall be in compliance with NEMA MG 1.

3.5.6.7 Brushes shall be in compliance with NEMA CB 1.

3.6 Outages and Testing of Electric Motors:

3.6.1 Outages and service interruptions shall be held to a minimum. De-energization will be accomplished by station forces.

3.6.2 Preinstallation Test: Existing motors that have undergone major maintenance and/or repair shall be subjected to insulation resistance tests and insulation high potential tests. Furnish the results of the tests to the Authorized Member Representative.

Recreational Vehicle (RV) Outlets

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of recreational vehicle outlets. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 30A, 20A Receptacle Pedestal: Midwest No. U041GP4 or approved equal. Each recreational vehicle outlet shall be pedestal mounted with one 30A, 120V receptacle and one 20A, 120V duplex receptacle. Each receptacle shall be protected by a dedicated integrally mounted thermal magnetic circuit breaker. The 20A circuit breaker shall be of the ground fault circuit interrupter (GFCI) type. The unit mounting pedestal shall include loop feed lugs rated for at least 100A, 240 volts, and a wire size of 250 kcmil. Similar lugs shall be provided to accommodate the equipment grounding conductor. The complete assembled unit shall be U.L. listed and shall be NEMA 3R construction. The pedestal cover shall be readily removable and shall provide direct access to the loop feed lugs. Pedestal shall be pad mounted.

2.2 50A, 30A, 20A Receptacle Pedestal: Midwest No. U075GP4 or approved equal. Each recreational vehicle outlet will be pedestal mounted with one 50A, 240V receptacle, one 30A, 120V receptacle, and one 20A, 120V duplex receptacle. Each receptacle shall be protected by a dedicated integrally mounted thermal magnetic circuit breaker. The 20A circuit breaker shall be of the ground fault circuit interrupter (GFCI) type. The unit mounting pedestal shall include loop feed lugs rated for at least 100A, 240 volts, and a wire size of 250 kcmil. Similar lugs shall be provided to accommodate the equipment grounding conductor. The complete assembled unit shall be U.L. listed and shall be NEMA 3R construction. The pedestal cover shall be readily removable and shall provide direct access to the loop feed lugs. Pedestal shall be pad mounted.

2.2 Concrete Pad: Pad shall be 24-inches square, 6-inches thick. Exposed edges shall be chamfered 1-inch. Reinforcement shall be provided consisting of #4 steel placed 12-inches from each edge. Concrete shall be a minimum of 3000 psi at 28 days. Top of pad shall extend 1-inch above finished grade.

3.0 EXECUTION: Contractor shall comply with provisions of the National Electric Code.

Poles for Street and Area Lighting Systems

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for poles for street and area lighting systems. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Wood Poles: ANSI 05.1 and shall be preservative-treated.

2.2 Steel, Aluminum, and Concrete Poles: ASTM A 500, ASTM B 209, and AASHTO Standards.

2.3 Steel Poles:

2.3.1 Structural Steel: ASTM A 36.

2.3.2 Zinc Coating: ASTM A 123.

2.3.3 Poles shall be chemically cleaned after fabrication and shall be hot-dipped galvanized in compliance with ASTM A 123.

2.4 Aluminum poles shall be of high-strength aluminum having a yield strength of 34,000 psi.

2.5 Concrete Poles: Prestressed steel reinforced, cast type in compliance with ACI 318 and 437. Cement shall comply with ASTM C 150.

2.6 Painting: Materials shall match that of existing or adjacent pole finish.

3.0 EXECUTION:

3.1 Safety precautions shall comply with applicable requirements of the National Electrical Safety Code.

3.2 Wood Pole Setting: In normal firm ground, minimum pole setting depths shall be as follows: for pole lengths of 20 feet, 25 feet, 30 feet, and 35 feet the minimum depth shall be 5 feet, 5 feet 6 inches, and 6 feet, respectively. For pole lengths up to 100 feet the minimum depth shall be 10 percent of length for both straight and curved lines, plus 2 feet for straight lines and 10 percent of length•16501 plus 2 feet 6 inches for curves and corners. In rocky or swampy ground, pole setting depths shall be respectively decreased or increased as required by local power company published standards and as approved by the Authorized Member Representative. In swampy ground, a bog shoe may be used.

3.3 Wood Pole Inspections:

3.3.1 Visually inspect standing wood poles for ground-line heart rot, aboveground heart rot, pole top

heart rot, shell rot, mechanical damage, eroded foundations, large splits, and lightning damage.

3.3.2 Coat surfaces with creosote-based wood preservative coating compound and wrap with impregnated felt bandage in compliance with wood pole preservative materials supplier's instructions.

3.4 Wood Pole Decay Maintenance:

3.4.1 Ground-line heart rot shall be treated with an approved fumigant.

3.4.2 Wood poles with surface decay below grade shall be replaced with new poles.

3.5 Concrete Repair: Repair spalling in pole foundations and concrete poles by thoroughly coating with 2,000 psi shear strength epoxy resin, applying 3,000 psi 28-day concrete, and finishing to restore original configuration of the concrete.

3.6 Steel Pole Maintenance: Steel poles that are corroded shall be chemically cleaned of rust and scale and painted.

Ballasts and Transformers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of luminaire ballasts and transformers. Products shall match existing materials and/or shall be directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Constant-current transformers shall be of the automatic, moving-coil types designed to maintain the secondary current within 1 percent of rating when operating under normal loading conditions. A protective relay that will automatically disconnect the transformer from the line on open series circuit shall be provided as an integral component of the transformer. Transformers shall be rated 10 kW, 2,400 volts, 60 hertz primary and 6.6 amperes secondary.

2.2 Fluorescent ballasts shall be high-power factor type, Class P rated, and CBM certified, rated for single or two-lamp operation. Ballasts shall be lead type for minimum starting temperature of plus 50 F.

2.3 High-intensity discharge ballasts shall be high-power factor, single lamp type. Ballasts shall be Type 2, weatherproof for outdoor use.

2.4 Lamp Ballasts: ANSI C82.1, C82.4, UL 935, and UL 1029 as applicable.

2.5 Series isolation transformers for airfield lighting systems shall be equal to the original transformers in accordance with Air Force Manual (AFM) 14, Part II, Visual Air Navigation Facilities.

2.6 Transformers, regulators and reactors shall be in compliance with the requirements of NEMA/IEEE C57.

3.0 EXECUTION: Contractor shall comply with provisions of the National Electric Code.

3.1 Maintenance and repair of regulators shall include cleaning or replacement of dirty or burned contacts, replacement of worn or broken mechanical parts and electrical insulation, cleaning and tightening connections, replacement of leaking seals and gaskets, replacement of burnt oil, stopping of tank leaks, securing of loose or broken mounts, repair of shorted windings, and testing of regulator against varying loads and for shorts and high resistances.

3.2 Temporary wiring modifications shall be made in order that the lighting system shall remain in operating condition, except for the item being repaired or replaced, during normal lighting periods.

3.3 Outages: Service interruptions shall be scheduled in advance with the Authorized Member Representative.

Street and Area Lighting Controls

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for street and area lighting controls. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Photo controls shall be of the light-sensitive photo conductor cell type with integral line resistor and

relay circuit having a line voltage circuit contact and capacitor and an across-the-line protective lightning arrester. Plug-in locking type shall be in compliance with UL 773.

2.2 Replacement relay for control of circuit shall match mounting, voltage, and wattage of existing relay.

2.3 Electronic control units shall be solid-state, transistorized, printed circuit type having no operating moving parts.

3.0 EXECUTION:

3.1 Temporary wiring modifications shall be made in order that the lighting system shall remain in operating condition during normal lighting periods, except for the control unit being repaired or replaced.

3.2 Photo controls, timers and electronic control units shall be inspected for proper operation and repaired or replaced as required.

3.3 Safety: Contractor shall comply with applicable provisions of the National Electric Code.

Luminaires

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of luminaires. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Lamps: ANSI C78 series, C79 series.

2.2 Fixtures: UL 781, 844, 595, 1570, 1571, 1572.

2.3 Lamp Bases and Holders: UL 496, 542, and ANSI C81 series.

2.4 Ballasts: UL 935, 1029, and ANSI C82 series.

2.5 General Electrical: NFPA 70.

2.6 All luminaires shall be designated "IES distribution type" as referred to in the IES Lighting Handbook.

2.6.1 Luminaires shall be adjusted to achieve lighting levels and patterns specific to the application as recommended by the manufacturer. Each luminaire shall bear the UL label.

2.6.2 Only the luminaire being repaired or replaced shall be disconnected from its source of supply during the normal operating hours of the lighting system.

2.6.3 Luminaire heads or housings shall be die-cast aluminum with slip-fitter mounting and provided with 1-1/4 inch through 2-inch slip-fitter fittings. Luminaire heads shall have standard dimensions for interchangeable standard optical assemblies. Heads shall be internally wired and rated at 600 volts.

2.6.4 Enclosed luminaire shall consist of an Alzak-finished aluminum reflector and enclosing refractor mounted on a standard luminaire head.

2.6.5 Open luminaires shall consist of an Alzak-finished aluminum reflector with shielding reflector on house side providing IES Type I distribution, mounted on a standard luminaire head.

2.7 Incandescent Luminaires:

2.7.1 Luminaires shall be enclosed type for filament lamps with IES Type I distribution and shall have a glass refractor providing IES Type I distribution.

2.7.2 Floodlights shall be enclosed type with adjustable support brackets. Enclosed floodlights shall be Class HD having a beam spread of 10 to 18 degrees. Open type floodlights shall have a beam spread of 70 to 100 degrees.

2.8 Fluorescent luminaires shall be the enclosed type.

2.9 High intensity discharge luminaires shall be enclosed type for HID lamps with IES Type I distribution. Enclosed luminaires shall have an enclosing glass refractor providing IES Type I distribution.

3.0 EXECUTION:

3.1 Protection: Take precaution in accordance with ANSI C2.

3.2 All service interruptions shall be scheduled in advance with the Authorized Member Representative.

3.3 Workmanship: NFPA 70.

Uninterruptible Power System (UPS)

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of uninterruptible power systems. Products shall match existing materials or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Batteries: NEMA PE 1 for safety requirements and IEEE 485 for sizing.
2.2 Battery Charger: UL 1236.
2.3 Switchgear: NEMA SG 5.
2.4 Emergency and Standby Power Systems: IEEE 446.
3.0 EXECUTION:
3.1 Coordination and Scheduling: Outages shall be scheduled and coordinated in advance with the Authorized Member Representative.
3.2 Protection: Take precautions to prevent injury to personnel and to avoid damage to equipment and other property in compliance with ANSI/IEEE C2.
3.3 Maintenance, Repair or Replacement Work: The Contractor shall check the UPS in accordance with the manufacturer's instructions and Mil. Std. MIL-STD-202 and IEEE 446. If instructed by the Authorized Member Representative, the Contractor shall check for electromagnetic compatibility in accordance with Mil. Std. MIL-STD-461 and MIL-STD-462. As a result of the testing or for preventive maintenance, the Contractor shall maintain, repair, or replace any piece of equipment requiring work.

Cathodic Protection of Steel Water Tanks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and maintenance of cathodic protection of steel water tanks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Contractor's Qualification: A qualification such as NACE accredited corrosion specialist or a Senior Corrosion Technologist is required to perform or to supervise the inspection of the cathodic protection system. The contractor making the repair and installing new equipment, material, or components shall be under the direct supervision of a NACE accredited corrosion specialist or a Senior Corrosion technologist with a minimum of five years of experience in design and installation of cathodic protection systems for steel water tanks.
2.2 Approval: All repair or replacement material and equipment shall be NACE approved.
3.0 EXECUTION:
3.1 Inspection: The inspection of the cathodic protection system shall be made in compliance with applicable NACE standards. The inspection shall include a potential profile of the submerged structures together with visual and electrical tests.
3.1.1 Tank-to-Water Potential Tests: Adjust the rectifier voltage or amperage so as to satisfy design current densities or specified voltage. Document readings, and note any reading below-0.85 volts versus the copper-copper sulfate half-cell or silver-silver chloride half-cell (using conversion chart). Successive potential readings shall be made with the tank full of water and the reference electrode placed at various depths, starting at 1 foot below the surface of the water and continuing at 3-foot intervals to the bottom of the tank. (A vertical inspection profile shall be taken along the wall between each anode string.) The tank bottom shall also be traversed equidistant from all distributed anodes. Inspect risers by placing reference electrode along the side wall of the riser and measuring at 3-foot intervals as far as possible.
3.1.2 Polarization of the submerged steel surfaces to a tank-to-water potential shall be at least a negative 0.85 volts.
3.1.3 Voltage Measurements Between Tank and Electrode: When inspecting new well-coated tanks, the voltage measured between the tank and reference electrode that is placed at any point along the coated surface shall not exceed negative 1.2 volts.

3.1.4 The rectifier shall be free from any restriction that inhibits free air circulation. Keep air-cooled rectifiers free from dust accumulation, clogged filters or screens, brush, grass, or nests. Fill oil-cooled rectifiers to the proper level, and change the oil when it becomes cloudy. Dispose of oil that is removed as directed by the Authorized Member Representative.

3.1.4.1 Output Measurement: Measure and record the current and voltage output. Compare the readings obtained against the previous readings.

3.1.4.2 Stack Tests: Inspect the semi-conductor stacks to ensure that they are functioning properly and have not exceeded their useful life. The two quantities that shall be measured are•1664 reverse current leakage and forward voltage drop. When either of these values increase beyond limits set by the components manufacturer, replace the stack.

3.1.4.3 Meter Tests: Check the meters in the rectifier for accuracy by using portable instruments (voltmeter and ammeter) of known accuracy.

3.1.5 Visual inspection of the water tank shall be conducted while the Contractor is inspecting the anodes and wiring. At the direction of the Authorized Member Representative, lower the water level to expose as much of the wiring as practical to inspect for deteriorated insulation, faulty connections, etc. Inspect the interior surface for condition of coating and apparent rust or calcareous build up. In systems using permanent anodes, determine if the anode shall last until the next inspection. Record broken, damaged, and missing anodes. Inspect wiring to the anodes. Replace wire that has deteriorated insulation.

3.1.6 Reference electrodes and connecting wires shall be inspected by the Contractor to determine whether they are capable of operation until the next annual inspection.

3.1.7 Reports: Record and submit all data. Corrosion control records shall follow recommendations found in NACE RP0169.

3.2 Maintenance and Repair:

3.2.1 Compliance: The maintenance, repair, and installation of replacement materials shall be in compliance with accepted NACE practices. Install all materials and equipment in compliance with the recommendations of NACE or the manufacturer or to comply with the contract documents. Contractor shall replace all broken, missing, deteriorated, or otherwise unserviceable components determined during inspection.

3.2.2 Workmanship: The maintenance, repair, and installation of repair materials shall be under the supervision of the Contractor's NACE Accredited Corrosion Specialist or Senior Corrosion Technologist. Installation shall be performed by personnel who are specifically trained in this work by the manufacturer and who are engaged full time in the installation and servicing of cathode protection equipment. Electrical work shall be in compliance with the requirements of the National Electrical Code.

3.2.3 Testing Methods: Upon completion of repair, the Contractor shall test, adjust, and place in service the cathodic protection system by the following methods:

3.2.3.1 Testing: Adjust the voltage of the rectifier so as to cause a sufficient current to flow to polarize all parts of the structure to at least -0.85 volts. With a given amount of current flowing, voltage measurement shall be made from the tank to a copper-sulfate reference electrode in contact with the water. Successive potential readings shall be made with a calibrated voltmeter, with the tank full of water and the reference electrode placed at various depths starting at 1 foot below the surface of the water and continuing at 3-foot intervals to the bottom of the tank. The tank bottom shall also be traversed and readings taken every 3 feet in a single horizontal direction. In making these tests, place the reference electrode midway between two tank anodes and suspend close to, but not touching, the side or bottom of the tank. The distance between the reference electrode and the wall shall not exceed 1 inch for all readings. If any parts of the structure register voltages more negative than minus 1.2 volts, note this in a deficiency checklist.

3.2.3.2 Rectifier Adjustment: Final adjustment of the rectifier output current shall be made so that repeated voltage readings taken as specified above for testing fall between the limits of minus 0.75 to minus 1.2 volts when measured against the reference electrode.

3.2.3.3 Signs: The Contractor shall paint or stencil his name, date of inspection of the system, and due date of next inspection at a place on site designated by the Authorized Member Representative.

3.2.3.4 Reports: After final adjustment, place the cathodic protection system in service, record the

conditions of the system as left by the Contractor, and submit the report to the Authorized Member Representative.

3.3 Operating and Maintenance Instructions: The Contractor shall contribute technical data to the cathodic protection records file maintained by the installation. These technical records shall include such items as: manufacturer's data on installed equipment, operating instructions, lists of repair parts, names and addresses of sources of parts and services, current price lists, repair and maintenance instructions, and construction specifications and shop drawings. When the system has been modified or new components have been added, the Contractor shall prepare and furnish the Authorized Member Representative two complete sets of typewritten or printed instructions covering the maintenance and operation of the installation. The instructions shall cover proper adjustment of the direct current flow, a brief description of cathodic protection principles, a single line operating diagram, anode consideration with reference to local freezing conditions, trouble-shooting checklists, and any other pertinent information concerned with the proper care and maintenance of the installation.

Cathodic Protection System for Underground Utilities

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of cathodic protection systems for underground utilities. Products shall match existing materials accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Contractor's Qualification: A qualified person, such as a NACE-accredited Corrosion Specialist or a Senior Corrosion Technologist, is required to perform or supervise the inspection of the cathodic protection system. The contractor making the repair and installing new equipment, material, or components shall be under the direct supervision of a NACE accredited corrosion specialist or a Senior Corrosion technologist with a minimum of five years of experience in design and installation of cathodic protection systems for underground piping systems.

2.2 Standard Products: Materials and equipment to be used in the repair or replacement of a cathodic protection system shall be a product of a manufacturer regularly engaged in the manufacture of the product, shall meet the NACE requirements, and shall essentially duplicate materials and equipment that have been in satisfactory use at least two years.

3.0 EXECUTION:

3.1 Inspection: A complete inspection of the system shall be made in compliance with NACE RP0169. All findings shall be made in the form of a written report as directed by the Authorized Member Representative.

3.1.1 Sacrificial (Galvanic) Anode System: Inspect foreign or neighboring structures to determine if a structure is being made more positive by the cathodic protection system. When structure-to-soil (electrolyte) potentials indicate that a neighboring structure is being made more positive, bonding shall be required to avoid damage. Inspect all underground metallic structure within 100 feet of the anode.

3.1.2 Impressed Current (Rectifier Ground Bed) System:

3.1.2.1 Component Inspection: Make inspection of the individual components to ensure that all parts are operating properly. The inspection shall include, but not be limited to, checking unevenness of the temperature or the stacks, hot or warm joints or contacts, arc burn paths, discolored insulators, watt-hour meter for creep, poor insulation, faulty lightning arresters, fuses, and cleanliness of the rectifier stack.

3.1.2.2 Stack Tests: Inspect the semi-conductor stacks to ensure that they are functioning properly and have not exceeded their useful life. The two quantities that shall be measured are reverse current leakage and forward voltage drop. When either of these values increase beyond limits set by the components manufacturer, replace the stack.

3.1.2.3 Interference Tests: Inspect foreign or neighboring structures to determine if a structure is being made more positive by the cathodic protection system. When structure-to-soil potentials indicate that a neighboring structure is being made more positive, the Contractor must make recommendations in report to avoid damage. Inspect and test all underground metallic structure

within 1000 feet of the ground bed and all crossings of the protected structure. Test stations shall be provided at all crossings.

3.2 Maintenance and Repair: After the installation of anodes, the Contractor shall inspect the system and reinspect it again 2 to 4 weeks later. In the event that the system, when repaired, will not provide the required protection, as evidenced by the final tests and measurements, the Contractor, together with the Authorized Member Representative, shall determine the cause of the deficiency and the corrective measures necessary. After the necessary corrective measures have been determined, the contract may be modified as required. All repair or replacement material/equipment shall be NACE approved and similar to original materials. Installation shall be in compliance with the recommendations of the manufacturers as approved by the Authorized Member Representative to comply with the contract documents. Replacement materials that are installed shall comply with the applicable portions of NACE RP0169.

3.2.1 Sacrificial (Galvanic) Anode System:

3.2.1.1 General: Replacing anodes includes boring the hole or trenching, installing the anode, welding or splicing the electrical lead, adjusting the output, and installing test stations. Replacement of anodes shall comply with installation procedures found in NACE RP0169.

3.2.1.2 Anode Output Adjustment: If required, install a resistor or resistance wire to prevent the anode from delivering excess current. The resistance wire, if used, shall be a nichrome wire, No. 16 or 22 AWG with type TW insulation.

3.2.1.3 Placing the System into Service: Upon completion of all phases of the cathodic protection system, it shall be checked and adjusted for optimum performance before placing in regular service.

3.2.2 Impressed Current (Rectifier Ground Bed) Systems:

3.2.2.1 General: Replacing anodes includes boring the hole or trenching, installing the anode, welding or splicing the electrical lead, adjusting the output, and installing test stations. Replacement of anodes shall comply with installation procedures in NACE RP0169.

3.2.2.2 Installation: Install anodes similarly to the anodes in the initial installation. Replacement anodes are normally installed in auger-bored holes drilled adjacent to the damaged or deteriorated anode. Install anodes below the center line of the protected structure. Anodes may be emplaced horizontally if obstructions are encountered. Backfill material shall consist of coke breeze compacted in 6-inch layers. Foreign material shall be excluded from the backfill.

3.2.2.3 Electrical Splices and Connections: Negative cable connections shall be thermit-welded in compliance with the weld manufacturer's instruction. Cover the connection with an approved backfill shield placed over the weld connection. The shields shall be sized to cover the exposed metal.

3.2.2.4 Placing the System into Service: Upon completion of all phases of the cathodic protection system, it shall be checked and adjusted for optimum performance before placing in regular service.

3.2.2.5 Interference Testing: Make interference testing on all structures installed under this contract to locate damage being caused by existing or new impressed current cathodic protection systems or other sources of interference. It shall be the Contractor's responsibility to correct all interferences.

3.3 Maintenance and Operating Instructions: The Contractor shall contribute technical data to the cathodic protection records file maintained by the installation. These technical records shall include such items as manufacturers' data on installed equipment, operating instructions, lists of repair parts, names and addresses or sources of parts and services, current price lists, repair and maintenance instructions, construction specifications and shop drawings, and as-built drawings of the system.

3.3.1 Consolidation of Records: The Contractor shall consolidate all cathodic protection records including surveys, inspections, operating data, maps, charts, location of leaks (leak maps), and manufacturers' parts manual.

3.3.2 Updating Records: Update existing cathodic protection location maps to show any changes in location or addition of test points or stations, anodes, wiring, etc.

3.3.3 Manuals: When the system has been modified or new components have been added, the Contractor shall prepare and furnish the Authorized Member Representative six copies of operation and maintenance manuals of the cathodic protection system for guidance of using agency personnel. Prepare manual with contents as determined by the Authorized Member Representative.

Lightning Arresters

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of lightning arresters. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Arresters shall comply with ANSI/IEEE 28 and ANSI C62.2.
3.0 EXECUTION:
3.1 Scheduling and Coordination: Contractor shall ensure that power interruptions have been scheduled and approved.
3.2 Workmanship shall be in compliance with ANSI C2.
3.3 Cleaning: Clean work areas and materials of dirt, grime, grease, and debris.
3.4 Expulsion Arresters shall be inspected for depleted fiber material and thin walls. Report deficiencies to the Authorized Member Representative.

Institutional Electric Heating Equipment

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of institutional electric heating equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Controls: NEMA DC 4, UL 20, UL 917, and UL 1020.
2.2 Heaters: UL 499.
2.3 General Electrical: NFPA 70.
2.4 Asbestos Usage: Materials containing asbestos shall not be used if nonasbestos materials are available.
3.0 EXECUTION:
3.1 Coordination: Contractor shall determine that heating equipment has been de-energized. Temporary heaters shall be supplied if required to maintain temperature.
3.2 Motor Repair: Electric motors to be repaired shall be done by a shop specializing in the repair of motors.

Electric Unit Heaters

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of electrical unit heaters. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Heating element shall have nickel-chromium wire packed in high purity magnesium oxide enclosed in a corrosion-resistant sheath. The embedded sheath shall be the manufacturer's standard design.
2.2 Housing shall be fabricated from sheet steel complying with ASTM A 569. The housing shall be provided with means for suspension. Deflector blades shall be constructed of same material as housing and shall be manufacturer's standard design and operation.
2.3 Fan shall be the propeller type fabricated of aluminum or steel.
2.4 Controls:
2.4.1 Thermal overload cutout of the manual reset type shall be provided to disconnect elements in the event normal operating temperatures are exceeded.
2.4.2 Thermostat shall be unit or wall mounted and shall be heavy-duty type with enclosed contacts as specified by the manufacturer, with a 3-position selector switch to permit manual fan operation independent of temperature control. Control circuit voltage shall not exceed 30 volts as provided by a factory-installed control circuit transformer.

2.5 Asbestos usage: materials containing asbestos shall not be used if nonasbestos materials are available.
3.0 EXECUTION:
3.1 Coordination and Scheduling: Contractor shall ensure that power interruptions have been scheduled and approved.
3.2 Workmanship: Installation work shall be in compliance with the National Electric Code.

DIVISION 27-COMMUNICATIONS

Fiber Optic Cable Transmission System

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of fiber optic transmission system. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Fiber Optic Cable: EIA 455-25B, EIA 455-30B, EIA 455-33A, EIA 455-41A, EIA 455-46A, EIA 455-47B, EIA 455-51A, EIA 455-53A, EIA 455-61, EIA 455-65, EIA 455-81A, EIA 455-82B, EIA 455-88, EIA 455-91, EIA 455-104A, EIA 455-170, EIA 455-171, and EIA 455-177A, as applicable.
2.2 Fiber Optic Receivers: EIA 170, EIA 232E, and EIA 485 as applicable.
2.3 Fiber Optic Transmitters: EIA 170, EIA 232E, and EIA 485 as applicable.
2.4 Fiber Optic Modems: EIA 232 E and EIA 485 as applicable.
2.5 Fiber Optic Connectors: EIA 455-13. Connectors shall be of stainless steel.
2.6 Fiber Optic (FO) Repeaters: For simplex circuits, the repeater shall consist of an FO receiver connected to an FO transmitter. For Duplex circuits, the repeater shall consist of a pair of FO receivers that are connected to a pair of FO transmitters.
2.3 Fiber Optic Transceivers: EIA 170, EIA 232E, and EIA 485 as applicable.
2.8 Enclosures: NEMA 250.
3.0 EXECUTION: Contractor shall comply with provisions of the National Electric Code.

Central Monitoring, Control and Instrumentation

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of central monitoring, control, and instrumentation equipment. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Drawings and Data: Drawings and data on existing monitoring control and instrumentation equipment should be requested from the Authorized Member Representative.
2.2 Sensing Elements or Transducers: Devices that sense the condition, state, or value of a process variable and produce an output that reflects that condition.
2.3 Measurement and Signal Conditioning: Devices that condition and transmit the signal generated by the sensing element and transducers.
2.4 Control Devices: Include any device that performs a definite function in control system, such as any switch (limit, pressure, temperature, on-off, etc), valves, solenoid, relays, and solid-state control elements.
2.5 Central Monitoring and Control Devices: Include any device that either monitors the signal generated by the transmitters or control devices (indicators, recorders, annunicators, etc.) or provides a final control action from the signal generated by the transmitter such as controllers, computers, etc.
2.6 Product Codes and Standards:
2.6.1 Safety Requirements for Electrical Measuring and Controlling: ANSI C39.5.
2.6.2 Industrial Control Equipment: ANSI/UL 508.

2.6.3 Electrical Analog Indicating Instruments: ANSI C39.1.
2.6.4 Instrument Transformers: ANSI C57.13.
2.6.5 Industrial Controls and Systems: NEMA ICS.
2.6.6 National Electrical Code: NFPA 70.
2.6.7 Limit Controls: UL 353.
2.6.8 Test Code for Industrial Controls: IEEE 74.
2.6.9 Master Test Code for Resistance Measurement: IEEE 118.
2.6.10 Master Test Code for Electrical Measurement in Power Circuits: IEEE 120.
2.6.11 Dynamic Response Testing of Process Control Instrumentation: ISA S26.
3.0 EXECUTION:
3.1 Protection: Take precautions to prevent injury to personnel and to avoid damage to equipment and other property in compliance with ANSI/IEEE C2.
3.2 Power supplies that may be a hazard during the performance of the work shall be locked out.
3.3 Testing: Check the operation of each instrument after it is returned to service. Adjust each instrument to operate properly over the design range.
3.4 Report: A final report shall be prepared after the maintenance, repair, or replacement has been accomplished. A list of all equipment worked on, the service performed on each piece of equipment, and calibration data shall be included in the report. The report shall be typed and furnished to the Authorized Member Representative.

DIVISION 28-ELECTRONIC SAFETY & SECURITY

Intrusion Detection System

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of plant, labor, equipment and material and installation of intrusion alarm systems. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Motion Detector: Detectors used in the system shall be passive infrared (ceiling mount) or combination microwave/passive infrared (wall mount) and shall have adjustable sensitivity. Detectors shall have built-in tamper protection and have a visual alarm indicator. Sensitivity shall be 2 to 4 steps within field of view.
2.2 Balanced Magnetic Switches: Switch mechanism shall be of the balanced magnetic type that opens and crosses, or opens and grounds the circuit when actuated and have 24-hour tamper protection. To prevent welding of the contacts, each reed-type switch shall be provided with an overcurrent capacity. Switches shall be rated for a minimum lifetime of one million operations. Switches and magnets shall be in enclosures made of nonferrous metal. The switch mechanism shall be internally adjustable so that the operating gap between faces of the switch housing and the magnet container may be adjusted from 1/4 inch to 1 inch to accommodate installation variances. Switch boxes shall be the hub type or shall have threaded bodies. Stainless steel screws shall secure covers of cast-aluminum switch boxes. Covers of magnet housing shall not be readily removable. The balanced magnetic switches for doors shall be Wells Fargo Model SM-3.
2.3 Security Alarm Control Panel: The security alarm control panel shall match the base system control panel. Control panel shall have 12 zones and provide an event log. All electronics are contained on a single plug in circuit board utilizing surface mount "SMD" technology. The many programmable features are easily selected or changed from the security terminal remote stations. All programming is stored in a non-volatile EEPROM (Electrically Erasable Programmable Read Only Memory), which maintains its data even when disconnected from power. A "watchdog" circuit monitors the microprocessor and assures the operational integrity of the system. Battery backup shall be provided with control panel.
2.4 Electronic Keypad: The electronic keypad for shall allow programming of the control panel.
3.0 EXECUTION:

3.1 All work shall be installed as shown on drawings in accordance with the manufacturer's diagrams and recommendations, except where otherwise indicated. The systems shall be totally integrated with the base alarm system. When any of the detectors senses an intruder, an alarm shall be produced in the main control panel located in the building.

3.2 Balanced Magnetic Switch Mounting: Unless otherwise indicated, magnetic switch components shall be mounted on the inner side of doors with metal brackets and hardware recommended by the switch manufacturer. Brackets shall be neatly designed and finished to match switch and magnetic housings. Switches shall be carefully connected in accordance with manufacturer's instructions to avoid degrading defeat-resistance. The operating portion of the switch shall be mounted on the doorframe with the associated magnet mounted on the door. Two switches shall protect double leaf doors, one on each door. Should a switch mechanism have to be mounted on a door, the electrical connection shall be jumpered within a flexible armored cord constructed from corrosion-resistant metal. Each end of the armored cord shall terminate in a junction box or other suitable enclosure. Armored cord ends shall be mechanically secured to the junction boxes by clamps or bushings. Conductors within the armored cord shall be provided with lug terminals at each end. The jumpered conductors and the armored cord shall display no mechanical strain as the door is moved from fully open to closed. The switch housing shall be protected from unauthorized access by a cover operated, corrosion-resistant tamper device. This device shall initiate an alarm when the cover is opened as much as 1/4 inch from closed position, and be inaccessible until actuated.

3.3 Wiring: System components shall be securely fastened to their supports independently of the wiring. Runs of conduit, wire and cable shall be straight, neatly arranged, properly supported, and parallel or perpendicular to walls and partitions. All wiring shall be concealed. Power conductors for the devices shall be number 18 AWG and the detection conductors shall be no smaller than number 22 AWG. All deices shall be wired to provide tamper supervision.

3.4 Upon completion of the installation and prior to final inspection, the Contractor shall furnish four copies of "as-built" drawings. Drawings shall show equipment configuration, control panel equipment, location of standby power, supply and all connecting wiring. Drawings shall include all wiring color codes and terminal numbers and termination points for all wires. In addition, the Contractor shall furnish four copies of a manual giving complete instructions for the operation, inspection, testing, and maintenance of the system including wiring diagrams.

3.5 Operating Instructions: Step-by-step procedures required for startup and operation shall be furnished at least 30 days prior to scheduled start of acceptance tests. The instructions shall include the manufacturer's name, equipment and their basic operating features.

3.6 Maintenance Instructions: A listing of routine maintenance procedures, possible breakdowns, and repairs shall be furnished at least thirty days prior to scheduled start of acceptance test. The instructions shall include simplified diagrams for the system as installed.

3.7 Testing: After all equipment for this system has been installed and made operational, and at a time directed by the Contracting Office, the Contractor shall conduct tests to demonstrate that the installation and the system operation is in accordance with the plans and specifications. Prior to the demonstration test for the Contracting Officer, the Contractor shall check the entire system, verify device and system satisfactory operation and correct all discrepancies. Testing of the system shall include remote annunciation of alarms. Satisfactory operation of all devices in the system shall be demonstrated during the test. Upon completion and testing of the installed system, test reports shall be submitted in booklet form showing all field tests performed to adjust each detector system, and all field tests performed to provide compliance with the specified performance criteria. Each test report shall indicate the final position or reading of calibrating controls.

Fire Detection and Alarm Systems

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of labor, equipment and material and installation of fire detection and alarm systems. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Materials and equipment shall be new standard products of the manufacturer's latest design, and suitable to perform the function intended. Components of two or more models will not be combined to form a single control unit. Where two or more pieces of equipment must perform the same functions, the same manufacturer shall produce this equipment. The name of the manufacturer shall appear on all major components. Fire alarm zones shall be laid out by device type such as: attic heat detectors, pull stations, ceiling mounted heat detectors, flow switches, tampers, and duct detectors. Zones shall not be laid out geographically such as by sections of the facility with all devices in that section mixed in a single zone. There shall only be one central fire alarm panel located in any facility. Heat detectors shall be removed from facilities when a fire sprinkler system is installed.

2.2 All materials and equipment shall conform to the requirements of the UL, or the FMS for fire-alarm systems of the type indicated. The Contractor shall submit proof that the items furnished under this specification conform to these requirements. The UL label or seal, or listing in the U Fire Protection Equipment Directory will be accepted as evidence that the items conform to UL requirements. The FMS label or seal, or listing in the Factory Mutual Approval Guide will be accepted as sufficient evidence that the items conform to the FMS requirements.

2.3 Contractor shall include a complete set of shop drawings to include all material and equipment proposed for installation. Shop drawings shall show the complete conduit and wiring layout for the equipment, including AWG size and type wire, number of conductors and connections to the equipment items. The drawings shall be point to point from panel to each J-box to each device and show wire color and wire number. Numbers will be installed on wires using crimp-on tags placed 5 to 6 inches from Wires end.

3.0 EXECUTION:

3.1 Installation and wiring: System components shall be securely fastened to their supports independently of the wiring. The control unit shall be installed in a room directly accessible from the building exterior. Runs of conduit, tubing, wire and cable shall be straight, neatly arranged, properly supported, and parallel or perpendicular to walls and partitions. Installation of wiring shall conform to NFPA 70. All wiring shall be installed in conduit. The sum of the cross-sectional areas of individual conductors shall not exceed 40 percent of the interior cross-sectional area of the conduit. Wiring for fire alarm zones shall be color-coded by zone with two colors remaining consistent throughout the zone. No two zones using the same colors shall transit the same junction box. This does not negate the requirements for numbering wires. Numbers will originate at the control panel and be used throughout the circuit at all junctions and terminal devices. Wiring for audible visual circuits shall be color-coded red for positive and black for negative. All junction boxes and their covers will be painted red. Existing wiring in facilities being renovated shall not be reused.

3.2 Audible and visual alarm devices: Audible and Visual devices shall be furnished to indicate an alarm throughout the building. Type devices are specified below. The top of the devices shall be mounted in accordance with NFPA 72 para. 4-3. All devices shall be supervised and operate on low voltage D.C. furnished by the control panel. All audible devices shall meet U 464 requirements.

3.3 Signal Devices: Strobe horns shall be used for non-coded signals. Bells will be used where horns conflict with other devices. Chimes with strobe lights will be used in low noise areas such as hospitals and childcare facilities. The same type of device shall be consistent throughout a facility. Devices shall not be mixed.

3.4 Visual Alarm Indicator: Visual indicators shall have a high impact plastic translucent lens with "FIRE" printed in red letters on at least two sides and shall be positioned to be readable from any angle. The flashing of multiple visual indicators shall be synchronized. This indicator will normally be integral with the horn except where only a visual indicator is required such as latrines.

3.5 Manual fire-alarm stations shall conform to the applicable requirements of UL 38. Manual stations shall be connected into alarm initiating circuits. Stations shall be installed on semi-flush mounted outlet boxes. Stations shall be double action type. Stations shall be located within 5 feet of the exits and on all floors. Stations shall be finished in red, with raised letter operating instructions of contrasting color. Stations requiring the breaking of glass or plastic panels or glass rods for operation are not acceptable. The use of a common screwdriver shall be required to reset the station. Gravity or mercury switches are not acceptable. Switches and contacts shall be rated for

the voltage and current upon which they shall operate. Stations shall have a separate screw terminal or lead for each conductor unless a nut plate is provided to accommodate both conductors in a loop. The loop shall not be continuous at the connection. Surface mounted boxes shall be painted the same color as the fire alarm manual stations.

3.6 Fire detecting equipment shall conform to NFPA 72 and shall be of the following types, as indicated on the drawings and as approved by the Contracting Officer. Detector circuit design shall be suitable for the types and numbers of detectors, as approved, and shall limit detector circuit current not to exceed ratings of the detectors and associated relays. Per NFPA 72 para. 2-3.6.1.3, detectors shall not be installed until after the construction cleanup of all trades is complete and final. Furthermore, during renovation projects, existing detectors shall be removed and reinstalled or covered during construction.

3.7 Photoelectric Type Smoke Detectors: Ceiling smoke detectors, which operate on the light scattering or the light obstruction principle, shall be furnished. Smoke detectors shall not be mounted in the direct path of airflow from ceiling or wall-mounted diffusers.

3.8 Duct-Mounted Smoke Detectors: Duct-mounted photoelectric smoke detectors shall be furnished and installed in accordance with NFPA 72 para. 2-10.5 and NFPA 90A. A remote key/reset/test switch shall be furnished for duct detectors that are at a location that is not easily accessible for testing the installed duct detector. The detector housing shall be equipped with a transparent viewing port which shall permit viewing of detector head Alarm/Power-On indicator -at viewing angles up to 80 degrees off normal and inspection of cleanliness conditions inside the detector head mounting chamber. The detector shall be the plug-in type in which the detector base contains terminals for making all wiring connections. The detector indicator shall blink intermittently during standby conditions and shall glow red during alarm conditions. All LED's to indicate the operating and alarm condition and test and reset buttons or test part shall be visible, and accessible, with the unit installed and the cover in place. Detector operating voltage will be supplied from the DC circuits of the fire alarm panel.

3.9 Air Handler Units (AHU) with a capacity below 2000CFM shall not have duct smoke detectors installed. The AHU will be shutdown by the fire alarm control panel (FACP). AHU's with a capacity between 2000 - 15,000 CFM shall have one duct detector installed in the supply air duct. AHU"s with a capacity greater than 15,000 CFM will have two duct detectors installed, one in the supply air duct and one in the return air duct. Duct smoke detectors will shut down their respective AHU"s upon alarm.

3.10 Fixed-Temperature Heat Detectors: Only Fixed temperature heat detectors shall be installed unless another type is specifically required to meet code requirements. The UL 521 test rating shall be 135 degrees F. or as shown. Heat detectors installed in attics and mechanical rooms shall be rated at 194 degrees F only. Heat detectors installed in exterior applications such as open storage units shall be all weather detectors, 302AW194.

3.11 Control unit (Fire alarm panel) shall be installed as part of the system in each protected building and shall be approved for use with the fire detecting equipment, manual fire-alarm stations, and alarm-sounding devices. The unit shall operate with 24 volts DC derived from its internal AC rectifier/power supply. The control unit circuits shall be exclusively solid state. The control unit shall be housed in a substantial steel cabinet with lock and key. The cabinet shall be painted inside and out. The control unit shall include light emitting diodes (LED's)(Lamps or neon tubes not acceptable) to visually indicate the system condition, e.g., alarm and trouble by zone, system trouble conditions, primary and backup power supply status, etc. A single switch will be provided to test all LED'S. The control unit shall include switches and devices to test all control unit functions. This includes a system test switch, zone disable, system reset, auxiliary disconnect and audible trouble silence switch, etc. The silence switch shall be provided with an audible resound feature. The unit shall supervise all alarm initiating circuits and all alarm sounding circuit. The components shall be modular with plug-in capability. Wires will not require removal to service a module. A separate supervisory module will be provided for tamper and supervisory circuits. All zones will be identified by rigid, engraved plastic ID tags attached to the face of the control unit or the internal face providing they are visible through a transparent window. Paper, etching or embossing tape is not acceptable. It shall also provide regulated and unregulated DC power for smoke detectors,

which do not operate on zone voltage. With a zone disabled the control unit shall repeat the alarm sequence when a second, third, etc., alarm is initiated in other zones. All LED's shall be plainly visible when the door on the control unit is closed. The control unit shall operate separate audible and visual signals when a ground fault is detected in any supervised circuit or device. It shall sound a distinct audible alarm and flash the visual alarm indicators throughout the building when any manual or automatic device on the system is activated. The fire alarm panel shall be equipped with at least two alarm relays and one trouble relay as integral components of the panel. Add on relays are not acceptable. One alarm relay and the trouble relay dry contacts shall be used solely to activate a radio transceiver. The second alarm relay shall accomplish all auxiliary control, interlock and shutdown functions, as indicated herein and as shown on the drawings. Only low voltage (24) will be brought into the panel for auxiliary functions. The use of plug-on units and special devices not supplied by the manufacturer in conjunction with this feature is unacceptable. The control unit shall meet the requirements of UL 864 and shall be listed for NFPA 72. A remote annunciator will not be required.

3.12 Addressable Control Units: Addressable control units shall be fully field programmable from the internal keyboard. This shall include the addition of points, modification of points, and deletions. All system software required to perform uploads/downloads by base maintenance personnel shall be supplied.

3.13 Primary Power Supply: Primary power supply for the control unit shall be on a dedicated 15-amp branch circuit protected by surge protection devices. The service disconnect shall be accessible only to authorized personnel, installed adjacent to the control unit and clearly marked FIRE ALARM. At locations where the circuit breaker is out of sight of the fire alarm control panel, a disconnect switch shall be installed adjacent to the control panel. The conductors feeding the control panel shall be #14 AWG. Stake-on terminal lugs are not acceptable for wire terminations. Id tag will be rigid plastic.

3.14 Standby Power Supply: Standby power to insure operation of the fire alarm system in the event of primary power failure shall be provided by no more than two each maintenance free storage batteries. Power supply shall be provided with an automatic battery charger capable of a high/low charge rate. Battery shall have the capacity to operate the fire system for 24 hours and then be capable of sounding all alarms for five minutes in the event of total failure of the primary power supply. The charging circuit for the battery shall be supervised to indicate a low battery condition and be rated to recharge fully discharged batteries in 24 hours.

3.15 After all equipment for this system has been installed and made operational, the contractor shall conduct tests to demonstrate that the installation and the system operation is in accordance with the plans and specifications. Testing of the system shall include remote annunciation of alarms and trouble conditions to the fire department. The contractor will also certify in writing that the work accomplished meets all contractual requirements.

DIVISION 31-EARTHWORK & DIVISION 32-EXTERIOR IMPROVEMENTS

Standard Penetration Tests

1.0 DESCRIPTION OF WORK: This specification covers core drilling and borings for subsurface investigation of soils.

2.0 PRODUCTS: (Section not used.)

3.0 EXECUTION:

3.1 Auger Borings: ASTM D 1452.

3.2 Soil Samples: ASTM D 1586, ASTM D 1587.

3.3 Rock Cores: ASTM D 2113, Size BX and NX.

3.4 Bearing Capacity: ASTM D 1194.

3.5 Soils Classification: ASTM D 2487, D 2488.

3.6 Boring Logs: Boring report shall include, but not be limited to, a boring location plan locating and numbering boring and boring logs. Log of borings shall have boring number; date of start and

finish of boring; rig type, job number and name; sample number, depth, and type; depth of strata changes, soil description and classification, surface elevation, depth of boring, and depth of water table.

Concrete Core Drilling

1.0 DESCRIPTION OF WORK: This specification covers the furnishing of equipment and labor for core drilling of existing concrete. Procedures shall be in accordance with the equipment manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: (Section not used)
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Equipment shall be of shot-drill or diamond-drill type and shall be acceptable to the Authorized Member Representative. Shot drilling shall be used on horizontal surfaces only.
3.1.2 Location and Size of Cores shall be as directed by the Authorized Member Representative.
3.2 Core Drilling:
3.2.1 Drilling shall be performed in a neat manner providing a smooth, clean hole perpendicular to the surface.
3.2.2 Equipment shall be rigidly affixed to the surface to prevent drifting or misalignment of the hole.
3.2.3 Work shall be planned and executed so that dust and rubble are held to a minimum.
3.2.4 Surrounding surfaces, material and equipment shall be protected from damage from dust, water and flying debris.
3.3 Test Samples:
3.3.1 Where cores from drilling are to be used for testing of existing concrete, the resulting core shall meet the requirements of ASTM C 42.
3.3.2 Test cores shall be taken at locations as directed by the Authorized Member Representative.

Clearing and Grubbing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing of labor and equipment for clearing and grubbing.
2.0 PRODUCTS: (Section not used.)
3.0 EXECUTION:
3.1 Clearing: Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Clearing shall also include the removal and disposal of structures that obtrude, encroach upon, or otherwise obstruct the work.
3.2 Grubbing: Material to be grubbed, together with logs and other organic or metallic debris not suitable for foundation purposes, shall be removed to a depth of not less than 18 inches below the original surface level of the ground in areas indicated to be grubbed. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform with the original adjacent surface of the ground.
3.3 Tree removal shall include the felling of trees and the removal of stumps and roots.
3.4 Disposal of Materials: All felled timber, logs, stumps, roots, brush, rotten wood, and other refuse from the clearing and grubbing operations shall be in compliance with all federal, state, and local regulations, including environmental regulations.

Site Grading

1.0 DESCRIPTION OF WORK: This specification covers the furnishing of labor and equipment for site grading.
2.0 PRODUCTS: Borrow material shall be selected to meet requirements and conditions of the particular fill for which it is to be used. Necessary clearing, grubbing, disposal of debris, and satisfactory drainage of borrow pits shall be performed by the Contractor. The source of borrow material shall be the Contractor's responsibility. Satisfactory material shall be approved by the Authorized Member Representative.
3.0 EXECUTION:

3.1 Topsoil shall be removed without contamination with subsoil and stockpiled convenient to areas for later application or at locations designated. Topsoil shall be removed to full depth and shall be stored separate from other excavated materials and piled free of roots, stones, and other undesirable materials.

3.2 Excavation: After all stripping has been completed, excavation of every description, regardless of material encountered, within the grading limits of the project shall be performed to the lines and grades designated. Satisfactory excavation material shall be transported to and placed in fill areas within the limits of the work. All unsatisfactory material and surplus material shall be disposed of in areas approved for surplus material storage.

3.3 Preparation of Ground Surface for Fill: All vegetation, such as roots, brush, heavy sods, heavy growth of grass, and all decayed vegetable matter, rubbish, and other unsatisfactory material within the area upon which fill is to be placed shall be stripped or otherwise removed before the fill is started. Sloped ground surfaces steeper than one vertical to four horizontal on which fill is to be placed shall be plowed, stepped, or broken up as directed, in such manner that the fill material will bond with the existing surface.

3.4 Fills and Embankments: The completed fill shall conform to the shape of the typical sections indicated or shall meet the requirements of the particular case. Fill shall be satisfactory material and shall be reasonably free from roots, other organic material, trash, and stones having a maximum diameter greater than 6 inches. No frozen material will be permitted in the fill. Stones having a dimension greater than 4 inches shall not be permitted in the upper 6 inches of fill or embankment.

3.5 Finished Excavation, Fills, and Embankments: All areas covered by the project, including excavated and filled sections and adjacent transition areas, shall be uniformly smooth graded. The finished surface shall be reasonably smooth, compacted, and free from irregular surface changes.

3.6 Placing Topsoil: On areas to receive topsoil, the compacted sub grade soil shall be scarified to a 2-inch depth for bonding of topsoil with subsoil. Topsoil then shall be spread evenly and graded to the elevations and slopes shown. Topsoil shall not be spread when frozen or excessively wet or dry.

Rock Removal

1.0 DESCRIPTION OF WORK: This specification covers removal of rock. Operating procedures shall be in accordance with the equipment manufacturer's recommendations. Demolition and removal of material shall be as required to support the work.

2.0 PRODUCTS: (Section not used.)

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Review the site for existing features, such as buildings or utilities that will require protection or other coordination of the work.

3.1.2 Clear the area and excavate as required to provide access to the rock to be removed.

3.1.3 Provide bracing, shoring, etc., as required to safely execute the work.

3.1.4 Provide dewatering as required.

3.2 Installation:

3.2.1 Remove rock to the lines required or designated. Blasting must be approved by the Authorized Member Representative.

3.2.2 Haul Excavated Materials to the designated area.

Finish Grading for Structures and Slabs

1.0 DESCRIPTION OF WORK: This specification covers the furnishing of labor and equipment for finish grading for structures and slabs.

2.0 PRODUCTS: Borrow material shall be selected to meet requirements and conditions of the particular fill for which it is to be used. Necessary clearing, grubbing, disposal of debris, and satisfactory drainage of borrow pits shall be performed by the Contractor. The source of approved borrow material shall be the Contractor's responsibility. Satisfactory materials shall consist of cohesionless materials classified by ASTM D 2487 as CL, GW, GP, GM, GC, SP, SC, SM, and SW. Materials classified as GM and SM will be identified as cohesionless only when the fines are

nonplastic.

3.0 EXECUTION:

3.1 Topsoil shall be removed without contamination with subsoil and stockpiled convenient to areas for later application or at locations specified.

3.2 Excavation shall be performed to the required lines and grades. Satisfactory excavation material shall be transported to and placed in fill areas within the limits of the work. All unsatisfactory material and surplus material shall be disposed of in areas approved for surplus material storage.

3.3 Fills and Embankments: The completed fill shall meet the requirements of the particular case. Fill shall be satisfactory material. No frozen material will be permitted in the fill. Stones having a dimension greater than 4 inches shall not be permitted in the upper 6 inches of fill or embankment.

3.4 Compaction Requirements: Satisfactory material shall be placed in horizontal layers not exceeding 8 inches in loose depth and compacted to 95 percent maximum density in conformity with ASTM D 1556.

Site Excavation and Fill

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of material for site excavation and fill.

2.0 PRODUCTS: Satisfactory materials shall consist of cohesionless materials classified by ASTM D 2487 as CL, GC, GW, GP, GM, SP, SC, SM, and SW. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic.

3.0 EXECUTION:

3.1 Excavation: The Contractor shall perform excavation of every type of material encountered within the limits of the project, to the required lines, grades, and elevations. Satisfactory excavated materials shall be placed in fill or embankment within the limits of the work. Unsatisfactory materials encountered within the limits of the work shall be excavated below grade and replaced with satisfactory materials. Additionally required material for fill or embankments shall be excavated from approved borrow areas.

3.2 Ditches, Gutters, and Channel Changes: Excavation of ditches, gutters, and channel changes shall be to the required cross sections, grades, and elevations. Backfill shall be thoroughly compacted satisfactory material.

3.3 Selection of Borrow Material: Borrow material shall be selected to meet the requirements and conditions of the particular fill or embankment for which it is to be used. Borrow material shall be obtained from approved sources.

3.4 Backfill: Backfill adjacent to any and all types of structures shall be placed and compacted in such a manner as to prevent wedging action or eccentric loading upon or against any structure.

3.5 Embankment: Earth embankments shall be constructed from satisfactory materials free of organic or frozen material in the embankment and rocks with any dimension greater than 4 inches in the upper 8-inch layer. The material shall be placed in successive horizontal layers of loose material not more than 8 inches in depth.

3.6 Compaction Requirements: Satisfactory material shall be compacted to 90 percent maximum density in conformity with ASTM D 1556.

Excavation, Trenching and Backfilling for Utilities Systems

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for excavation, trenching, and backfilling for utilities systems.

2.0 PRODUCTS:

2.1 Satisfactory Materials: Satisfactory materials shall consist of any cohesionless materials classified by ASTMD 2487 as CL, GC, GM, GW, GP, SC, SP, SM, and SW. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic.

2.2 Select Granular Material: Select granular material shall consist of well-graded sand gravel, crushed gravel, or crushed slag composed of hard, tough, and durable particles.

3.0 EXECUTION:

3.1 Excavation: During excavation, material satisfactory for backfilling shall be stockpiled at a sufficient distance from the banks of the trench to prevent slides or cave-ins. Excavated material not required

or not satisfactory for backfill shall be removed from the site. Trenches shall be dewatered as required.

3.1.1 Trench Excavation: Trench walls below and above the top of the pipe shall be sloped or made vertical, depending on the type of pipe used and the soil conditions. Trench width below the top of the pipe shall not exceed 24 inches plus pipe outside diameter (OD) for pipes of less than 24-inch inside diameter and shall not exceed 36 inches plus pipe OD for larger sizes. The bottoms of trenches shall be accurately graded to provide uniform bearing and support for the bottom quadrant of each section of the pipe. Bell holes shall be excavated to the necessary size at each joint or coupling to eliminate point bearing. Stones of 3 inches or greater shall be removed to avoid point bearing. Vertical trench walls more than 5 feet high shall be shored. Trench walls that are cut back shall be excavated to at least the angle of repose of the soil.

3.1.2 Removal of Unyielding Material: Where unyielding material is encountered in the bottom of the trench, such material shall be removed 4 inches below the required grade and replaced with select materials and compacted.

3.1.3 Removal of Unstable Material: Where unstable material is encountered in the bottom of the trench, such material shall be removed to the depth directed and replaced to the proper grade with select granular material placed in layers not to exceed a loose thickness at 6 inches and compacted.

3.1.4 Excavation for Appurtenances: Excavation for manholes, catch basins, inlets, or similar structures shall be of sufficient size to permit the placement and removal of forms for the full length and width of structure footings and foundations.

3.2 Backfilling: Backfill material shall be placed in layers of 8 inches loose thickness unless otherwise specified. Each layer shall be compacted to at least 95 percent maximum density for cohesionless soils and 90 percent maximum density for cohesive soils under roadways, airfields, etc. Water flooding or jetting will not be permitted.

3.2.1 Sidewalks, Turfed or Seeded Areas, and Miscellaneous Areas: Backfill shall be deposited in layers of a maximum of 12 inch loose thickness and compacted to 85 percent maximum density for cohesive soils and 90 percent maximum density for cohesionless soils. Water flooding or jetting methods of compaction will be permitted for granular noncohesive backfill material. Water jetting will not be allowed to penetrate the initial backfill.

3.2.2 Trench Backfill: Trenches shall be backfilled to the grade required. The trench shall be backfilled to 2 feet above the top of pipe prior to performing the required pressure tests. The joints and couplings shall be left uncovered during any required pressure tests unless approved by the Authorized Member Representative.

3.2.3 Displacement of Sewers: After other required tests have been performed and the trench backfill compacted to 2 feet above the top of the pipe, the pipe shall be inspected to determine whether significant displacement has occurred. If the interior of the pipe shows poor alignment or any other defects that would cause improper functioning of the system, the defects shall be remedied as directed.

3.3 Special Requirements: Special requirements for both excavation and backfill relating to the specific utilities are as follows:

3.3.1 Gas Distribution: Trenches shall be excavated to a depth that will provide not less than 18 inches of cover in rock excavation and not less than 24 inches of cover in other excavation.

3.3.2 Water Lines: Trenches shall be excavated to a depth that will provide a minimum cover required for frost protection, or from the indicated finished grade, whichever is lower, to the top of the pipe. For fire protection yard mains or piping, the depth of cover shall comply with NFPA No. 24.

3.3.3 Heat Distribution System: Trenches shall be excavated to a depth that will provide a minimum cover required for frost protection. Initial backfill material shall be free of stones larger than 1/4 inch in any dimension.

3.3.4 Electrical Distribution System: Direct burial cable and conduit or duct line shall have a minimum cover of 24 inches from the finished grade, unless otherwise required.

Structural Excavation and Backfill

1.0 DESCRIPTION OF WORK: This specification covers the furnishing of labor and equipment for structural excavation.

2.0 PRODUCTS: (Section not used.)
2.1 Satisfactory Materials: Satisfactory materials shall consist of any cohesionless materials classified by ASTMD 2487 as CL, GC, GM, GW, GP, SC, SP, SM, and SW. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic.
2.2 Select Granular Material: Select granular material shall consist of well-graded sand, gravel, crushed gravel, or crushed slag composed of hard, tough, and durable particles.
3.0 EXECUTION:
3.1 General: The excavation shall include trenching for utility and foundation drainage systems to a point 5 feet beyond the building line of each building and structure. Unsatisfactory material shall be removed, and satisfactory material shall be placed and compacted.
3.2 Drainage: Excavation shall be performed so that the area of the site and the area immediately surrounding the site and affecting operations at the site will be continually and effectively drained.
3.3 Utility and Drain Trenches: Trenches for underground utilities systems and drain lines within 5 feet of the building or structure shall be excavated to the required alignments and depths. The bottoms of trenches shall be graded to secure the required slope and shall be tamped if necessary to provide a firm pipe bed.
3.4 Borrow: Where satisfactory materials are not available in sufficient quantity from required excavations, approved materials shall be obtained from approved sources.
3.5 Excavated Materials: Satisfactory excavated material required for fill or backfill shall be placed in the proper section of the permanent work required under this section or shall be separately stockpiled if it cannot be readily placed.
3.6 Final Grade of Surfaces of Support Concrete: Excavation to final grade shall not be made until just before concrete is to be placed. For pile foundations, the excavation shall be stopped at an elevation 6 to 12 inches above the bottom of the footing before driving piles. Rock shall be worked down to a satisfactory bed or sidewall.
3.7 Filling and Sub grade Preparation: Satisfactory materials free from roots, debris, or stones larger than 3 inches shall be used in bringing fills to the lines and grades indicated and for replacing unsatisfactory materials.
3.8 Backfilling: Backfilling shall not begin until construction below finish grade has been approved; underground utilities systems have been inspected, tested, and approved; forms have been removed; and the excavation has been cleaned of trash and debris. Backfill shall be brought to indicated finish grade and shall include backfill for outside grease interceptors and underground fuel tanks. Backfill shall not be placed in wet or frozen areas. Backfill shall not be placed against foundation walls prior to 7 days after completion of the walls. As far as practicable, backfill shall be brought up evenly on each side of the wall and sloped to drain away from the wall.

Pipe Sleeves for Utility Lines

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of pipe sleeves for utility lines. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Jack-Boring Operation: AREA-01.
2.2 Sleeve Materials:
2.2.1 Concrete Pipe: ASTM C 76.
2.2.2 Steel Pipe: ASTM A 53.
2.2.3 Corrugated Steel Pipe: ASTM A 760.
2.2.4 Ductile Iron Pipe: ASTM A 716.
3.0 EXECUTION:
3.1 Roads and Airfields: At primary access road crossings and at airfield runways and taxiways where aircraft move under their own power, utility lines shall be encased in sleeves of rigid conduit for the length installed under such facilities. Sleeves shall extend a minimum of 5 feet beyond the toe of the slope on each side of the embankment.

3.2 Structures: Where utility lines are required to be installed within 3 feet of existing buildings or structural foundations, the lines shall be encased in sleeves of rigid conduit.
3.3 Clearance: A minimum clearance of at least 2 inches between the inner diameter of the sleeve and the maximum outside diameter of the sleeved pipe, including the joints, shall be provided.
3.4 Sand Bedding: Sand bedding shall be provided for the carrier pipe through the sleeve.

Field Tests

1.0 DESCRIPTION OF WORK: This specification covers the furnishing of labor and equipment for soils compaction testing.
2.0 PRODUCTS:
2.1 Cohesionless and Cohesive Materials: Cohesionless materials include materials classified in ASTM D 2487 as CL, GM, GC, GW, GP, SC, SM, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. 2.2 Degree of Compaction: Degree of compaction required as expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557, Method D, abbreviated below as maximum density.
3.0 EXECUTION:
3.1 Compaction Requirements: Each layer shall be compacted to not less than the percentage of maximum density specified below:

Percent CE 55 Maximum Density

	Cohesive Material	Cohesionless Material
Fill, Embankment, and Backfill		
Under proposed structures, building slabs, steps, and paved areas	90	95
Under sidewalks and grassed areas	85	90
Sub grade		
Under building slabs, steps, and paved areas, top 12 inches	90	95
Under sidewalks, top 6 inches	85	90

3.2 Test Procedure: Field in-place density shall be determined in accordance with ASTM D 1556.

Soil Stabilization: Crushed Rock Sub Grade

1.0 DESCRIPTION OF WORK: This specification covers the furnishing of materials and the preparation and production of a stabilized sub grade by adding granular material and/or fines to the native sub grade material.
2.0 PRODUCT: The crushed rock sub grade shall be a composite mixture of coarse aggregate and fine aggregate. Coarse aggregate shall consist of hard, durable particles or fragments of stone, gravel, or slag, or a combination of these. Materials that break up when alternately frozen and thawed, or when alternately wetted and dried are not suitable for stabilized material. Fine aggregate shall consist of natural or crushed sand. The composite mixture of coarse and fine aggregates should be free from vegetable matter and lumps or balls of clay. Aggregate used shall meet the following gradation limits or shall meet the gradation requirements of the applicable State Highway Department wherein the work is performed as approved by the Authorized Member Representative:

Coarse Aggregate	
Retained on 1-1/2 inch sieve	0 percent
Retained on 3/4-inch sieve	0 - 15 percent
Retained on No. 4 sieve, minimum	10 percent
Retained on No. 8 sieve	25 - 70 percent
Fine Aggregate	
Retained on No. 40 sieve	50 - 90 percent
Retained on No. 200 sieve	85 - 95 percent

3.0 EXECUTION: Scarify the sub grade to the depth required. Add granular material to the native material that will bring the composite mixture into compliance with sub grade material

requirements. Add water and compact sub grade to required density.

Soil Stabilization: Hydrated Lime

1.0 DESCRIPTION OF WORK: This specification covers furnishing of materials and the preparation and production of a stabilized sub grade by the addition of hydrated lime to the native material.
2.0 PRODUCTS: Hydrated lime material requirements shall be as follows:
2.1 Available Lime Index as Calcium Hydroxide: 90 percent minimum.
2.2 Residue Retained on No. 30 Sieve: 1 percent maximum.
2.3 Residue Retained on No. 200 Sieve: 20 percent maximum.
3.0 EXECUTION:
3.1 Preparation: Scarify the sub grade to the depth required and pulverize the material until it is substantially free of lumps greater than 3 inches in diameter.
3.2 Installation: Lime shall be applied to the pulverized material as a slurry unless otherwise directed. Water shall be added as needed to provide a moisture content of not less than 20 percent. Surface-applied lime slurry shall be plowed and/or disced into the soil as necessary. The resulting mixture shall be aged for not less than 48 hours before compaction.

Soil Stabilization: Vibroflotation

1.0 DESCRIPTION OF WORK: This specification covers the densification of sandy subsurfaces by the method of vibroflotation.
2.0 PRODUCTS: (Section not used.)
3.0 EXECUTION: The vibroflotation process shall be applied only to areas of clean, granular soils, with not over 20 percent silt or 10 percent clay. Vibrators shall be water-jetted into the soil mass to the depth required. The vibrator shall be withdrawn in 1 foot increments as the saturated soil compacts laterally and at a rate of approximately 1 ft/min to a minimum relative density of 70 percent. As the surface crater forms, sand or crushed rock shall be added and compacted to the appropriate line and grade. The horizontal distance between successive treatments shall not exceed 5 feet, or as directed.

Soil Sterilization

1.0 DESCRIPTION OF WORK: This specification covers soil sterilization. Products shall be as directed. Installation procedures shall be in accordance with the product manufacturer's recommendations.
2.0 PRODUCTS:
2.1 Weed Eradication and Soil Fumigation: Products approved by the Environmental Protection Agency.
2.2 Liquid and Dry Herbicides:
2.2.1 Bare Ground Herbicides: Bromacil powder mixture or an ammonium sulfamate spray.
2.2.2 Wetting Agents: As required.
2.3 Equipment: Equipment shall be appropriate to the application and approved before use by the Authorized Member Representative.
3.0 EXECUTION:
3.1 Soil: After the sub grade has been prepared, all areas to be surfaced shall be treated with a weed eradicator and soil fumigant only in the designated areas.
3.2 Wetting Agents: Wetting Agents may be used as an additive to improve the performance of weed and brush herbicides.

Sediment Control

1.0 DESCRIPTION OF WORK: This specification covers the furnishing of materials and the installation of sediment control by means of a silt fence to control the drifting of silt, sand, dust, or earth.
2.0 PRODUCTS:
2.1 Silt Fence shall be composed of 100 percent spunbounded nylon with polyester netting and shall have the following minimum properties:
Weight 4.2 oz/yd ASTM D 3776 2
Thickness 10 mils ASTM D 1777
Grab Tensile 130 lbs. ASTM D 1682

Elongation to Break 25% +/- 3% ASTM D 1682
Mullen Burst 210 lbs.
Water Flow Rate 470 gpm/ft 2
Equip. Opn. Size 70 - 100
Cord 1/8 in. Nylon Braid
Strength Retention Ultraviolet Protection Fabric Width Supplied in Widths to Meet Local, State, D.O.T., and/or Federal Requirements

2.2 Fence Posts shall be steel T-posts or cured oak posts, spaced approximately 8 feet apart. Selection of the type of post used, as well as the distance between posts, shall be determined by the manufacturer of the fabric and approved by the Authorized Member Representative.

3.0 EXECUTION:

3.1 Installation: Installation procedures shall be as recommended by the manufacturer.

3.2 Reuse: Silt fence shall be of such quality that it may be removed and reused at other sites.

Gabions

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of gabions. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Wire Cages shall be made of hexagonal twist mesh (3 1/2 inches x 4 1/2 inches) with heavily galvanized steel wire. Wire for wire cages shall be a minimum of 0.118 inch in diameter and shall be in conformance with ASTM A 510 and A 641.

2.2 Lacing Wire shall meet the same specifications as the wire used in the mesh, except that its diameter shall be a minimum of 0.0866 inch.

2.3 Fill Material shall consist of hard, durable, clean stone, 4 to 8 inches in size, or as approved.

3.0 EXECUTION:

3.1 Preparation: Before gabions are placed, the earth on which the gabions are to be placed shall be graded to be relatively smooth.

3.2 Installation:

3.2.1 Baskets shall be delivered in a collapsed form. Erect and lace together with lacing wire.

3.2.2 Install Fill Rock in mesh baskets with appropriate equipment. Manually adjust stone during the filling operation to prevent undue voids.

3.2.3 Hand Place Exposed Faces using selected stone to prevent gabions from bulging. Level the last lift of stone with the top of the gabion to properly close the lid to provide an even surface for the next course.

Riprap

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of riprap. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Riprap: Stone used for dumped riprap shall be hard, durable, angular in shape, resistant to weathering and to water action, and free from overburden, spoil, shale, and organic material. Neither width nor thickness of a single stone should be less than one third its length. Rounded stone, boulders, shale, and stone with shale seams will not be acceptable. The minimum density of the riprap material shall be 162 pounds per cubic foot. Each load of riprap shall be reasonably well graded. Sand and rock dust exceeding 5 percent by weight of each load shall not be permitted.

2.2 Riprap Bedding: The riprap bedding blanket shall consist of well-graded gravel, crushed rock, sand, or a combination thereof with a maximum size of 6 inches. All material comprising the riprap bedding blanket shall be composed of tough, durable particles, reasonably free from thin, flat, and elongated pieces, and shall contain no organic matter nor soft, friable particles in excess quantities.

3.0 EXECUTION:

3.1 Preparation: Prepare earth slopes by grading and compacting.

3.2 Installation:

3.2.1 Riprap Bedding Blanket Layers shall be placed on the prepared slope or area to develop the full thickness. Each layer shall be placed in one operation, using methods that will not cause segregation of particle sizes within the bedding. The surface of the finished layer should be reasonably even and free from mounds or windrows.

3.2.2 Stone for riprap shall be placed on the prepared slope or area in a manner that will produce a reasonably well-graded mass of stone with the minimum practicable percentage of voids. Riprap shall be placed to its full course in one operation and in such a manner as to avoid displacing the underlying material. The larger stones shall be well distributed and the entire mass of stone shall be well-graded. The result shall be a compact, uniform riprap layer.

Soil: Cement Surfacing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of soil-cement surfacing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Soil: Use SP and SM soils as classified in ASTM D 2487. The soil aggregate shall contain not more than 55 percent material by dry weight passing the No. 4 sieve and not more than 25 percent material passing the No. 200 sieve. Clay lumps shall be removed.

2.2 Cement: ASTM C 150, Type I.

2.3 Curing Compound: ASTM C 309.

3.0 EXECUTION:

3.1 Place the plant-mixed soil-cement in uniform lifts and compact to the agreed-upon density as determined by ASTM D 558. The optimum moisture content shall be maintained.

3.2 Finish soil-cement surface to the required lines, grades, and cross sections after compaction.

3.3 Construction Joints: If required, construction joints may be horizontal or vertical.

3.4 Curing: Temporary curing of surfaces to receive subsequent bonded lifts or coatings shall be by water fogging. Final curing shall be by application of a membrane maintained intact for 7 days.

Portland Cement Concrete Overlays

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of Portland cement concrete overlays on previously paved areas. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Coarse Aggregate:

2.1.1 Composition: Coarse aggregate shall consist of gravel, crushed gravel, crushed stone, a combination thereof, or crushed blast-furnace slag.

2.1.2 Particle Shape: Particles of the coarse aggregate shall be generally spherical or cubical in shape. The quantity of flat and elongated particles in any size group shall not exceed 20 percent by weight as determined by ASTM D 3398.

2.1.3 Gradation: The maximum size of coarse aggregate shall be the lesser of 1/4 of the pavement thickness or 2 inches nominal size. Gradation limits are specified in ASTM C 136.

2.1.4 Deleterious Substances: The amount of deleterious substances in the coarse aggregate shall not exceed the limits, defined in ASTM C 117 and C 123.

2.2 Fine Aggregate shall consist of natural sand, manufactured sand, or a combination of natural and manufactured sand and shall be composed of clean, hard, durable particles. Particles of the fine aggregate shall be generally spherical or cubical in shape. Gradation limits are specified in ASTM C 136.

2.3 Portland cement shall be Type I in compliance with ASTM C 150.

2.4 Air-Entraining Admixture shall be in compliance with ASTM C 260. Concrete mixtures shall have air

content by volume of concrete of 4 to 7 percent based on measurements made immediately after discharge from the mixer.

2.5 Concrete mixture shall have a nominal slump of 2 inches with a maximum of 3 inches and a 28-day flexural strength of not less than 650 psi.

2.6 Joint and Crack Sealing Materials: Joint filler, joint sealant, and crack sealant shall comply with the following:

2.6.1 Expansion joint fillers shall comply with ASTM D 1751 or D 1752 or shall be resin impregnated fiberboard in compliance with the physical requirements of ASTM D 1752.

2.6.2 Type I sealant shall comply with applicable standards and/or specifications, except that sealant may be furnished as a ready-mixed liquid.

2.6.3 Type II sealant shall comply with applicable standards and/or specifications.

2.6.4 Type V sealant shall comply with CE CRD-C-527 and may be either a single or multiple component material.

2.7 Epoxy-Resin Materials: Materials used in Epoxy-resin grout, mortar, and concrete shall comply with the following:

2.7.1 Epoxy-resin grout shall be a two-compound material formulated to comply with Applicable standards and/or.

2.7.2 Epoxy-resin concrete shall be composed of epoxy-resin binder and uniformly graded aggregate in compliance with ASTM C 144. The maximum size of aggregate shall be 3/8 or 1/2 inch.

2.8 Dowels shall be plain steel bars complying with ASTM A 499.

3.0 EXECUTION:

3.1 Preparation of Existing Surface: The Contractor shall raise and reset all structures such as manhole frames, valve boxes, drainage structures, etc. to meet the required grade. Bonding course shall be applied to the area prepared to receive overlay and shall be of Epoxy-resin grout and Portland cement mortar.

3.2 Concrete Placement: Concrete shall be placed within 45 minutes from the time all ingredients are charged into the mixing drum.

3.2.1 Weather Limitations: The temperature of the concrete placed during warm weather shall not exceed 85 degrees F. Special protection measures, approved by the Authorized Member Representative, shall be used if freezing temperatures are anticipated before the expiration of the specified curing period. Calcium chloride shall not be used.

3.3 Vibration: In the final phases of placing, surface vibrating equipment shall be used, and the duration of vibration shall not exceed 20 seconds.

3.4 Joints shall be saw cut and in alignment with underlying existing joints.

3.5 Finishing:

3.5.1 Transverse Finishing: Immediately after placement, concrete shall be accurately struck off and screeded to such elevation that when consolidated and finished, the surface of the pavement will be free from porous places and will be at the required grade. The finishing machine shall make at least two trips over each area of pavement to compact the concrete and produce a surface of uniform texture, true to grade.

3.5.2 Longitudinal Floating: After completion of the transverse finishing, the longitudinal mechanical float shall be operated to smooth and finish the pavement to grade.

3.5.3 Hand finishing shall be with an approved strike and tamping template and a longitudinal float.

3.5.4 Straightedge Finishing: After the longitudinal floating is completed but while the concrete is still plastic, minor irregularities and score marks in the pavement surface shall be eliminated by means of long-handled wood floats and straightedges. The final finish shall be made with the straightedges, which shall be used to float the entire pavement surface.

3.5.5 Burlap Drag Finishing: When most of the water glaze or sheen has disappeared and before the concrete becomes nonplastic, drag the surface of the pavement in the direction of the concrete placement with a multiple ply burlap drag.

3.5.6 Edging: After other finishing has been completed, the edges of slabs along the forms and at the joints shall be carefully finished with an edging tool to form a smooth rounded surface of the required radius.

3.6 Concrete Curing and Protection:

3.6.1 Concrete curing methods shall consist of mat method, impervious sheeting method, or liquid membrane curing method.
3.6.2 Concrete Protection: Protect repaired areas against damage prior to final acceptance. Traffic shall be excluded from repaired areas.

Steel Reinforced Portland Cement Concrete Overlays

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of steel reinforced Portland cement concrete overlays on previously paved areas. Products shall match existing materials and/or shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1.1 Composition: Coarse aggregate shall consist of gravel, crushed gravel, crushed stone, a combination thereof, or crushed blast-furnace slag.
2.1.2 Particle Shape: Particles of the coarse aggregate shall be generally spherical or cubical in shape. The quantity of flat and elongated particles in any size group shall not exceed 20 percent by weight as determined by ASTM D 3398.
2.1.3 Gradation: The maximum size of coarse aggregate shall be the lesser of one-fourth of the pavement thickness or a nominal size of 2 inches. Gradation limits are specified in ASTM C 136.
2.1.4 Deleterious Substances: The amount of deleterious substances in the coarse aggregate shall not exceed the limits defined in ASTM C 117 and C 123.
2.2 Fine aggregate shall consist of natural sand, manufactured sand, or a combination of natural and manufactured sand and shall be composed of clean, hard, durable particles. Particles of the fine aggregate shall be generally spherical or cubical in shape. Gradation limits are specified in ASTM C 136.
2.3 Portland cement shall be Type I in compliance with ASTM C 150.
2.4 Air-entraining admixtures shall be in compliance with ASTM C 260. Concrete mixtures shall have air content by volume of concrete of 4 to 7 percent based on measurements made immediately after discharge from the mixer.
2.5 Concrete mixture shall have a nominal slump of 2 inches with a maximum of 3 inches and a 28-day flexural strength of not less than 650 psi.
2.6 Joint and Crack Sealing Materials: Joint filler, joint sealant, and crack sealant shall comply with the following:
2.6.1 Expansion joint fillers shall comply with ASTM D 1751 or D 1752 or shall be resin impregnated fiberboard in compliance with the physical requirements of ASTM D 1752.
2.6.2 Type I sealant shall comply with Applicable standards and/or specifications, except that sealant may be furnished as a ready-mixed liquid.
2.6.3 Type II sealant shall comply with Applicable standards and/or specifications.
2.6.4 Type V sealant shall comply with CE CRD-C-527 and may be either a single or multiple component material.
2.7 Epoxy-Resin Materials: Materials used in Epoxy-resin grout, mortar, and concrete shall comply with the following:
2.7.1 Epoxy-resin grout shall be a two-compound material formulated to comply with Applicable standards and/or.
2.7.2 Epoxy-resin concrete shall be composed of epoxy-resin binder and uniformly graded aggregate in compliance with ASTM C 144. The maximum size of aggregate shall be 3/8 inch or 1/2 inch.
2.8 Steel Reinforcement: All reinforcement shall be free from loose flaky rust, loose scale, oil, grease, mud, or other coatings that might reduce bond. Bar mats shall comply with ASTM A 184. Welded steel wire fabric shall comply with ASTM A 185. Tie bars shall be deformed bars in compliance with ASTM A 615, A 616, or A 617. Dowels shall be plain steel bars complying with ASTM A 499.
3.0 EXECUTION:
3.1 Preparation of Existing Surface: The Contractor shall raise and reset all structures such as manhole frames, valve boxes, drainage structures, etc., to meet the required grade. Bonding course shall be applied to the area prepared to receive overlay and shall be of Epoxy-resin grout and Portland cement mortar.

3.2 Reinforcement steel shall be installed by the strike-off method wherein the concrete is deposited on the sub grade and struck to the indicated elevation of the steel. The reinforcement shall be laid upon the prestruck surface.
3.3 Concrete Placement: Concrete shall be placed within 45 minutes from the time all ingredients are charged into the mixing drum.
3.3.1 Weather Limitations: The temperature of the concrete placed during warm weather shall not exceed 85 degrees F. Special protection measures, approved by the Authorized Member Representative, shall be used if freezing temperatures are anticipated before the expiration of the specified curing period. Calcium chloride shall not be used.
3.4 Vibration: In the final phases of placing, surface vibrating equipment shall be used, and the duration of vibration shall not exceed 20 seconds.
3.5 Joints shall be saw cut and in alignment with underlying existing joints.
3.6 Finishing:
3.6.1 Transverse Finishing: Immediately after placement, the concrete shall be accurately struck off and screeded to such elevation that when consolidated and finished, the surface of the pavement will be free from porous places and will be at the required grade. The finishing machine shall make at least two trips over each area of pavement to compact the concrete and produce a surface of uniform texture, true to grade.
3.6.2 Longitudinal Floating: After completion of the transverse finishing, the longitudinal mechanical float shall be operated to smooth and finish the pavement to grade.
3.6.3 Hand finishing shall be done with an approved strike and tamping template and a longitudinal float.
3.6.4 Straightedge Finishing: After the longitudinal floating is completed but while the concrete is still plastic, minor irregularities and score marks in the pavement surface shall be eliminated by means of longhandled wood floats and straightedges. The final finish shall be made with the straightedges, which shall be used to float the entire pavement surface.
3.6.5 Burlap Drag Finishing: When most of the water glaze or sheen has disappeared and before the concrete becomes nonplastic, the surface of the pavement shall be dragged in the direction of the concrete placement with a multiple ply burlap drag.
3.6.6 Edging: After other finishing has been completed, the edges of slabs along the forms and at the joints, where indicated or directed, shall be carefully finished with an edging tool to form a smooth rounded surface of the required radius.
3.7 Concrete Curing and Protection:
3.7.1 Concrete curing methods shall consist of mat method, impervious sheeting method, or liquid membrane curing method.
3.7.2 Concrete Protection: Repaired areas shall be protected against damage prior to final acceptance. Traffic shall be excluded from repaired areas.

Fibrous Reinforced Portland Cement Concrete Overlays

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of fibrous reinforced Portland cement concrete overlays on previously paved areas. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Coarse Aggregate:
2.1.1 Composition: Coarse aggregate shall consist of gravel, crushed gravel, crushed stone, a combination thereof, or crushed blast-furnace slag.
2.1.2 Particle Shape: Particles of the coarse aggregate shall be generally spherical or cubical in shape. The quantity of flat and elongated particles in any size group shall not exceed 20 percent by weight as determined by ASTM D 3398.
2.1.3 Gradation: The maximum size of coarse aggregate shall be the lesser of one-fourth of the pavement thickness or 2-inch nominal size. Gradation limits are specified in ASTM C 136.
2.1.4 Deleterious Substances: The amount of deleterious substances in the coarse aggregate shall not exceed the limits defined in ASTM C 117 and C 123.

2.2 Fine Aggregate shall consist of natural sand, manufactured sand, or a combination of natural and manufactured sand and shall be composed of clean, hard, durable particles. Particles of the fine aggregate shall be generally spherical or cubical in shape. Gradation limits are specified in ASTM C 136.

2.3 Portland cement shall be Type I in compliance with ASTM C 150.

2.4 Air-Entraining Admixture shall be in compliance with ASTM C 260. Concrete mixtures shall have air content by volume of concrete of 4 to 7 percent based on measurements made immediately after discharge from the mixer.

2.5 Concrete mixture shall have a nominal slump of 2 inches with a maximum of 3 inches and a 28-day flexural strength of not less than 650 psi.

2.6 Joint and Crack Sealing Materials: Joint filler, joint sealant, and crack sealant shall comply with the following:

2.6.1 Expansion joint fillers shall comply with ASTM D 1751 or D 1752 and shall be resin impregnated fiberboard in compliance with the physical requirements of ASTM D 1752.

2.6.2 Type I sealant shall comply with Applicable standards and/or specifications, except that sealant may be furnished as a ready-mixed liquid.

2.6.3 Type II sealant shall comply with Applicable standards and/or specifications.

2.6.4 Type V sealant shall comply with CE CRD-C-527 and may be either a single or multiple component material.

2.7 Epoxy-Resin Materials: Materials used in Epoxy-resin grout, mortar, and concrete shall comply with the following:

2.7.1 Epoxy-resin grout shall be a two-compound material formulated to comply with Applicable standards and/or.

2.7.2 Epoxy-resin concrete shall be composed of epoxy-resin binder and uniformly graded aggregate in compliance with ASTM C 144. The maximum size of aggregate shall be 3/8 inch or 1/2 inch.

2.8 Steel Fibers: The fibers shall be made from low carbon steel. The following sizes of steel are acceptable: 0.010-inch x 0.022-inch flat steel fiber, 0.010-inch x 0.50-inch round steel fiber, 0.016-inch x 1.0-inch round steel fiber, and 0.016-inch x 0.75-inch round steel fiber with 0.010-inch x 0.020-inch flat section along the length of the fiber and 2.5-inch x 0.025-inch round steel fibers.

3.0 EXECUTION:

3.1 Preparation of Existing Surface: The Contractor shall raise and reset all structures such as manhole frames, valve boxes, drainage structures, etc., to meet the required grade. Bonding course shall be applied to the area prepared to receive overlay and shall be of Epoxy-resin grout and Portland cement mortar.

3.2 Batching: Fibers and aggregate shall be blended prior to charging the mixer. The introduction of cement, water, and additives shall be matched with the rate of flow of the fiber-aggregate mixture to assure uniform mix.

3.3 Concrete Placement: Concrete shall be placed within 45 minutes from the time all ingredients are charged into the mixing drum.

3.3.1 Weather Limitations: The temperature of the concrete placed during warm weather shall not exceed 85 degrees F. Special protection measures, approved by the Authorized Member Representative, shall be used if freezing temperatures are anticipated before the expiration of the specified curing period. Calcium chloride shall not be used.

3.4 Vibration: In the final phases of placing, surface vibrating equipment shall be used and the duration of vibration shall not exceed 20 seconds.

3.5 Joints shall be saw cut and in alignment with underlying existing joints.

3.6 Finishing:

3.6.1 Transverse Finishing: Immediately after placement, the concrete shall be accurately struck off and screeded to such an elevation that, when consolidated and finished, the surface of the pavement will be free from porous places and will be at the required grade. The finishing machine shall make at least two trips over each area of pavement to compact the concrete and produce a surface of uniform texture, true to grade.

3.6.2 Longitudinal Floating: After completion of the transverse finishing, the longitudinal mechanical float shall be operated to smooth and finish the pavement to grade.

3.6.3 Hand finishing shall be done with an approved strike and tamping template and a longitudinal float.
3.6.4 Straightedge Finishing: After the longitudinal floating is completed but while the concrete is still plastic, minor irregularities and score marks in the pavement surface shall be eliminated by means of long-handled wood floats and straightedges. The final finish shall be made with the straightedges, which shall be used to float the entire pavement surface.
3.6.5 Broom Finishing: Burlap drag finishing will not be allowed as this brings the steel fibers to the surface. Finishing shall be accomplished using a stiff broom.
3.6.6 Edging: After other finishing has been completed, the edges of slabs along the forms and at the joints, where indicated or directed, shall be carefully finished with an edging tool to form a smooth rounded surface of the required radius.
3.7 Concrete Curing and Protection:
3.7.1 Concrete curing methods shall consist of mat method, impervious sheeting method, or liquid membrane curing method.
3.7.2 Concrete Protection: Repaired areas shall be protected against damage prior to final acceptance. Traffic shall be excluded from repaired areas.

Asphaltic Concrete Overlays

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of asphaltic concrete overlays. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Asphalt Cement: The asphalt cement shall comply with ASTM D 946 penetration grade 85-100 requirements and shall show a negative spot test when tested in compliance with AASHTO T 102.
2.2 Mineral Aggregates: Shall comply with ASTM D 3515 for 3/4-inch maximum aggregate mix.
2.3 Test Properties: The bituminous mixture shall meet the following requirements when tested in compliance with applicable standards and/or regulations.

Stability minimum, lb	500
Flow maximum, 1/100-in. units	20
Voids total mix, %	3-5
Voids filled with bitumen, %	75-85

3.0 EXECUTION:
3.1 Preparation of Existing Surface: The Contractor shall raise and reset all structures such as manhole frames, valve boxes, drainage structures, etc., to meet the required grade. An asphalt tack coat shall be applied to all contact surfaces in advance of the asphalt concrete overlay placement. The asphalt tack shall be placed at an asphalt residue coverage rate of 0.05 gal/sq yd.
3.2 Installation:
3.2.1 Joints: Longitudinal joints of the overlay shall be offset at least 1 foot from existing joints. Transverse joints shall be offset at least 2 feet from existing transverse joints.
3.2.2 All asphalt concrete mixture and pavement that are contaminated, damaged, or defective shall be removed and replaced by the Contractor. Skin patching of rolled pavement will not be permitted.
3.2.3 Compaction of Mixture: The asphalt concrete mixture shall be rolled until a density of not less than 95 percent and not more than 100 percent of laboratory compacted specimen is obtained.
3.2.4 Surface Smoothness: After final rolling, the pavement surface shall not vary in excess of 1/8 inch from a 10-foot straightedge laid on the surface.

Crushed Stone Paving

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of crushed stone paving. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:

2.1 Aggregates: Aggregates shall consist of natural gravel, crushed stone or slag, crushed gravel, angular sand, or other approved materials. Aggregates shall be durable, sound, and free from foreign material, including objectionable coatings, lumps and balls of clay, and organic matter.

2.1.1 Coarse aggregates, consisting of angular fragments of uniform density and quality, shall have a percentage of wear not to exceed 50 percent after 500 revolutions when tested in accordance with ASTM C 131. The amount of flat and elongated particles (length to width greater than 3 to 1) shall not exceed 30 percent.

2.1.2 Crushed gravel shall be manufactured from gravel particles 50 percent of which by weight are retained on the maximum site gradation sieve specified.

2.1.3 Crushed stone shall contain at least 50 percent by weight of crushed pieces having two or more freshly fractured faces for each range of sizes.

2.1.4 Slag shall be an air-cooled blast-furnace product having a dry weight of not less than 65 pcf.

2.2 Binder material shall consist of screenings, angular sand, or other finely divided mineral matter processed or naturally combined with the coarse aggregate.

2.3 Gradation requirements specified in the following table shall apply to the completed aggregate surface. The table shows permissible gradings for granular material used in aggregate surface roads and airfields. Sieves shall conform to ASTM E 11. Aggregate used shall meet the following gradation limits or shall meet the gradation requirements of the applicable State Highway Department wherein the work is performed as approved by the Authorized Member Representative:

Gradation for Aggregate Surface Courses

Sieve Designation	No. 1	No. 2	No. 3	No. 4
25.0 mm 1 in.	100	100	100	100
9.5 mm 3/8 in.	50-85	60-100	--	--
4.7 mm No. 4	35-65	50-85	55-100	70-100
2.0 mm No. 10	25-50	40-70	40-100	55-100
0.425 mm No. 40	15-30	24-45	20-50	30-70
0.075 mm No. 200	8-15	8-15	8-15	8-15

2.4 Liquid Limit and Plasticity Index: The portion of the completed aggregate surface course passing the No. 40 sieve shall have a maximum liquid limit of 35 and a plasticity index of 4 to 9.

3.0 EXECUTION:

3.1 Preparation: The previously constructed layer or base shall be cleaned of loose and foreign matter. Adequate drainage shall be provided. Ruts or soft spots shall be corrected. For cohesionless underlying materials, the surface shall be stabilized with aggregate prior to placement of the stabilized-aggregate course.

3.2 Installation:

3.2.1 Mixing and Placing: Materials shall be mixed in such a manner as to obtain a uniform stabilized-aggregate material and a uniform optimum water content for compaction. Mixing and placing procedures shall produce true grades, minimize segregation and degradation, optimize water content, and ensure a satisfactory base course.

3.2.2 Compaction: Each layer of stabilized-aggregate paving shall be compacted. Water content shall be maintained at optimum. Areas inaccessible to the rollers shall be compacted with mechanical tampers and shall be shaped and finished by hand methods.

3.2.3 Layer Thickness: No layer shall be in excess of 8 inches nor less than 3 inches in compacted thickness.

3.2.4 Proof Rolling: Materials in paving or underlying materials that produce unsatisfactory results by rolling shall be removed and replaced with satisfactory materials and recompacted.

3.2.5 Edges of Paving: Approved materials shall be placed along edges of stabilized-aggregate paving course in such quantities as will compact to thickness of the course being constructed, allowing at least a 1-foot width of the shoulder to be rolled and compacted simultaneously with rolling and compacting of each layer of the paving course.

3.2.6 Finishing: Finished surface shall be of uniform grade and texture.

3.2.7 Thickness Control: Compacted thickness of the stabilized paving course shall be within 1/2 inch of the thickness required.

Portland Cement Concrete Sidewalks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of Portland cement concrete (PCC) sidewalks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Ready-Mixed Concrete: Ready-mixed concrete shall comply with ASTM C 94, Alternate No. 2. The concrete shall have a slump of not more than three inches. The concrete shall attain a minimum compressive strength of 2,500 psi at seven days.
2.2 Aggregates: ASTM C 33.
2.3 Reinforcement Steel: Wire mesh reinforcement shall comply with ASTM A 184.
2.4 Expansion joint fillers: Expansion joint fillers shall comply with ASTM D 1751 or D 1752 or shall be resin impregnated fiberboard complying with ASTM D 1752.
2.5 Joint Sealers: CE CRD-C-527.
3.0 EXECUTION:
3.1 Reinforcement Steel: Fasten reinforcement steel accurately and securely in place with suitable supports and ties before the concrete is placed.
3.2 Concrete Conveying: Convey concrete to construction areas by methods that will prevent segregation.
3.3 Concrete Placing: Moisten the sub grade just before the concrete is placed. Place concrete in one layer of such thickness that when compacted and finished the sidewalk will be of the required thickness.
3.4 Edge and Joint Finishing: Carefully finish all slab edges, including those at formed joints, with an edger having a radius of 1/8 inch.
3.5 Contraction Joints: Divide the concrete surface into rectangular areas by means of contraction joints spaced at not more than five feet on center.
3.6 Expansion Joints: Form expansion joints about structures and features that project through or into the sidewalk pavement. Fill expansion joints with joint filler of the type, thickness, and width to match existing or as directed by the Authorized Member Representative. Place the joint filler with the top edge 1/4 inch below the surface. Remove concrete over the joint filler.
3.7 Joint Sealing: At the end of the curing period, carefully clean and seal expansion joints.
3.8 Portland cement Concrete Curing: Cure new concrete by protection against loss of moisture and rapid temperature changes for a period of not less than 7 days.
3.9 Backfilling: After curing, remove debris adjoining the sidewalk, backfill, grade, and compact to conform to the surrounding area.

Asphaltic Concrete Sidewalks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of asphalt concrete sidewalks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Asphaltic Concrete:
2.1.1 Hot-Mixed, Hot-Laid Bituminous Paving Mixtures: ASTM D 3515.
2.1.2 Plant-Mixed, Stockpiled Asphalt Cold Mixes: Asphalt Institute Manual MS-14.
2.2 Bituminous Prime: ASTM D 2027, Grades MC-30 or MC-70; ASTM D 2028, Grade RC-70; or ASTM D 2026, Grade SC-70.
2.3 Base Course: ASTM D 2940.
2.4 Bituminous Tack Coat: ASTM D 977, Grades RS-1, MS-1 or SS-1h; ASTM D 2027, Grade MC-30;

ASTM D 2028, Grade RC-70; ASTM D 2026, Grade SC-70; or ASTM D 2397, Grades CRS-1 or CSS-1.

2.5 Seal Coat: ASTM D 2027, Grade MC-250 or MC-800; or D 2028, Grade RC-250 or RC-800.

2.6 Slurry Coat Mixture shall be comprised of 70 percent sand or fine aggregate, 10 percent water, and 20 percent liquid or emulsified asphalt.

2.6.1 Fine Aggregate: ASTM D 1073, Grade 2.

2.6.2 Emulsified Asphalt: ASTM D 977, Grades SS-1 or SS-1h.

3.0 EXECUTION:

3.1 Application Temperatures: Application temperatures for all asphalt materials shall comply with provisions of the Asphalt Institute publications and the applicable ASTMs.

3.2 Sub grade: Construct the sub grade or walkway replacement true to grade and compact as required.

3.3 Base Course:

3.3.1 Placing: Spread the base course material evenly upon the prepared sub grade, in a layer of such depth that when compacted the layer will be uniform and of the thickness required.

3.3.2 Compaction: Immediately following the spreading of the material, compact the base course with equipment to a density as required.

3.4 Surface Course:

3.4.1 Placing: Apply prime coat, and allow it to cure. The placing of the mixture shall be continuous. Paint all contact surfaces of previously constructed sidewalk with a tack coat of rapid-setting liquid asphalt just before the fresh mixture is placed.

3.4.2 Forms: Set forms with the upper edge true to line and hold grade rigidly in place by stakes placed on the outside of the forms and set flush with the top edge of the forms.

3.4.3 Compaction: Immediately following the placement of the asphalt concrete mixture, compact the surface course with equipment to a density as required.

3.4.4 Backfilling: After removing the forms and debris, backfill the exposed or excavated area adjoining the sidewalk with granular material, grade, and compact to conform to the surrounding area.

3.5 Patching:

3.5.1 For Repair Operations Involving Raveling, Heaving, Spalling, and Alligatoring: Cut asphalt concrete paving back to solid material, making cut area rectangular with vertical sides. Remove deteriorated pavement including base material if required. Replace base course, compact, and tack coat the base material and the vertical surfaces of cut area. Fill area with new asphalt concrete and compact level with existing walkway. Dust patched area with sand or mineral dust.

3.5.2 Pothole Repair: Cut rectangular hole around pothole back to solid pavement leaving straight, vertical edges. Remove loose material and water to firm base. Fill holes and compact to within 3 inches of the surface in layers not exceeding 6 inches with either base material or asphalt mixture. Apply tack coat to base material and vertical edges. On the surface layer, fill with asphalt mixture and mound to such height that when compacted the mix will be level with surrounding walkway surface. Dust patched area with sand or mineral dust.

3.5.3 Low Spot or Depression Repair: Determine limits of depression with straightedge, and mark outline with crayon. Apply tack coat, 0.05 to 0.15 gallon per square yard, to the cleaned area, and allow to cure. Spread area with asphalt concrete mix and feather edge by raking and manipulation of the material. Roll and compact area to surrounding walkway level. Recheck with straightedge. Apply a sand seal to the patched area to prevent entrance of water.

3.5.4 Polished Aggregate Repair: Clean and dry area thoroughly. Apply tack coat at a rate of 0.05 to 0.15 gallon per square yard; overlay area with new asphalt concrete mix to a minimum 1-1/2 inch thickness and feather to adjoining walkway surfaces. Roll with pneumatic or steel rollers.

3.5.5 Damaged Edging Repair: Remove damaged or deteriorated edging materials and replace.

3.5.6 Prime Coat: Prime new base course with MC-70 liquid asphalt at a rate of 0.20 to 0.30 gallon per square yard. Take care to apply no more asphalt than will penetrate into the base course during curing. Blot excess prime with sand before the surfacing material is applied.

3.5.7 Tack Coat: Surfaces and cut edges of existing asphalt concrete shall be given a tack coat of MC-70 liquid asphalt at a rate of 0.05 to 0.15 gallon per square yard. After application of the tack coat, allow time for the material to cure before surfacing and patching material is placed.

3.5.8 Seal Coat Spray Application: Walkway surfaces that are to be sealed shall receive a liquid asphalt

coat applied at a rate of 0.15 to 0.20 gallon per square yard, along with a fine aggregate at a rate of 15 to 20 pounds per square yard.

3.6 Crack Repair: Fill cracks with liquid asphalt, sand asphalt emulsion water mixture, or slurry seal. After thorough cleaning, work the mixture into cracks by broom or squeegee. Cracks 1/8 to 1/2 inch width shall be slurry sealed and filled with liquid asphalt. Dust repaired cracks with fine aggregate or mineral dust to prevent cracking. Final thickness of the slurry seal shall be 1/8 inch minimum.

Miscellaneous Sidewalks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of gravel, masonry, and wood sidewalks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Aggregate shall comply with the following:

2.1.1 Surface Course Aggregates shall be well-graded, crushed stone, 3/4- to 1-1/4 inch size, consisting of clean, sound, durable particles.

2.1.2 Masonry Grout Aggregate: ASTM C 404, Size 2.

2.2 Base Course: Base course material shall be a granular, dense-graded, high-quality compactable material.

2.3 Ready-Mixed Concrete: Ready-mixed concrete shall comply with ASTM C 94. The concrete shall attain a minimum compressive strength of 2,500 psi at 28 days.

2.4 Portland cement Concrete: Cement shall comply with ASTM C 150.

2.5 Joint Filler: Masonry joint filler shall be Portland cement concrete mix with cement complying with ASTM C 150.

2.6 Masonry Units: Color and texture shall match the existing as nearly as is practicable.

2.7 Wood and Preservatives: Footboards and supports shall be 1-1/2 inch thick Number 1 dense Douglas fir or yellow pine lumber, pressure-treated with chromate copper arsenate (CCA) preservative complying with AWPA P5. Retention shall be a minimum of 0.25 pounds per cubic foot.

3.0 EXECUTION:

3.1 Base Course Repair: Remove material in soft spots to such depth required to provide a firm foundation for surface materials and fill with granular material of a quality that will compact when moistened. Roll or tamp this material to obtain the proper density.

3.2 Surface Repair:

3.2.1 Aggregate Walkways: Spread the surface material evenly on the base course in a layer of such depth that when compacted, the layer will be uniform with a minimum thickness of 4 inches.

3.2.2 Joint Filling: Completely remove and clean the joint of all loose joint material, dirt, clay, or other foreign matter. Fill the joint flush with concrete to provide a uniform surface.

3.2.3 Wood Walkways: Secure wood members with galvanized nails, screws, bolts, or other approved fasteners to ensure tight joints.

3.2.4 Masonry Walkways: New or salvaged masonry units will be placed on a 3/4-inch mortar setting bed with mortar joints matching the existing walkway. Place the setting bed on a fresh 3-inch thick Portland cement concrete slab.

Precast Sidewalks and Pavers

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of precast sidewalks and pavers. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Precast Concrete Patio Blocks: Natural or colored, 2 inches thick.

2.2 Exposed Aggregate or Granite: ASTM C 615 and National Building Granite Quarries Association, Inc.
2.2.1 Exposed Limestone: Limestone (Oolitic), ASTM C 568, Category II.
2.2.2 Exposed White Tumblestone Aggregate: As directed.
2.3 Stone Pavers:
2.3.1 Bluestone Flagging Paver: Irregular cut, 1 inch thick.
2.3.2 White Marble, Crushed Stone: ASTM C 503 and Marble Institute of America (MIA), 3 inches thick.
2.3.3 Bluestone, Crushed Stone: 3 inches thick.
2.3.4 Natural Cleft Slate: ASTM C 629, 3/4-inch irregular cut, 1/2-inch random rectangular cut, or 1/4-inch random rectangular butted joints.
2.4 Granite Blocks: Blocks shall be 3 to 5 inches thick and comply with requirements of ASTM C 615 and National Building Granite Quarries Association, Inc. Sizes shall be 3- 1/2 inches square; 4 to 12 inches by 3 to 5 inches; and 6 to 15 inches by 3 to 6 inches.
2.5 Mortar and Grout:
2.5.1 Portland cement: ASTM C 150 and the staining requirements of ASTM C 91.
2.5.2 Masonry Cement: ASTM C 91, non-staining.
2.5.3 Hydrated Lime: ASTM C 207, Type S.
2.5.4 Sand: ASTM C 144.
2.5.4.1 White Pointing Mortar: Natural white sand or ground white stone.
2.5.4.2 Colored Pointing Mortar: Marble, granite, or sound stone.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Clean stone or concrete block with clear water.
3.1.2 Ferrous Metal: Apply a heavy coat of bituminous paint on metal surfaces in contact with block.
3.2 Installation:
3.2.1 Expansion Joints: Install continuous strips of preformed joint filler.
3.2.2 Clean subbase and saturate with clean water.
3.2.3 Slush Coat: Apply 1/16-inch thick slush coat of cement grout over concrete subbase about 15 minutes prior to placing setting bed.
3.2.4 Setting Bed: Mix one 94-pound bag of cement to 3 cu ft of sand. Use only enough water to produce a moist surface when setting bed is ready for setting of stone. Spread and screed to a uniform thickness.
3.2.5 Set stone or concrete block before initial set of cement bed occurs. Wet stone or block thoroughly before setting. Apply a thin layer of neat cement paste 1/32-inch to 1/16-inch thick to setting bed, or bottom of stone or block.
3.2.6 Grout joints as soon as possible after initial set of setting bed and tool slightly concave. Use grout mix of one bag Portland cement to 2 cu ft sand. Cure grout by maintaining in a moist condition for 7 days. Do not permit traffic on surface during setting of units or for at least 24 hours after final grouting of joints.

Concrete Curbs and Gutters

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of concrete curbs and gutters. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Concrete Curing Materials:
2.1.1 Burlap: AASHTO M 182 having a weight of 14 ounces or more per square yard when dry.
2.1.2 Impervious Sheeting: ASTM C 171.
2.1.3 Liquid Membrane Curing Compound: ASTM C 309. Compound shall be free of paraffin or petroleum.
2.2 Joint Materials:
2.2.1 Expansion joint fillers: ASTM D 1751 or ASTM D 1752.
2.2.2 Joint Sealers: CE CRD-C-527 or applicable standards and/or specifications.

2.3 Concrete: Concrete shall have a minimum compressive strength of 3,000 psi. The maximum size of aggregate shall be 1-1/2 inches. Concrete shall have a slump of not more than 3 inches and an air content by volume of concrete of 3 to 6 percent.

2.4 Forms: Curb and gutter forms shall be of wood or steel. The outside forms shall have a height equal to the full depth of the curb or gutter. The inside form of curb shall have batter and shall be securely fastened to and supported by the outside form. Wood forms shall be surfaced plank, 2-inch nominal thickness, straight and free from warp, twist, loose knots, splits, or other defects. Corners, deep sections, and radius bends shall have additional stakes and braces, as required. Radius bends may be formed with 3/4-inch plywood. Steel forms shall be channel-formed sections with a flat top surface and with welded braces at each end and at not less than two intermediate points. Form ends shall be interlocked and self-aligning. Forms shall include flexible forms for radius forming, corner forms, form spreaders, and fillers.

3.0 EXECUTION:

3.1 Preparation: The sub grade shall be constructed to grade and cross section. The sub grade shall be of materials equal in bearing quality to the sub grade under the adjacent pavement and shall be compacted. The sub grade shall be maintained in a smooth, compacted condition, in conformity with the required section and established grade until the concrete is placed. The sub grade shall be in a moist condition when concrete is placed.

3.2 Installation:

3.2.1 Form Setting: Forms for curbs shall be carefully set to alignment and grade and to conform to the dimensions of the curb. Clamps, spreaders, and braces shall be used where required to ensure rigidity in the forms.

3.2.2 Concrete Placement and Finishing: Concrete shall be placed in layers not to exceed 6 inches. Concrete shall be thoroughly consolidated. The edges of the gutter and top of the curb shall be rounded with an edging tool to a radius of 1/2 inch, and the surfaces shall be floated and finished with a smooth wood float until true to grade and section and uniform in texture. Floated surfaces shall then be brushed with longitudinal strokes. Immediately after removing the front curb form, the face of the curb shall be rubbed. The surface shall be brushed in the same manner as the gutter and curb top. The top surface of gutter and entrance shall be finished to grade with a wood float. Expansion joints and contraction joints shall be constructed at right angles to the line of curb and gutter. Contraction joints shall be constructed by means of 1/8-inch thick separators, of a section conforming to the cross section of the curb and gutter. Contraction joints shall match joints in abutting Portland cement concrete pavement. At other pavements, construction joints shall be placed at not less than 5 feet nor greater than 15 feet apart. Expansion joints shall be formed by means of preformed expansion joint filler material cut and shaped to the cross section of curb and gutter. Expansion joints shall be provided in curb at the end of all returns. Expansion joints shall match expansion joints of abutting Portland cement concrete pavement. At other pavements, expansion joints at least 1/2 inch in width shall be provided at intervals not exceeding 45 feet. Exposed concrete surfaces shall be cured for not less than 7 days.

3.2.3 Backfilling: After curing, debris shall be removed, and the area adjoining the concrete shall be backfilled, graded, and compacted.

3.2.4 Sealing Joints: Expansion joints and the top 1-inch depth of contraction joints shall be sealed with joint sealer. The joint opening shall be thoroughly cleaned before the sealing material is placed. Excess material on exposed surfaces of the concrete shall be removed immediately and exposed concrete surfaces cleaned.

Portland Cement Concrete

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of Portland cement concrete (PCC) pavements. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Ready-Mixed Concrete shall comply with ASTM C 94, Alternative No. 2. The concrete shall have a

slump of not more than three inches. The concrete shall attain a minimum compressive strength of 2,500 psi at seven days.

2.2 Aggregates shall comply with ASTM C 33.
2.3 Air Entraining Admixtures shall comply with ASTM C 260.
2.4 Concrete Curing Materials shall comply with one of the following:
2.4.1 Burlap: AASHTO M182.
2.4.2 White, Opaque Polyethylene-Coated Burlap: ASTM C 171.
2.4.3 White, Opaque Polyethylene Sheeting: ASTM C 171.
2.4.4 White Waterproof Paper: ASTM C 171.
2.4.5 Liquid Membrane Curing Compound: ASTM C 309.
3.0 EXECUTION: (Not used.)

Bridge Deck Asphalt Concrete Wearing Surfaces

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of bridge deck asphalt concrete wearing surfaces. Products shall match those existing and/or as shall be directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work. The standard specification for highway construction for the state in which the project is located shall be considered the standard for material, equipment, details, and construction methods as supplemented hereafter.
2.0 PRODUCTS:
2.1 Aggregate:
2.1.1 Coarse Aggregate for Bituminous Mixtures: ASTM D 692.
2.1.2 Fine Aggregate for Bituminous Mixtures: ASTM D 1073.
2.1.3 Mineral Filler for Bituminous Mixtures: ASTM D 242.
2.2 Bituminous Materials:
2.2.1 Asphalt Cement: ASTM D 946, penetration grade 85-100.
2.2.2 Anionic Emulsified Asphalt: ASTM D 977, SS-1 or SS-1h.
2.2.3 Rapid Curing Type Liquid Asphalt: ASTM D 2028, RC-70 and RC-250.
2.2.4 Medium Curing Type Liquid Asphalt: ASTM D 2027, MC-30, MC-70, and MC 800.
2.2.5 Coal-Tar Pitch: Specific gravity shall be 1.20 to 1.27 at 77 degrees.
2.2.6 Coal-Tar Pitch Emulsion: ASTM D 3320.
2.2.7 Fiberglass Fabric: ASTM D 1668, Type II or III.
2.3 Asphalt Mixture:
2.3.1 Asphalt Seal Coat: RC-70 or MC-70 with following aggregate:

Sieve Size	Percent Passing (Wt.)
1/2-in.	100
3/8-in.	94-100
No. 4	15-45
No. 16	0-4

2.3.2 Asphalt Slurry Seal: SS-1 or SS-1h with following aggregate:

Sieve Size	Percent Passing (Wt.)
No. 8	100
No. 16	65-90
No. 30	40-60
No. 50	25-42
No. 100	15-30
No. 200	10-20

Mix shall contain not less than 15 percent asphalt emulsion nor more than 10 percent water by weight.

2.3.3 Asphalt Patch Mix: RC 250 or MC 800 with the following aggregate.

Sieve	Percent

Size	Passing (Wt.)
3/4-in.	100
1/2-in.	85-100
No. 4	65-80
No. 8	50-65
No. 16	37-52
No. 30	25-40
No. 50	18-30
No. 100	10-20
No. 200	3-10

Liquid asphalt shall not be less than 5 percent by weight.

2.3.4 Coal-Tar Emulsion Slurry: The slurry shall not have more than 10 percent water or 5 pounds of aggregate per gallon of coal-tar emulsion. Aggregate shall have the following gradation:

Sieve Size	Percent Passing (Wt.)
No. 10	100
No. 16	30-65
No. 30	0-5

2.3.5 Asphalt-Sand Seal Protection Mix: Asphalt cement penetration shall be grade 85-100 with the following aggregate.

Sieve Size	Percent Passing (Wt.)
3/8-in.	100
No. 4	97-100
No. 10	80-95
No. 40	50-70
No. 80	25-40
No. 200	8-10

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Traffic Control: When traffic is maintained on bridge under repair or is directed over a temporary run-around, furnish, erect, and maintain all barricades, flags, torches, lights, guardrails, temporary pavement markings, and traffic control signs required for the protection of the public and for the direction of traffic. Number, type, color, size, and placement of all traffic control devices and the use of a flagman shall comply with USDOT FHA MUTCD "Traffic Controls for Highway Construction and Maintenance Operations." All traffic control devices in advance of the construction limits shall also be the responsibility of the Contractor.

3.1.2 Removal of Damaged or Deteriorated Materials:

3.1.2.1 Cleaning for Crack Filling and Slurry Seals: The area shall be swept with stiff bristle brooms and blown clean. Cracks shall be cleaned to the maximum depth possible and made free from any dirt, stones, or other foreign matter.

3.1.2.2 Removal of Deteriorated Material for Patching: Areas to be patched shall extend a minimum of 1 foot into sound surfacing around the perimeter. Saw cut to minimum 3/4 inch deep along all edges of areas delineated to be patched. Remove loose and unsound material completely to the support structure.

3.1.2.3 Preparation for Waterproofing Structural Deck: Remove existing asphalt wearing course and membrane completely to the support structure. Surface shall be smooth and free from projections that might damage the waterproofing membrane.

3.2 Maintenance and Repair Methods:

3.2.1 Filling and Sealing Cracks: Fill the cracks to within 1/8 inch of the surface with asphalt emulsion slurry. Allow the slurry to cure completely before sealing. Seal cracks with liquid asphalt RC-70. The surface of the sealant shall be sprinkled with dry sand to prevent tracking.

3.2.2 Seal Coating: Spray asphalt emulsion seal coat uniformly over the repair area at the rate of 0.15 to 0.25 gallon per square yard after all cracks in the repair area are filled. Immediately following the

application of the asphalt emulsion, spread seal coat aggregate uniformly over the treated surface at the rate of 15 to 25 pounds per square yard. Compact by rolling the entire surface. Upon the completion of the work, no loose aggregate shall be allowed to remain on the surface. Allow the sealed area to cure thoroughly before opening to traffic.

3.2.3 Slurry Seal Coating: Where cracks exceed 1 inch in depth or 1/2 inch in width, or both, they shall be filled with the slurry mixture and allowed to cure before placing the slurry seal. Place slurry mixture evenly over area to be sealed. Final thickness of the slurry seal shall be between 1/16 inch and 1/8 inch. Where two applications of the slurry seal are required, allow the initial application to cure before placing the succeeding application.

3.2.4 Patching Asphalt Concrete Surface:

3.2.4.1 Prime Coat: Prime the entire area of patch, including vertical faces, with liquid asphalt RC-70.

3.2.4.2 Placing and Compacting Asphalt Patch Mix: Place sufficient material in the patch area to ensure that the patch surface will not be below that of the adjacent material after compaction. Where the thickness of the finished compacted patch is greater than 3 inches, spread and compact the mixture in 2 or more layers.

3.2.5 Waterproofing Structural Deck: The waterproofing membrane system shall consist of a penetrating primer, a built-up coal-tar pitch emulsion membrane with 2 plies of coated glass fabric, and a 1/2-inch asphalt-sand seal protection layer.

Crack Sealing of Asphalt Concrete Pavements

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for crack sealing of asphalt concrete pavements. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Liquid Asphalt shall comply with ASTM D 2027, Grade MC-250.

2.2 Emulsified Asphalt shall comply with ASTM D 977, Grade MS-2.

2.3 Sealing Compound shall comply with applicable standards and/or specifications.

2.4 Fine Aggregate shall be natural sand or crusher dust and have a maximum size of not more than 1/8 inch and be free of clay or organic matter.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 All Cracks to be sealed shall be cleaned of dirt and debris.

3.1.2 Crack Cleaning Equipment shall consist of a portable air compressor with hose and nozzles for directing air directly into cracks and stiff bristle brooms.

3.1.3 Heating Equipment for Liquid Asphalt shall be mobile and shall be equipped with an agitating device for stirring material during heating, a thermometer, regulating equipment for heat control, and a gravity-type draw-off valve.

3.1.4 Heating Equipment for Sealing Compound: Unless otherwise required by the manufacturer's recommendations, the equipment shall be mobile and shall consist of double-boiler, agitator-type kettles with oil medium in the outer space for heat transfer. The applicator unit shall be so designed that the sealant will circulate through the delivery hose and return to the inner kettle when not sealing cracks.

3.1.5 Application Equipment shall have a spout or nozzle of such size that the sealing material will be placed in the cracks without entrapping air in cracks or spreading material on adjacent pavement surface.

3.2 Installation:

3.2.1 Sealing Compound: All cracks 1/8 inch wide and wider shall be sealed. The application temperature for sealing compound shall comply with applicable standards and/or specifications. Cracks 1/2 inch wide and wider shall be filled with a slurry of fine sand and an emulsified asphalt or liquid asphalt. After the slurry has cured, cracks shall be sealed with liquid asphalt or emulsified asphalt and lightly sanded.

3.2.2 Liquid and Emulsified Asphalt Sealer: The temperature shall be varied so that it flows freely into

cracks and completely fills cracks without entrapping air. Cracks shall be free of moisture before filling and shall be filled slightly above the pavement surface. When excess sealer has been removed, the sealer shall be covered with fine sand.

3.2.3 Traffic Control: Traffic will not be permitted over sealed cracks until the sealer has cooled so that it is not picked up by vehicle tires. The Contractor will be responsible for all barricades and flagmen necessary to control traffic.

Patching of Asphalt Concrete Pavements

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for patching of asphalt concrete pavements. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Asphaltic Concrete:

2.1.1 Hot-Mixed, Hot-Mixed Asphaltic Concrete and Emulsified Asphalt shall comply with requirements of ASTM D 3515.

2.1.2 Plant-Mixed, Stockpiled Asphalt Cold Mixes shall comply with the requirements of Asphalt Institute Specification PM-2.

2.2 Bituminous Prime: Bituminous prime shall comply with ASTM D 2027.

2.3 Base Course: Base course material shall comply with local highway department specification for dense-graded, high-quality material.

2.4 Bituminous Tack Coat: Bituminous tack coat shall comply with ASTM D 2027.

3.0 EXECUTION:

3.1 Preparation of Areas for Patching:

3.1.1 Pot Holes: Trim the perimeter of each hole to a vertical face and back to well-compacted material. Remove material to a depth that provides a uniform well-compacted bottom surface. Remove all loose material resulting from trimming or otherwise existing in the hole. Areas to be repaired are to be dry before repair is started.

3.1.2 Alligator-Cracked and Rutted Areas: The pavement shall be sawed or cut with pavement breakers to a smooth vertical face 1 foot outside of the alligator-cracked areas. Unsatisfactory material shall be removed in a manner not to disturb the sides of the excavated area.

3.1.3 Slippage Areas: Saw a rectangular area around the slippage area that overlaps into the well-bonded material by at least 1 foot. The depth of the saw cut shall be equal to the thickness of the layer of material that is slipping. The surface where slipping is occurring shall be broomed clean and all loose material removed.

3.2 Installation:

3.2.1 Application Temperatures: Application temperatures for all asphalt material shall comply with provisions of the Asphalt Institute Publications and the applicable ASTM.

3.2.2 Base Course: Place base course material in layers not exceeding a compacted thickness of 6 inches. After placing, compact each layer by mechanical compactors to a density of not less than the density of the corresponding layer of the adjacent pavement structure.

3.2.3 Prime Coat: Prime base course with MC-70 liquid asphalt at a rate of 0.20 to 0.30 gallon per sq. yd. Bolt excess prime with sand before the surfacing material is applied.

3.2.4 Tack Coat: Give the edges of existing asphaltic concrete or surfaces of Portland cement concrete and asphaltic concrete a tack coat of MC-70 liquid asphalt at a rate of 0.05 to 0.15 gallon per sq. yd. Allow the material to cure before placing the surfacing material.

3.2.5 Hot-Mixed Asphaltic Concrete: Place the material in layers not exceeding 2-1/2 inches in thickness and compact to a density equal to the density of the adjacent asphaltic concrete.

3.2.6 Stockpiled Cold Mixes: The compacted thickness of each layer of material shall not exceed 2 inches. Before compaction, the material shall be allowed to aerate, if necessary, until the proper amount of cohesion has developed to obtain adequate compaction. When more than one layer is used, each layer shall be thoroughly cured before the succeeding layer is placed.

Spray Applications, Seal Coats and Surface Treatments

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the spray applications, seal coats, and surface treatments of asphalt concrete pavements. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Bituminous Material: Bituminous material shall be liquid asphalt complying with ASTM D 2028, Grade RC-250, or tar complying with ASTM D 490, Grade RT-6.

2.2 Aggregate: Aggregates shall consist of crushed stone, crushed gravel, or crushed slag. The moisture content of the aggregate shall be such that the aggregate will be readily coated with the bituminous material. Aggregate gradations shall be in compliance with ASTM C 136.

2.3 Construction Equipment:

2.3.1 Bituminous distributor shall be designed and equipped to distribute the bituminous material uniformly at even heat on variable widths of surface at readily determined and controlled rates from 0.05 to 2.0 gal/sq yd with a pressure range of from 25 to 75 lb/sq in. and with an allowable variation from any specified rate not exceeding 5 percent.

2.3.2 Single pass surface treatment machine shall be capable of distributing the bituminous material and aggregates uniformly in controlled amounts in a single pass operation over the surface to be sealed.

2.3.3 Heating equipment for storage tanks shall consist of steam coils, hot oil coils, or electrical coils. If steam or hot oil coils are used, the coils must be so designed and maintained that the bituminous material cannot become contaminated.

2.3.4 Power rollers shall be the self-propelled tandem and three-wheel type rollers, weighing not less than 5 tons and shall be suitable for rolling bituminous pavements.

2.3.5 Self-propelled pneumatic-tired rollers shall have a total compacting width of not less than 60 inches. The gross weight shall be adjustable within the ranges of 200 to 350 lb/in. of compacting width.

2.3.6 Spreading Equipment: Aggregate spreading equipment shall be adjustable and capable of spreading aggregate at controlled amounts per square yard.

2.3.7 Drags: Broom drags shall consist of brooms mounted on a frame, designed to spread fine aggregate uniformly over the surface of a bituminous pavement. Towing equipment shall have pneumatic tires.

2.3.8 Brooms and blowers shall be of the power type and shall be suitable for cleaning surfaces of bituminous pavements.

3.0 EXECUTION:

3.1 Preparation of Surface:

3.1.1 Immediately before application of the spray, all loose material, dirt, clay, or other objectionable material are to be removed from the surface with a power broom or blower supplemented with hand brooms. Correct all deficient areas such as pot holes, depressions, and excessive cracking.

3.1.2 Application of Bituminous Material: Immediately following the preparation of the surface, apply the bituminous material uniformly over the entire surface to be treated. All spots missed by the distributor shall be properly treated with bituminous material.

3.1.3 Application Temperature: Application temperatures for all materials shall comply with provisions of the Asphalt Institute Publications and the applicable ASTMs.

3.2 Installation:

3.2.1 Spreading Aggregate: Application of seal aggregate shall immediately follow the application of bituminous material, and in no case shall the time to application exceed 15 minutes.

3.2.2 Brooming and Rolling: Begin the rolling operations immediately following the application of cover aggregate. Rolling shall be accomplished with pneumatic-tired rollers; steel-wheeled rollers shall be used in a supplementary capacity only. All surplus aggregate shall be swept off the surface and removed not less than 24 hours or more than four days after rolling is completed.

Slurry Seals

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for slurry seals for asphalt concrete pavements. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Project materials, design, material proportions, mix composition, and mix property requirements shall comply with current state slurry seal specifications.

3.0 EXECUTION:

3.1 Preparation of Surface:

3.1.1 Cleaning: Clean the existing surface prior to application of a tack coat or slurry seal mixture.

3.1.2 Repair: Repair all unsatisfactory or defective areas prior to application of a tack coat or slurry seal mixture.

3.1.3 Tack Coat: Apply a tack coat, with a bituminous distributor at the rate of 0.05 gal per sq yd., after the surface is repaired and cleaned. The tack coat shall consist of one part emulsion and three parts water and shall be the same type and grade emulsion as used in the slurry seal mixture. The tack shall be cured before application of the slurry seal mixture.

3.2 Installation:

3.2.1 Preparation and Application of Slurry Seal: Mix and apply the slurry seal mixture with a self-propelled continuous flow unit calibrated to accurately deliver and thoroughly mix the required proportion of aggregate, emulsion, water, and mineral filler. Total mixing time shall not exceed four minutes, and no violent mixing shall be permitted. A water fog spray shall immediately precede application of the slurry seal mixture. The slurry seal mixture shall show no signs of segregation during mixing or placing. The slurry seal mixture shall be free of uncoated or oversized aggregate, lumps, or premature breaking of the emulsion when placed. The average thickness of the cured slurry seal, when measured over the pavement surface, shall be 1/4 inch. The slurry seal minimum thickness shall not be less than 1/8 inch.

3.2.2 Drags: The drag shall be of a burlap material and shall be cleaned or replaced to prevent accumulations of slurry seal mix.

3.2.3 Rolling: Roll the slurry seal mix a minimum of five coverages with a pneumatic roller.

3.2.4 Curing: Protect the slurry seal mix from traffic until cured.

3.2.5 Correcting Deficient Areas: Any slurry seal that becomes contaminated, segregated, defective, or damaged before final acceptance by the Authorized Member Representative shall be removed and replaced by the Contractor.

3.3 Weather Limits: Air and pavement temperatures shall be 60 F and rising prior to the application of the slurry seal mixture.

Asphalt Curbs

1.0 DESCRIPTION OF WORK: This specification covers construction of asphaltic concrete curbs in conformity with the lines, grades, and dimensions shown on the plans or established by the Authorized Member Representative. The standard specification for highway construction for the state in which the project is located shall be considered the standard for material, equipment, details, and construction methods as supplemented hereafter.

2.0 PRODUCTS:

2.1 Asphalt Cement: ASTM D 946, penetration grade 60-70 or 85-100.

2.2 Coarse Aggregate: ASTM D 692.

2.3 Fine Aggregate: ASTM D 1073.

2.4 Mineral Filler: ASTM D 242.

2.5 Composition of Mixture: The asphaltic concrete mixture shall consist of aggregates, filler if needed, and asphalt cement combined in such proportions that the composition by weight of the finished mixture shall be within the limits specified by the state in which the project is located.

3.0 EXECUTION: The curb shall be placed in position on a primed surface by means of an approved automatic curb machine which shapes and compacts the mixture to the designated cross section. The placement temperature of the mixture shall be approximately 260 F. Any required joints shall

be carefully made in such manner as to ensure a continuous bond between the old and new sections of the curb. The newly laid curb shall be protected from traffic by barricades or other suitable methods until the heat of the asphalt mixture has dissipated. Immediately after the asphalt curb has hardened, it shall be backfilled where required with suitable material.

Cold Milling of Bituminous Pavements

1.0 DESCRIPTION OF WORK: This specification covers the removal of the existing bituminous surface by cold milling to the depths and limits shown on the drawings or as established by the Authorized Member Representative. It also includes the loading and stockpiling, if required, of the milled material.

2.0 PRODUCTS: (Section not used).

3.0 EXECUTION:

3.1 Equipment, Tools, and Machines:

3.1.1 Cold-Milling Machine: The cold-milling machine shall be a self-propelled machine capable of milling the pavement to a specified depth and smoothness. The milling machine shall have effective means of controlling transverse slope and controlling dust produced during the pavement milling operation. The milling machine shall not cause damage to any part of the pavement structure that is not to be removed.

3.1.2 Cleaning Equipment: All cleaning equipment shall be suitable for removing and cleaning loose material from the pavement surface.

3.2 Grade: The finished mill surfaces shall conform to the lines, grades, and cross sections indicated. Finished surfaces at a juncture with other pavements shall coincide with the finished surfaces of the abutting pavements.

3.3 Preparation of Surface: The pavement surface shall be cleaned of excessive dirt, clay, or other foreign material immediately prior to milling the pavement.

3.4 Milling Operation: Sufficient passes shall be made so that the designated area is milled to the grades and cross sections indicated. Any items, such as manholes, valve boxes, and utility lines, damaged or any pavement that is torn, gouged, broken, or undercut shall be repaired or replaced as directed by the Authorized Member Representative.

Bituminous Rejuvenation

1.0 DESCRIPTION OF WORK: This specification covers the rejuvenation of existing bituminous airfield pavements, roads, streets, parking areas, and other general applications by the use of a chemical rejuvenator.

2.0 PRODUCTS:

2.1 Rejuvenator: The asphalt rejuvenating agent shall be composed of a petroleum resin-oil base uniformly emulsified with water and shall conform to the following physical and chemical requirements:

Property Test Method	Requirement
Viscosity, S.F. at 77 F, sec.	ASTM D 244 15-40
Residue, % (1)	ASTM D 244 (Mod.) 60-65(min.)
Sieve Test, %	ASTM D 244 (Mod.) 0.10 (max.)
Viscosity @ 140 F, centistokes (2)	ASTM D 2170 80-500
Flash Point, Cleveland Open Cup (COC), of (3)	ASTM D 92 350 (min.)

3.0 EXECUTION:

3.1 Bituminous Storage Tanks shall be capable of heating the bituminous material under effective and positive control at all times to the required temperature.

3.2 Bituminous Distributor shall be designed and equipped to spray the bituminous material in a uniform double to triple lap at the temperature recommended by the manufacturer, at variable widths, and at readily determined and controlled rates from 0.04 to 0.2 gallons per square yard, plus or minus 5 percent.

3.3 Brooms and blowers shall be of the power type.

3.4 Preparation of Surface: Immediately before applying the rejuvenator, all loose material, dirt, clay, or

other objectionable material shall be removed from the surface to be treated.

3.5 Application of Rejuvenator: The rejuvenator shall be uniformly applied over the surface at the approved rate with an allowable variation of plus or minus 20 percent. Materials shall be applied at the temperature recommended by the manufacturer.

3.6 Excess Rejuvenator Material: Approved mineral aggregate shall be provided by the Contractor and shall be spread in sufficient quantity to effectively blot up any excess rejuvenator material remaining on the treated pavement surface after 24 hours.

3.7 Insufficient Rejuvenator Material: When it is determined by the Authorized Member Representative that the actual application rate of the rejuvenator is more than 20 percent below the approved application rate, subsequent application(s) shall be made within 24 hours to ensure adequate penetration into the pavement surface.

Cold Mix Recycling

1.0 DESCRIPTION OF WORK: This specification covers the cold mix recycling of existing paving and the addition of new materials, as required, or as directed by the Authorized Member Representative.

2.0 PRODUCTS:

2.1 Aggregates:

2.1.1 General: Aggregates shall consist of material obtained from milling, or removing and crushing the existing in situ material, and/or new aggregate material as needed.

2.1.2 Aggregate Quality and Gradation: Aggregate for bituminous mixture shall be of such size that the material can be spread with a paver to the desired thickness and compacted to meet the specified smoothness, grade, and density requirements. New aggregates shall be approved and be equal to or better than the reclaimed aggregate in quality. Maximum size of new aggregate shall not exceed one-half of the layer thickness and in no case shall the maximum aggregate size exceed 1 inch.

2.2 Bituminous Materials: Bituminous materials, if required, shall be an emulsified asphalt conforming to ASTM D 977 or ASTM D 2397, grade as required.

2.3 Job-Mix Formula: The Job-Mix Formula (JMF) for the recycled mixture will be furnished by the Contractor to the Authorized Member Representative. The formula will indicate a definite percentage of water and asphalt to be added to the mixture. The JMF will be allowed an asphalt content tolerance of 0.3 percent. The asphalt content may be adjusted by the Authorized Member Representative to improve paving mixture, without adjustment in contract unit price. When asphalt is added, the optimum asphalt content will be selected to provide the following properties when samples are compacted at 250 F with 75 blows of standard Marshall hammer on each side of the specimen. Property Requirement

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Stability minimum, pounds	1,800
Flow maximum, 1/100-inch units	16
Voids in total mix, percent	3-5
Voids filled with bitumen, percent	70-80

The water content will be selected to provide maximum density when samples are prepared at the optimum asphalt content and compacted with 75 blows of Marshall hammer at ambient temperature. When no asphalt binder is added to the mixture, the water content will be selected by the Authorized Member Representative to provide maximum density.

3.0 EXECUTION:

3.1 Preparation of Bituminous Mixtures: The required amount of bituminous material for each batch, or calibrated amount of continuous mixing, shall be introduced into the mixer. Aggregates, asphalt emulsion, and water shall be mixed for 35 seconds or longer, as necessary, to thoroughly coat all particles with bituminous material. When longer mixing time is necessary, additional mixing times all be determined by the Authorized Member Representative.

3.2 Conditioning of Existing Surface: Ruts or soft yielding spots that appear in the existing pavement areas and deviations of surface from requirements specified shall be corrected. An asphalt tack coat shall be applied to all contact surfaces in advance of the recycled overlayment. The asphalt tack shall be placed at an asphalt residue coverage rate of 0.05 gal/sq. yd.

3.3 Placing:

3.3.1 Layer Thickness and Curing: Each layer of compacted mixture shall be no more than 2-1/2 inches in thickness; each layer of bituminous mixture shall be allowed to cure for at least 5 days before placing a succeeding layer.

3.3.2 Compaction of Mixture: Bituminous mixtures shall be rolled until all roller marks are eliminated and a density of at least 86 percent of the theoretical maximum density has been obtained when tested in accordance with ASTM D 2041. When bituminous material is not added to the cold recycled mixture, the material shall be compacted to 100 percent of density determined by ASTM D 2041, compaction effort designation CE-55. 3.3.3 Joints: Longitudinal joints shall be offset at least 1 foot from existing joints. Transverse joints shall be offset at least 2 feet from existing transverse joints.

3.3.4 Surface Smoothness: After final rolling, the pavement surface shall not vary in excess of 1/8 inch from a straightedge laid on the surface.

Central Plant Hot Mix Recycling

1.0 DESCRIPTION OF WORK: This specification covers the central plant hot-mix recycling of existing asphalt concrete intermediate and wearing courses for airfields, heliports, and heavy-duty pavements. The specification also includes the addition of new materials, as required or as directed by the Authorized Member Representative.

2.0 PRODUCTS:

2.1 Aggregates:

2.1.1 General: Aggregates shall consist of material obtained from milling, or removing and crushing the existing in-situ material, and/or new aggregate material as needed.

2.1.2 Aggregate Quality and Gradation: Aggregate for the bituminous mixture shall be such size that the material can be spread with a paver to the desired thickness and compacted to meet the specified smoothness, grade, and density requirements. New aggregates shall be approved and shall be equal to or better than the reclaimed aggregate in quality. Maximum size of new aggregate shall not exceed one-half of the layer thickness, and in no case shall the maximum aggregate size exceed one inch. Aggregate gradations shall be as prescribed by local usage, with the approval of the Authorized Member Representative. In order to meet pollution requirements and ensure the recycled mixture is satisfactory, the amount of reclaimed asphalt pavement shall not exceed 60 percent for drum mixers or 50 percent for batch plants.

2.2 Mineral Filler shall conform to ASTM D 242.

2.3 Bituminous Materials:

2.3.1 New Asphalt Cement: The appropriate types and grades of bituminous materials for the anticipated use and climactic environment shall be used. Requirements of ASTM D 946 shall be used to specify penetration-graded asphalt cement, or ASTM D 3381 for viscosity-graded asphalt cement.

2.3.2 Recycled Asphalt Cement: The penetration of asphalt cement recovered from the recycled mixture shall be in accordance with ASTM D 1856 and shall have a penetration between 50 and 70 percent of that specified for the particular region for new asphalt cement, measured in accordance with ASTM D 5.

2.4 Job-Mix Formula (JMF): The JMF for the recycled mixture will be furnished by the Contractor to the Authorized Member Representative. The formula will indicate the percentage of reclaimed asphalt pavement, the percentage of bitumen, and the temperature of the completed mixture when discharged from the mixer. The requirements for stability, flow, and voids are shown in the following tables for nonabsorptive and absorptive mixtures, respectively.

Nonabsorptive-Aggregate Mixture

	Wearing Property Course	Intermediate Course
Stability minimum, lbs	1,800	1,800
Flow maximum, 1/100-inch units	16	16
Voids total mix, percent	3-5	5-7
Voids filled with bitumen, percent	70-80	50-70

Absorptive-Aggregate Mixture

	Wearing	Intermediate

	Property Course	Course
Stability minimum, lbs.	1,800	1,800
Flow maximum, 1/100-inch units	16	16
Voids total mix, percent	2-4	4-6
Voids filled with bitumen, percent	75-80	55-75

When the water-absorption value of the entire blend of aggregate does not exceed 2.5 percent, the aggregate is designated as nonabsorptive. When the water-absorption value exceeds 2.5 percent as determined by ASTM C 127 and ASTM C 128, the aggregate is designated as absorptive.

3.0 EXECUTION:

3.1 Preparation of Bituminous Mixtures: Aggregates, reclaimed asphalt pavement, mineral filler, bitumen, and recycling agent shall be conveyed into the mixer in proportionate quantities required to meet the JMF. Particles larger than 2 inches shall be removed from the reclaimed asphalt pavement prior to being added to the mixer. Mixing time shall be as required to obtain a uniform coating of the aggregate with the bituminous material. Temperature of bitumen at time of mixing will be specified by the Authorized Member Representative. Temperature of aggregate and mineral filler in the mixer shall not exceed 325 F when bitumen is added. 3.2 Surface Preparation of Underlying Course: Prior to placing of intermediate or wearing course, the underlying course shall be cleaned of all foreign or objectionable matter. The surface of previously constructed base course shall be sprayed with a prime coat at an asphalt residue coverage rate of 0.25 gal/sq. yd. Contact surfaces of previously constructed pavement, curbs, manholes, and other structures shall be sprayed with a thin tack coat at an asphalt residue coverage rate of 0.05 gal/sq. yd.

3.3 Placing:

3.3.1 Layer Thickness and Curing: A required uncompacted thickness of intermediate course, 7 inches or less, may be spread and compacted in one layer. Where the required thickness of base is more than 7 inches, the mixture shall be spread and compacted in two or more layers. Each layer of compacted mixture for the surface course shall be no more than 2-1/2 inches in thickness. Each layer of bituminous mixture shall be allowed to cure for at least 5 days before placing a succeeding layer.

3.3.2 Compaction of Mixture: Rolling shall begin as soon after placing as the mixture will bear roller without undue displacement. After the Contractor is assured of meeting crown, grade, and smoothness requirements, rolling shall be continued until a mat density of 98 to 100.0 percent and a joint density of 96.5 to 100.0 percent of density is obtained. Places inaccessible to rollers shall be thoroughly compacted with hot hand tampers.

3.3.3 Joints: Longitudinal joints shall be offset at least 1 foot from existing joints. Transverse joints shall be offset at least 2 feet from existing transverse joints.

3.3.4 Surface Smoothness: After final rolling, the pavement surface shall not vary in excess of 1/8 inch from a straightedge laid on the surface.

Pavement Markings

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and replacement of pavement markings. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: Paint and reflective media shall be in sealed containers that plainly show the designated name, formula or specification number, batch number, color, date of manufacturer, manufacturer's name, formulation number, and directions, all of which shall be plainly legible at time of use. The paint shall be homogeneous and easily stirred to smooth consistency. Paint that is older than one year shall not be used.

2.2 Paint:

2.2.1 Paint for Roads and Streets shall comply with applicable standards and regulations, and shall be acceptable to the Authorized Member Representative.

2.2.2 Paint for Airfields shall comply with applicable standards and regulations, and shall be acceptable to

the Authorized Member Representative.

2.3 Reflective Media for Roads and Streets shall comply with applicable standards and regulations, and shall be acceptable to the Authorized Member Representative.

2.4 Thermoplastic Materials shall comply with AASHTO M 249.

2.5 Raised Pavement Markers shall comply with the Federal Highway Administration Manual on Uniform Traffic Control Devices:

2.5.1 Reflective Pavement Markers: Reflective pavement markers shall be of the prismatic reflector type, consisting of a high impact plastic shell filled with a mixture of inert thermosetting compound and filler material.

2.5.2 Non-reflectorized Pavement Markers: Nonreflective pavement markers shall consist of a heat fired, white, vitreous, ceramic base and a heat-fired, opaque, glazed surface to produce the properties in these specifications.

2.6 Adhesive for Installation of Raised Pavement Markers shall comply with AASHTO M 237.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Safety and Protection: Contractor shall assure the least possible obstruction to traffic.

3.1.2 Removal of Existing Pavement Marking: Remove paint, plastic markings, and raised markers by sandblasting, infrared heat, high pressure water, and water or scraping. Heat may be used to augment scraping; however, the underlying pavement shall not be burned.

3.2 Installation:

3.2.1 Thermoplastic Applicator: Utilize extrusion or spray application equipment for applying thermoplastic material to the pavement. The equipment shall provide for varying widths of traffic markings.

3.2.2 Bead Dispensers: Attach bead dispensers to the striping machine in such a manner that the beads are dispensed almost instantaneously upon the installed line.

3.2.3 Tolerances in Dimensions and in Alignment: The length of the painted segment for skip stripe and the gap between segments may each vary plus or minus one foot, except that over-tolerance and under-tolerance lengths shall approximately compensate.

3.2.4 Protection: Adequate warning signs, flagmen, and necessary precautions for the protection of the wet paint and the safety of the public shall be provided. Cones, rubber "Z" guards or similar protective devices shall be placed along the newly painted stripe to prevent traffic from crossing the wet paint.

3.2.5 Corrective Measures: Stripes that fail to meet the specifications, including the permissible tolerances and the appearance requirements, or are marred or damaged by traffic or from other causes, shall be corrected. Drip and spattered paint shall be removed.

Water Lines

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of water lines. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Piping for water service lines shall be galvanized steel, polyvinyl chloride (PVC) plastic, polyethylene, polybutylene, or copper tubing. Piping for water distribution and supply lines shall be ductile iron, polyvinyl chloride (PVC) plastic, filament-wound reinforced or centrifugally cast reinforced thermosetting resin, thermosetting reinforced plastic mortar pressure pipe, or reinforced concrete.

2.1 Copper Tubing: ASTM B 88, Type K, annealed, with compression pattern flared joints.

2.2 Ductile Iron Pipe: AWWA C151, 150 psi working pressure. Pipe shall be cement-mortar lined in accordance with AWWA C104. Joints shall conform to AWWA C111. Flanges shall conform to AWWA C115.

2.3 Polyvinyl Chloride (PVC) Plastic Pipe: All pipe, couplings, and fittings shall be manufactured of material conforming to ASTM D 1784, Class 12454B, designated as PVC 1120 in ASTM D 1785.

2.3.1 Pipe Less Than 4 Inches in Diameter:

2.3.1.1 Screw Joint: ASTM D 1785, Schedule 80, with joints meeting requirements of 150 psi working

pressure, 200 psi hydrostatic test pressure.

2.3.1.2 Elastomeric Gasket Joint: ASTM D 1785, Schedule 40, with joints meeting the requirements of 150 psi working pressure, 200 psi hydrostatic test pressure.

2.3.1.3 Solvent Cement Joint: ASTM D 1785 or D 2241, with joints meeting the requirements of 150 psi working pressure and 200 psi hydrostatic test pressure.

2.3.2 Pipe, 4-Inch through 12-Inch Diameter: Pipe, couplings, and fittings shall conform to the requirements of AWWA C900, Class 150, CIOD pipe dimensions, elastomeric gasket joint.

2.4 Reinforced and Prestressed Concrete Pipe: Steel cylinder reinforced concrete pipe shall conform to AWWA C300, C301, or C303 and shall be designed to withstand a working pressure of not less than 150 psi, with bell and spigot steel joints and gaskets.

2.5 Steel Pipe 3 Inches and Larger, not Galvanized: AWWA C200 with dimensional requirements as given in ANSI B36.10M for pipe 6 inches in diameter and larger, and ASTM A 53 for smaller sizes. Joints shall be mechanical, bell and spigot, or flanged. Pipe shall be coated with coal-tar primer followed by a hot coat of coal-tar enamel, a wrapper of asbestos felt impregnated with coal-tar, and a wrapper of Kraft paper or a coat of water-resistant white wash.

2.6 Galvanized Steel Pipe, Less than 3 Inches: ASTM A 53, standard weight, screwed joints.

2.7 Polyethylene Plastic (PE) Pipe Less than 3 Inches in Diameter: Pipe, tubing, and heat fusion fittings shall conform to AWWA C901.

2.8 Polybutylene Plastic (PB) Pipe Less than 3 Inches in Diameter: Pipe, tubing, and fusion fittings shall conform to AWWA C902.

2.9 Filament Wound Reinforced Thermosetting Resin Pipe (RTRP-I) for Lines 3 Inches and Larger: ASTM D 2996, normal working pressure of 150 psi at 73 F.

2.10 Centrifugally Cast Reinforced Thermosetting Resin Pipe (RTRP-II) for Lines 3 Inches or Larger: ASTM D 2997.

2.11 Reinforced Plastic Mortar Pressure (RPMP) Pipe for Lines 3 Inches or Larger: ASTM D 3517, bell and spigot type joints with elastomeric or mechanical gaskets.

2.12 Filament Wound and Centrifugally Cast Reinforced Thermosetting Resin Pipe and Reinforced Plastic Mortar Pressure Pipe: Pipe shall have a quick burst strength equal to or greater than four times the normal working pressure of the pipe. The quick burst strength test shall conform to the requirements of ASTM D 1599. Joints shall be bell and spigot type with elastomeric gaskets.

2.13 Valves:

2.13.1 Check Valves shall be designed for a minimum working pressure of 150 psi. Valves 2 inches and smaller shall be all bronze with screwed fittings and shall conform to MSS SP-80, Class 150, Types 3 and 4. Valves larger than 2 inches shall be iron body, bronze-mounted with flanged ends, and non-slam type. Flanges shall be the 125-pound type conforming to ANSI B16.1.

2.13.2 Gate Valves shall be designed for a working pressure of not less than 150 psi. Valves smaller than 3 inches shall be all bronze and shall conform to MSS SP-80, Type 1, Class 150. Valves 3 inches and larger shall be iron body, bronze-mounted, and shall conform to AWWA C500.

2.13.3 Rubber-seated butterfly valves shall conform to the performance requirements of AWWA C504.

2.13.4 Indicator post for valves shall conform to the requirements of NFPA No. 24.

2.14 Fire Hydrants: AWWA C502 or C503.

2.15 Fire Hydrant Hose Houses: NFPA No. 24.

2.16 Disinfection Materials: Liquid chlorine conforming to AWWA B301 or calcium or sodium hypochlorite conforming to AWWA B300.

3.0 EXECUTION:

3.1 Installation:

3.1.1 Water lines shall not be laid in the same trench with sewer lines, gas lines, fuel lines, or electric wiring.

3.1.2 Copper tubing shall not be installed in the same trench with ferrous piping materials.

3.1.3 Roads and Airfields: Pipe sleeve shall be rigid conduit and shall have a minimum clearance of at least 2 inches between the inner wall of the sleeve and the maximum outside diameter of the sleeved pipe and joints shall be provided.

3.1.4 Structures: Where water pipe is required to be installed within three feet of existing structures, the water pipe shall be sleeved as required for roads, railroads, and airfields.

3.2 Joint Deflection:
3.2.1 Ductile Iron Pipe: The maximum allowable deflection will be as given in AWWA C600.
3.2.2 Flexible Plastic Pipe: Maximum offset in alignment between adjacent pipe joints shall not exceed 5 degrees.
3.2.3 Reinforced Concrete Pipe: Maximum allowable deflections from a straight line or grade, as required by vertical curves, horizontal curves, or offsets, will be 5 degrees.
3.2.4 Steel Pipe: For pipe with bell and spigot rubber gasket joints, maximum allowable deflections from a straight line or grade, as required by vertical curves, horizontal curves, or offsets will be 5 degrees.
3.3 Placing and Laying:
3.3.1 The following codes shall govern pipe installations: RTRP, ASTM D 3839; PE and PB, ASTM D 2774; PVC, AWWA M23.
3.3.2 Pipe passing through walls of valve pits and structures shall be provided with cast-iron wall sleeves.
3.4 Service Lines: Service lines 2 inches and smaller shall be connected to the main by a directly tapped corporation stop or by a service clamp. A corporation stop and a copper gooseneck shall be provided with either type of connection. Service lines 1-1/2 inches and smaller shall have a service stop. Service lines 2 inches or larger shall have a gate valve.
3.5 Setting of Fire Hydrants: Each hydrant shall be connected to the main with a 6-inch branch line having at least as much cover as the distribution main. Not less than 7 cubic feet of free draining broken stone or gravel shall be placed around and beneath the waste opening of dry barrel hydrants to ensure drainage.
3.6 Thrust Blocks: Plugs, caps, tees, and bends deflecting 22-1/2 degrees or more, either vertically or horizontally, on waterlines 6 inches in diameter or larger, and fire hydrants shall be provided with thrust blocking or metal tie rods and clamps or lugs.
3.7 Hydrostatic Tests: The pipeline shall be subjected to both a pressure test and a leakage test.
3.7.1 Pressure Test: After the pipe has been installed and the trench has been partially backfilled, leaving the joints exposed for examination, the pipe shall be filled with water in a manner to expel all air. The pipeline shall be subjected to a test pressure of 100 psi or 150 percent of the working pressure, whichever is greater, for a period of at least one hour.
3.7.2 Leakage Test: A standard one-hour leakage test shall be performed subsequent to or concurrently with the pressure test and shall meet an allowable leakage rate

Water Reservoirs and Tanks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of elevated water tanks, ground level water tanks, and standpipes. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Standpipe, elevated steel water tank, or storage reservoir shall be in accordance with the applicable requirements of AWWA D100 and AWWA D102, except as modified herein.
2.1 Bolts, Anchor Bolts, and Rods for Welded Steel Tanks: ASTM A 307; galvanizing shall conform to ASTM A 153.
2.2 Reinforcing Steel: ASTM A 615, ASTM A 616, or ASTM A 617.
2.3 Plates: ASTM A 36.
2.4 Tubular Shapes: ASTM A 500, Grade B, for cold-formed; ASTM A 501 for hot-formed.
2.5 Design Loads: The following loads shall be considered in the design of tank structures and foundations:
a. Dead Loads: The unit weights for steel shall be 490 pcf and 144 pcf for concrete.
b. Live Load: Live load shall be the weight of all liquid when the tank is filled to just overflowing.
c. Wind Load and Snow Load: The elevated tank shall be designed according to ANSI A58.1 for a wind speed of 100 mph and for a snow load of 25 psf.
3.0 EXECUTION:
3.1 Foundations for the standpipe, reservoir, tank columns and riser, and for the valve chamber shall be constructed of concrete, reinforced where necessary, and designed in accordance with Section

12 of AWWA D100 except as shown or specified herein. Footings shall be designed in accordance with ACI 318 and constructed in conformance with the applicable requirements of SECTION: CONCRETE. The foundation for the reservoir shall be composed of a concrete ring at base of reservoir with bed of gravel under bottom of reservoir. After concrete ring walls are constructed, the gravel fill shall be placed to thickness shown on plans. Well-graded gravel or crushed stone, not exceeding 2 inches in size with no more than 5 percent passing the No. 200 sieve, shall be placed and thoroughly tamped or rolled at a moisture content that will yield a maximum density for the type of compaction equipment used. The material shall have a crowned surface of 1 inch vertical to 10 feet horizontal as a minimum to allow for the settlement and to ensure that tank bottom will be approximately level.

3.2 Anchors: A sufficient number of anchors, designed to prevent overturning of the standpipe, reservoir, or elevated storage tank, when empty, shall be installed. The anchors shall be not less than 1-1/4 inches in diameter and shall be set deep enough to resist the computed uplift. The anchors shall be bent 90 degrees for anchorage in the concrete, or they shall be provided with anchor plates, which may be made of scrap plates or structural steel channels. The anchor bolts shall be attached to the cylinder or anchor plates by means of properly designed lugs made of structural steel shapes or bent plates. Factor of safety on overturning under design wind load shall be 1.33 minimum. An inverted truncated pyramid of earth with 2 on 1 side slopes above top of footing may be used in determining overturning stability.

3.3 Test of Valves and Piping: After the tank has been erected and the valves and piping installed and before field painting is begun, the valves and piping shall be subjected for 1 hour to a hydrostatic pressure test of 1.33 times the anticipated static pressure at the points of reading when the system is put into operation.

3.4 Disinfection: Comply with requirements of AWWA C652.

Chilled Water Lines

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of chilled water lines. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Piping and Fitting for Chilled Water Lines:

2.1.1 Pipes to 4 Inches: Steel, welded, Schedule 40, ASTM A 53.

2.1.2 Pipes 6 to 16 Inches: Steel, seamless or ERW, standard weight, ASTM A 53.

2.1.3 Fittings to 1-1/2 Inches: MI, 150-pound, ASTM A 197, screwed ends ANSI B16.3.

2.1.4 Fittings 2 to 16 Inches: Steel, seamless, standard weight, ASTM A 234, butt weld ends, ANSI B16.9.

2.1.5 Unions to 2 Inches: MI, 150-pound, ASTM A 197, screwed ends, brass-to-iron seats.

2.1.6 Unions 2-1/2 to 16 Inches: Flanged.

2.1.7 Flanges 16 Inches and Under: Steel, ASTM A 105 or A 181, 150-pound, slip-on or welding neck type, ANSI B16.5.

2.1.8 Gaskets-Water Service: Red rubber sheet, 1/16 inch thick, ring or full face as required, ASTM D 2000.

2.1.9 Gaskets-Air Service: Compressed asbestos, 1/16 inch thick, ring or full-faced as required, ASTM F 104.

2.2 Shutoff Valves for Chilled Water Lines:

2.2.1 Gate Valves: MSS SP-80. Size 1/4 to 2 inches shall be screwed ends with bronze body. Size 2-1/2 to 16 inches shall be flanged ends with cast-iron body.

2.2.2 Butterfly Valves: AWWA C504. Size 3 to 16 inches, wafer-flanged ends with cast-iron body.

2.3 Control Valves for Chilled Water Lines:

2.3.1 Globe Valves: MSS SP-80. Size 1/4 to 2 inches shall be screwed ends with bronze body. Size 2-1/2 to 10 inches shall be flanged ends with cast-iron body.

2.3.2 Angle Valve: MSS SP-80. Size 1/4 to 2 inches shall be screwed ends with brass body. Size 2-1/2 to

14 inches shall be flanged ends with cast-iron body.
2.3.3 Butterfly Valve: AWWA C504. Size 3 to 16 inches shall be wafer-flanged with cast-iron body.
2.4 Check Valves for Chilled Water Lines: Fed. Spec. WW-V-51. Swing valves shall be size 1/4 to 2 inches, screwed ends with bronze body or size 2-1/2 to 16 inches, flanged ends with bronze body.
2.5 Preinsulated Pipe Materials:
2.5.1 Foam Insulation: ASTM C 1029. Factory-applied polyurethane foam insulation shall completely fill the annular space between carrier pipe and jacket.
2.5.2 Jacketing Material: Material shall be extruded white polyvinylchloride, conforming to ASTM D 1784.
2.5.3 Joints shall be insulated with polyurethane foam, jacketed with PVC sleeves, and sealed with heat-shrinkable tape.
2.5.4 Fittings shall be insulated with polyurethane foam and jacketed with PVC fittings.
3.0 EXECUTION:
3.1 Preparation: The trench bottom shall be stabilized by over excavating 6 inches and replaced by fine graded earth or sand. After pipe is assembled in place and prior to testing, a partial backfill shall be accomplished by tamping fine graded earth or sand around the pipe in 6-inch layers to a minimum of 6 inches above the jacket, leaving joints exposed for visual inspection during hydrostatic testing.
3.2 Testing: The joints of the chilled water lines shall be exposed for visual inspection during hydrostatic testing. After testing is complete, joints shall be covered in a similar manner and backfill operation shall proceed.

Well Repair

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of water wells. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Repair and replacement parts shall be clean, free of rust and scale, and of proper size and design for the specific well repair to be made.
3.0 EXECUTION:
3.1 Cement grout may be hand mixed at the site.
3.2 Level and re-sod area after heavy equipment has been used or if chemicals have been spilled.
3.3 Abandoned wells shall be sealed in accordance with AWWA A100.
3.4 Disinfect well, after repair, in accordance with AWWA A100.

Water Wells

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for drilled and gravel packed water wells. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the American Water Works Association (AWWA) standards and the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Casings:
2.1.1 Carbon Steel: ASTM A 53 and ASTM A 139.
2.1.2 Stainless Steel: ASTM A 409.
2.1.3 Plastic: ASTM F 480.
2.2 Screens: Stainless Steel ASTM A 304.
2.3 Gravel Packs: AWWA A100, Sections 6.3, 6.4, and 6.5.
2.4 Sealing Grout: AWWA A100, Sections 7.2 and 7.3.
3.0 EXECUTION:
3.1 General: Construction shall be in accordance with the latest edition of AWWA A100 in its entirety including appendices. The standard shall not only cover 8-inch drilled wells and gravel packed wells but the criteria shall also be applied to 4-inch to 6-inch diameter wells.
3.2 Drilling: The method of drilling shall be approved by the Authorized Member Representative.

3.3 Drilling Samples: Samples of formations shall be retained by the Contractor during drilling with full access by the Authorized Member Representative. Additional samples shall be taken as directed by the Authorized Member Representative. Drilling samples shall be delivered to the Member at the completion of the well installation as directed.
3.4 Reports: Geophysical logging and drillers log report shall be required as directed by the Authorized Member Representative.
3.5 Casing Size: Casing diameter and wall thickness shall be as determined by Tables 2 and 3 of AWWA A100 but in no case shall the wall thickness be less than 1/4 inch (or Schedule 40 for 4-inch pipe).
3.6 Screen Size: The screen diameter, length, and grid openings shall be as required by the aquifer but in no case shall the entrance velocity exceed 1.5 fps. Screen construction shall be approved by the Authorized Member Representative.
3.7 Constant Flow Rate: The Authorized Member Representative will determine the constant flow rate test level based on information from the step-drawdown tests considering the recommendation of the Contractor.

Gas Distribution Lines

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of gas distribution lines. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Piping for Gas Distribution Lines: Piping shall be steel, Schedule 40, ASTM A 53 or polyethylene, ASTM D 1248 and ASTM D 2513. Pipe designations shall be PE 2306 and PE 3306, designated for gas distribution.
2.2 Fittings for Steel Pipe:
2.2.1 Threaded: Fed. Spec. WW-P-521, Type I, black.
2.2.2 Welded: Butt-welded fittings shall conform to ANSI B16.9. Socket welded fittings shall conform to ANSI B16.11.
2.2.3 Flanged: ANSI B16.5.
2.2.4 Pipe Threads: ASME B1.20.1.
2.3 Valves: Valves shall conform to Mil. Spec. MIL-V-12003, type I, 175 psig. In plastic lines, valves shall be so designed as to protect against excessive torsional or shearing loads.
2.4 Protective Covering for Underground Steel Pipe: A coat of coal-tar primer, a coat of coal-tar enamel, a wrapper of coal-tar saturated felt, and a wrapper of Kraft paper or a coat of water-resistant whitewash shall be applied in accordance with the requirements of AWWA C203.
3.0 EXECUTION:
3.1 Gas Lines: Plastic pipe shall not be installed above ground, in distribution systems that exceed 50 psig, or where operating temperatures of the materials will be below -20 F or above 100 F.
3.2 Installation of gas lines shall be in conformance with ANSI B31.8 and, where applicable, IAPMO IS-10.
3.3 Gas mains shall have a minimum cover of 24 inches, and service lines shall have a minimum cover of 18 inches.
3.4 A single conductor No. 14 AWG Wire with type TW insulation shall be installed with plastic pipe to facilitate pipe locating.
3.5 Tests: The distribution system of gas mains and gas service lines shall prove gas-tight by air test under a pressure of 75 psig or not less than 1-1/2 times the operating pressure, whichever is greater.
3.5.1 Test of Gas Mains: The test shall continue for at least 24 hours from the time of the initial readings to the final readings of pressure and temperature. The initial test readings shall not be made for at least one hour after the pipe has been subjected to the full test pressure. The testing instruments shall be approved and subject to inspection at all times during the test.
3.5.2 Test of Service Lines: Service lines shall be tested in accordance with ANSI B31.8.

Foundation Drainage Systems

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of foundation drainage systems. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Clay Pipe: ASTM C 700.

2.2 Perforated Clay Pipe: ASTM C 700.

2.3 Concrete Pipe: ASTM C 14.

2.4 Perforated Concrete Pipe: ASTM C 14 with perforations conforming to ASTM C 444.

2.5 Porous Concrete Pipe: ASTM C 654.

2.6 Clay Drain Tile: ASTM C 4.

2.7 Perforated Clay Drain Tile: ASTM C 498.

2.8 Concrete Drain Tile: ASTM C 412.

2.9 Cast-Iron Soil Pipe: ASTM A 74.

2.10 Perforated Corrugated Steel Pipe: ASTM A 760.

2.11 Perforated Corrugated Aluminum Alloy Pipe: Fed. Spec. WW-P-402.

2.12 Perforated Bituminized-Fiber Pipe: ASTM D 2311 or D 2417.

2.13 Perforated Corrugated Polyethylene Drainage Tubing: Soil Conservation Service, Engineering Standard 606.

2.14 Acrylonitrile-Butadiene-Styrene (ABS) Pipe: ASTM D 2751, with a maximum SDR of 35.

2.15 Polyvinyl Chloride (PVC) Pipe: ASTM D 3034, with maximum SDR of 35, and with flexible elastomeric seal joint.

2.16 Fittings: Fittings shall be of compatible materials for pipe.

2.17 Cleanouts: Cleanout pipe and fittings and piping through walls and footings shall be cast-iron soil pipe. Each cleanout shall have a brass ferrule and cast-brass, screw- jointed plug with socket or raised head for wrench.

2.18 Cover and Wrapping Materials for Open Joints in Drain Tile: Tar paper, roofing paper, reinforced building paper, glass fiber fabric, or other similar type material. Wrapping material shall be 18 x 14 mesh, 0.01-inch diameter nonferrous wire cloth.

3.0 EXECUTION:

3.1 Trenches shall be kept dry during installation of drainage system. Changes in direction of drain lines shall be made with 1/8 bends. Wye fittings shall be used at intersections.

3.2 Bedding: Graded bedding, minimum 6 inches in depth, shall be placed in the bottom of trench for its full width and length. Except for recesses for bell joints, the bedding shall fully support the lower quadrant of the pipe.

3.3 Pipe Laying: Drain lines shall be laid to true grades and alignment with a continuous fall in the direction of flow. Bells of pipe sections shall face upgrade. Perforated pipe shall be laid with perforations facing down.

3.4 Joints:

3.4.1 Perforated and porous types of drain pipes shall be laid with closed joints.

3.4.2 Non-perforated and plain-end drain tile shall be laid with 1/8-inch to 1/4-inch open joints. Open joints shall be covered or wrapped.

3.4.3 Joints of concrete or clay sewer pipe shall be caulked with oakum and filled solid with cement mortar.

3.4.4 Joints of cast-iron pipe or connections between cast-iron and porous concrete pipes shall be caulked with oakum gasket and filled with lead.

3.4.5 Perforated bituminized-fiber pipe joints in which pipe ends and couplings are tapered shall have a tight-driven fit. Approved split-collar couplings may be used with square-end pipe.

3.4.6 Plain-end perforated clay drain tile joints shall be made with spring-wire clips, coated with a rust preventive that will maintain a taut but elastic joint between sections when laid.

3.4.7 Acrylonitrile-Butadiene-Styrene (ABS) Pipe shall be jointed using solvent cement or elastomeric joints.

3.4.8 Polyvinyl Chloride (PVC) Pipe Joints shall be in accordance with ASTM D 3212.
3.5 Outlet Lines: The outlet end of drain lines connecting with an open gutter or outfall shall be covered with a removable wire basket of copper or bronze wire cloth.
3.6 Backfilling: After joints and connections have been inspected and approved, pervious backfill material shall be placed on each side of the pipe or tile and 12 inches above the top of the pipe as shown for the full width of the trench. A protective covering shall be placed over the pervious backfill for the full width of the trench before regular backfill is placed.
3.7 Cleanouts in unpaved areas shall be set in 12-inch by 12-inch by 4-inch concrete blocks.

Underslab Drainage

2.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of underslab drainage. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Concrete pipe shall conform to ASTM C 14.
2.2 Clay pipe shall conform to ASTM C 700.
2.3 Perforated clay pipe shall conform to ASTM C 700. Clips for plain-end pipe shall be constructed of not smaller than No. 9 hard-drawn or oil-tempered steel wire conforming to ASTM A 227 or A 229, and shall be coated with an approved rust preventive coating.
2.4 Perforated concrete pipe shall conform to ASTM C 444 and to ASTM C 14.
2.5 Perforated bituminized fiber pipe and couplings shall conform to ASTM D 2418.
2.6 Perforated corrugated steel pipe shall conform to ASTM A 760.
2.7 Perforated corrugated steel pipe, fully bituminous-coated shall conform to Fed. Spec. WW-P-405.
2.8 Drain Tile: Clay drain tile shall conform to ASTM C 4. Concrete drain tile shall conform to ASTM C 412.
2.9 Porous concrete pipe shall conform to ASTM C 654.
2.10 Galvanized bituminous-coated, semicircular steel pipe shall conform to ASTM A 444. Bituminous coating shall be in accordance with Fed. Spec. WW-P-405.
2.11 Perforated corrugated aluminum alloy pipe shall conform to Fed. Spec. WW-P-402.
2.12 Perforated corrugated aluminum alloy pipe, fully bituminous-coated shall conform to Fed. Spec. WW-P-402.
2.13 Precoated corrugated steel pipe shall conform to Fed. Spec. WW-P-405.
2.14 Acrylonitrile-Butadiene-Styrene (ABS) Piping shall conform to ASTM D 2751.
2.15 Polyvinyl Chloride (PVC) Pipe and Fittings shall conform to ASTM D 3034, Type PSM, with flexible elastomeric seal joint.
2.16 Filter fabric shall be a pervious sheet of polyester, nylon, or polypropylene filaments woven or otherwise formed into a uniform pattern with distinct and measurable openings. The fabric shall be constructed so that the filaments will retain their relative position with respect to each other.
2.17 Drainage Structures: Concrete shall have a minimum strength of 3,000 psi and an air content of 3 to 6 percent. Concrete cover over reinforcing shall be in conformance with ACI 318. Expansion joint filler material shall conform to ASTM D 1751 or D 1752. Mortar shall be composed by volume of one part Portland cement and two parts sand.
2.18 Precast reinforced concrete manhole risers and tops shall conform to ASTM C 478.
2.19 Precast concrete segmental blocks shall conform to ASTM C 139.
2.20 Precast concrete manhole bases shall conform to ASTM C 478.
2.21 Brick shall conform to ASTM C 62 or ASTM C 55.
2.22 Prefabricated corrugated metal: steel manholes and risers shall be fabricated of galvanized and bituminous coated corrugated metal.
2.23 Frames and covers or gratings shall be cast gray iron, ASTM A 48, Class 35B or ductile iron, ASTM A 536, Grade 65-45-12.
2.24 Ladders or ladder rungs shall be fabricated of cast iron, wrought iron, or galvanized steel.
2.25 Subdrain filter and bedding material shall be washed sand, sand and gravel, crushed stone,

crushed stone screenings, or slag composed of hard, tough, durable particles free from adherent coatings.

3.0 EXECUTION:

3.1 Manholes shall be installed complete with frames, ladders, and covers or gratings.

3.2 Filter Fabric: One layer of filter fabric shall be wrapped around open joints and perforated or slotted collector pipes. Trenches to be lined with filter fabric shall be graded to obtain smooth side and bottom surfaces so that the fabric will not bridge cavities in the soil or be damaged by projecting rock.

3.3 Pipe laying: The laying of pipe shall proceed upgrade beginning at the lower end of the pipeline. Pipe shall not be laid in water. Pipe shall be bedded to the established grade line. Perforations shall be centered on the bottom of the pipe.

3.4 Jointing:

3.4.1 Nonperforated Concrete and Clay Pipe: Pipe shall be laid with 1/8- to 1/4-inch openings between ends of pipe.

3.4.2 Perforated Concrete and Clay Pipe: Pipe shall be laid with closed joints. Plain-end perforated clay pipe sections shall be fastened together with spring wire clips furnished by the pipe manufacturer.

3.4.3 Perforated Bituminized-Fiber Pipe: Pipe shall be installed with either a tapered coupling or a split-collar coupling.

3.4.4 Perforated Corrugated Metal Pipe, or Unpaved Bituminous-Coated, Perforated Corrugated Metal Pipe: The sections of pipe shall be securely fastened together with standard connecting bands furnished by the manufacturer of the pipe.

3.4.5 Drain Tile: Drain tile shall be laid with open joints of approximately 1/8-inch width but not over 1/4-inch width.

3.4.6 Porous Concrete Pipe: Pipe shall be installed with mortar joints.

3.4.7 Bituminous-Coated or Uncoated Semicircular Steel Pipe: Coupling bands shall consist of uncorrugated top and bottom sections bolted together with four bolts.

3.4.8 Bituminous-Coated or Uncoated Corrugated Aluminum Pipe: Use standard connecting bands furnished by the pipe manufacturer.

3.4.9 Acrylonitrile-Butadiene-Styrene (ABS): Solvent cement or elastomeric joints for ABS pipe shall be in accordance with ASTM D 2751.

3.4.10 Polyvinyl Chloride (PVC) Pipe: Joints shall be in accordance with the requirements of ASTM D 3212.

3.5 Backfilling: Filter material shall be placed around and over the pipe. The remainder of the trench shall be filled with overlying backfill material.

Storm Drains

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of storm drains. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Reinforced Concrete Pipe: ASTM C 76 or AASHTO M 170.

2.2 Reinforced Concrete Arch Culvert and Storm Drainpipe: ASTM C 506.

2.3 Reinforced Concrete Elliptical Culvert and Storm Drainpipe: ASTM C 507.

2.4 Nonreinforced Concrete Pipe: ASTM C 14 or AASHTO M 86, Class 1, Class 2, Class 3.

2.5 Reinforced Concrete Box Sections: ACI 346.

2.6 Clay Pipe: AASHTO M 65 or ASTM C 700.

2.7 Corrugated Steel Pipe, Pipe Arch, and Couplings: Pipe and couplings shall conform to ASTM A 760.

2.8 Structural-Plate Steel Pipe, Pipe Arches, and Arches: Plate and bolted assembly shall conform to Fed. Spec. WW-P-405.

2.9 Corrugated Aluminum Alloy Pipe, Pipe Arch, and Underdrains: Pipe shall conform to Fed. Spec. WW-P-402.

2.10 Structural-Plate Aluminum Pipe, Pipe Arches, and Arches: Plate and bolted assembly shall conform to Fed. Spec. WW-P-402.

2.11 Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings: ASTM D 2751.
2.12 Reinforced Plastic Mortar (RPMP) Sewer Pipe: ASTM D 2992.
2.13 Precast Reinforced Concrete Manholes: ASTM C 478 or AASHTO M 199.
2.14 Reinforced Plastic Mortar (RPM) Manholes: ASTM D 3840.
2.15 Corrugated Polyethylene (PE) Plastic Manholes: ASTM D 3753.
2.16 Glass Fiber-Reinforced Polyester Manholes: ASTM D 3841.
2.17 Prefabricated Corrugated Metal Inlets and Manholes: Manholes and inlets shall be complete with frames and covers, or frames and gratings.
2.18 Manhole ladders or steps shall be fabricated of steel or heavy-duty aluminum, minimum 16 inches in width with 3/4-inch diameter or square rungs on 12-inch centers. Steel ladders and inserts shall be galvanized after fabrication.
2.19 Precast concrete segmental blocks shall conform to ASTM C 139, and shall be not more than 8 inches thick nor less than 8 inches long.
2.20 Brick shall conform to ASTM C 62, Grade SW; ASTM C 55, Grade S-I or S-II, or ASTM C 32, Grade MS. Brick structures shall be plastered with 1/2-inch of mortar over the entire outside surface of the walls.
2.21 Walls and headwalls shall be reinforced concrete, plain concrete, or steel sheeting as indicated.
2.22 Flared End Sections shall be a standard design with pipe manufacturer and manufactured of the same material as specified for the pipe.
2.23 Concrete for Structures: ACI 318.
2.24 Mortar shall be composed of Portland cement, Portland blast-furnace slag, Portland-pozzolan, or masonry cement, as available.
3.0 EXECUTION:
3.1 Excavation:
3.1.1 Trenches: Except where banks are cut back on a stable slope, excavation for trenches shall be sheeted, braced, and shored as necessary for proper laying of pipe. Care shall be taken not to over excavate. Remove stones as necessary to avoid point bearing.
3.1.2 Storm Sewers: The width of the trench at and below the top of the pipe shall be such that the clear space between the barrel of the pipe and the trench wall shall not exceed 8 inches on either side of the pipe. The width of the trench above that level shall be as wide as necessary for sheeting and bracing and the proper performance of the work.
3.1.3 Appurtenances: Excavation for manholes and similar structures shall be sufficient to leave at least 12 inches in the clear between the outer surfaces and the embankment or timber that may be used to hold and protect the banks.
3.2 Backfilling:
3.2.1 Trenches: Backfill trenches to finish grade with satisfactory materials. Replace pavement, base course, and compact sub grade disturbed by trenching operations in an acceptable manner with materials equal to the adjacent compacted sub grade, base course, and pavement for a minimum distance of 12 inches on each side of the trench and conform to the requirements hereinafter specified.
3.2.2 Lower Portion of Trench: Deposit backfill material in 6-inch maximum thickness layers and compact with suitable tampers to the density of the adjacent soil until there is a cover of not less than 24 inches over lines, unless otherwise noted. The backfill material in this portion of the trench shall be free from stones larger than 3 inches in any dimension and hard clods and conglomerates larger than 6 inches in any dimension.
3.2.3 Remainder of Trench: Except for special materials for pavements and railroads, backfill the remainder of the trench with material that is free of stones larger than 6 inches or 1/2 the layer thickness, whichever is smaller, in any dimension. Deposit backfill material in layers not exceeding the thickness specified.
3.3 Installation:
3.3.1 General: Under no circumstances shall pipe be laid in water. No pipe shall be laid when trench conditions or weather are unsuitable for such work. Diversion of drainage or dewatering of trenches during construction shall be provided as necessary.
3.3.2 Plastic Pipe and Manholes: Install plastic pipe and manholes in compliance with ASTM D 2321,

ASTM D 3753, and ASTM D 3839.

3.3.3 Concrete and Clay Pipe: Laying shall proceed upgrade with spigot ends of bell and spigot pipe and tongue ends of tongue and groove pipe pointing in the direction of the flow.

3.3.4 Circular Concrete Pipe with Elliptical Reinforcing: Placement shall be such that reference lines designating top of pipes will not be more than 5 degrees from the vertical plane through the longitudinal axis of the pipe.

3.3.5 Corrugated Metal Pipe and Pipe Arch: Laying shall be with the separate sections joined firmly together with the outside laps of circumferential joints pointing upstream and with longitudinal laps on the sides. Suitable markings or properly placed lifting lugs shall be provided to ensure placement of factory elongated pipe in a vertical plane.

3.3.6 Structural-Plate Steel Pipe, Pipe Arches, and Arches: Tighten bolts on each section progressively and uniformly, starting at one end of the structure after all plates are in place. Repeat the operation to ensure that all bolts are tightened to meet the torque requirement of 200 foot-pounds, plus or minus 50 foot-pounds.

3.3.7 Structural-Plate Aluminum Pipe, Pipe Arches, and Arches: Tighten bolts on each plate progressively and uniformly, starting at one end of the structure after all plates are in place. Repeat the operation to ensure that all bolts are torqued to a minimum of 100 foot-pounds on aluminum alloy bolts and a minimum of 150 foot-pounds on galvanized steel bolts.

3.3.8 Manhole Ladders: Install manhole ladders when the manhole depth exceeds 12 feet. Anchor ladders adequately to the wall by means of steel inserts spaced not more than 6 feet apart vertically. Provide at least 6-1/2 inches of space between wall and inside of rungs.

Force Drains and Inverted Siphons

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of force mains and inverted siphons. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: Piping for force mains shall be ductile iron, steel, polyvinyl chloride (PVC) plastic, filament-wound reinforced or centrifugally cast reinforced thermosetting resin, thermo-setting reinforced plastic mortar pressure pipe, or reinforced concrete.

2.1 Ductile Iron Pipe: AWWA C151, 150 psi working pressure. Pipe shall be cement mortar-lined in accordance with AWWA C104. Joints shall conform to AWWA C111. Flanges shall conform to AWWA C115.

2.2 Polyvinyl chloride (PVC) Plastic Pipe: All pipe, couplings, and fittings shall be manufactured of material conforming to ASTM D 1784, Class 12454B, designated as PVC 1120 in ASTM D 1785.

2.3 Reinforced and Prestressed Concrete Pipe: Steel cylinder reinforced concrete pipe shall conform to AWWA C300, C301, or C303 and shall be designed to withstand a working pressure of not less than 150 psi, with bell and spigot steel joints and gaskets.

2.4 Steel Pipe 3 Inches and Larger, not Galvanized: AWWA C200 with dimensional requirements as given in ANSI B36.10 for pipe 6 inches in diameter and larger, and ASTM A 53 for smaller sizes. Joints shall be mechanical, bell and spigot, or flanged.

2.5 Filament Wound Reinforced Thermosetting Resin Pipe (RTRP-I) for Lines 3 Inches and Larger: Pipe shall conform to ASTM D 2996. The pipe shall be suitable for a normal working pressure of 150 psi at 73 F.

2.6 Centrifugally Cast Reinforced Thermosetting Resin Pipe (RTRP-II) for Lines 3 Inches or Larger: Pipe shall conform to ASTM D 2997.

2.7 Reinforced Plastic Mortar Pressure (RPMP) Pipe for Lines 3 Inches or Larger: Pipe shall conform to ASTM D 3517. Joints shall be bell and spigot type with elastomeric or mechanical gaskets.

2.8 Valves:

2.8.1 Check Valves shall be designed for a minimum working pressure of 150 psi. Valves larger than 2 inches shall be iron body, bronze-mounted, shall have flanged ends, and shall be the non-slam type. Flanges shall be the 125-pound type conforming to ANSI B16.1.

2.8.2 Gate Valves shall be designed for a working pressure of not less than 150 psi. Valves smaller than 3

inches shall be all bronze and shall conform to MSS SP-80, Type 1, Class 150. Valves 3 inches and larger shall be iron body, bronze-mounted, and shall conform to AWWA C500.

2.8.3 Rubber-Seated Butterfly Valves shall conform to the performance requirements of AWWA C504.

2.8.4 Plug Valves: Cast-iron valves shall comply with MSS SP-78. Steel plug valves shall comply with API Spec. 6D.

2.8.5 Pinch Valves shall be double-acting, jam-proof type with unobstructed streamlined flows and built-in operator. The valve shall have flanged ends. Flanges shall be of the 125-pound type complying with ANSI B16.1.

2.8.6 Air Release Valves shall be attached by means of threaded pipe connections.

2.8.6.1 Manual Air Release Valves shall consist of a 3-inch gate valve and 3-inch ductile iron pipe and fittings.

2.8.6.2 Automatic Air Release Valves shall be of the compound lever type capable of withstanding operating pressures of 150 psi.

2.9 Valve Boxes shall be cast iron or concrete. Only concrete boxes will be acceptable in roadways or in areas subject to heavy loads.

2.10 Valve Vaults: Precast concrete units conforming to ASTM C 478.

3.0 EXECUTION:

3.1 Utility Separation: Pressure sewer pipe and water pipe shall be separated by at least 10 feet horizontally.

3.2 Placing and Laying:

3.2.1 RTRP Pipe shall be installed in accordance with ASTM D 3839. PVC shall be installed in accordance with AWWA M23.

3.2.2 Pipe Passing Through Walls of valve pits and structures shall be provided with cast-iron wall sleeves.

3.3 Thrust Blocks: Plugs, caps, tees, and bends deflecting 22-1/2 degrees or more, either vertically or horizontally, on waterlines 6 inches in diameter or larger, and fire hydrants shall be provided with thrust blocking or metal tie rods and clamps or lugs.

3.4 Hydrostatic Tests: The pipeline shall be subjected to both a pressure test and a leakage test.

3.4.1 Pressure Test: After the pipe has been installed and the trench has been partially backfilled, leaving the joints exposed for examination, the pipe shall be filled with water in a manner to expel all air. The pipeline shall be subjected to a test pressure of 100 psi or 150 percent of the working pressure, whichever is greater, for a period of at least one hour.

3.4.2 Leakage Test: A standard one-hour leakage test shall be performed subsequent to or concurrently with the pressure test and shall meet an allowable leakage rate according to the following formula: L = NDP/K, where L equals the allowable leakage in gallons per hour, N is the number of field joints in the length of pipeline tested, D is the nominal diameter of the pipe in inches, P is the square root of the average test pressure in psig, and K is equal to 7,400.

Sand Drains

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of sand drains. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Galvanized Perforated Corrugated Metal Pipe: AASHTO M36.

2.2 Perforated Polyvinyl Chloride (PVC) Plastic Pipe: ASTM D 1784.

2.3 Aggregate shall be sand, gravel, crushed rock, or chat that is clean, sound, and of a good quality. Gradation shall conform to the following table:

Retained on the 1-inch sieve	0%
Retained on the 3/8-inch sieve	0-15%
Retained on the No. 8 sieve	40-60%
Retained on the No. 30 sieve	70-95%
Retained on the No. 100 sieve	98-100%

3.0 EXECUTION:

3.1 Pipe Bedding: Aggregate shall be placed in uniform layers on level excavation.
3.2 Perforated Pipe shall be laid with securely aligned joints to lines and grades, which will allow proper drainage.
3.3 Perforated Pipe shall be embedded with a minimum coverage of two feet of aggregate or as directed.

Wastewater Collection

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of wastewater collection systems. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Bituminized Fiber Pipe and Fittings: ASTM D 1861, except that wye branches and tees may be vitrified clay, concrete, or cast iron.
2.2 Cast-Iron Soil Pipe and Fittings: ASTM A 74, Class SV or XH. Acid-resistant lines shall be Class XH and contain not less than 12 percent silicon.
2.2.1 Rubber Gaskets for Compression Joints: ASTM C 564.
2.2.2 Caulked Joints: Joint packing material shall be twisted jute or oakum, tarred type. Lead shall comply with Fed. Spec. QQ-C-40.
2.3 Clay Pipe and Fittings: Clay Pipe and Fittings shall conform to ASTM C 700. Compression Joints shall conform to ASTM C 425.
2.4 Concrete Pipe: 24 inches in diameter or less, nonreinforced, ASTM C 14, Class 1; greater than 24 inches in diameter, reinforced, ASTM C 76.
2.4.1 Joints less than 36 inches in diameter shall be bell and spigot type; pipe 36 inches or greater in diameter shall be bell and spigot type, tongue and groove type, or modified tongue and groove type. Joints and gaskets shall conform to ASTM C 443.
2.4.2 Portland cement for Concrete Pipe and Fittings: ASTM C 150, Type IIA or V.
2.5 Plastic Pipe: Plastic pipe shall not be used for sewers larger than 15 inches in diameter.
2.5.1 Acrylonitrile-Butadiene-Styrene (ABS) Composite Piping: ASTM D 2680, Type SC or Type OR, size 8 inches through 15 inches in diameter.
2.5.2 Acrylonitrile-Butadiene-Styrene (ABS) Pipe and Fittings: ASTM D 2751, solvent weld or bell and spigot O-ring joint, size 12 inches or less in diameter.
2.5.3 Polyvinyl Chloride (PVC) Pipe and Fittings: ASTM D 3034, Type PSM with a maximum SDR of 35, size 15 inches or less in diameter, with flexible elastomeric seal joint, elastomeric gasket joint in accordance with ASTM D 3212.
2.5.4 Branch Connections: Branch connections shall be made by use of regular fittings or solvent cemented saddles. Saddles for acrylonitrile-butadiene-styrene (ABS) composite pipe shall comply with Figure 2 of ASTM D 2680, saddles for acrylonitrile-butadiene-styrene (ABS) pipe shall comply with Table 3 of ASTM D 2751, and saddles for polyvinyl chloride (PVC) pipe shall comply with Table 4 of ASTM D 3034.
2.6 Clay Pipe: Standard strength pipe shall conform to AASHTO M 65. Extra strength pipe shall conform to AASHTO M 65 or ASTM C 700. Compression fittings shall comply with ASTM C 425.
2.7 Reinforced Plastic Mortar Pipe: ASTM D 3262. Fittings shall be in accordance with ASTM D 3840. Joints shall be bell and spigot type utilizing an elastomeric gasket.
2.8 Brick for Manholes: ASTM C 62, Grade SW, or ASTM C 32, Grade MS.
2.9 Cement Mortar: ASTM C 270, Type M. Use Type IIA cement.
2.10 Concrete Blocks for Manholes: ASTM C 139.
2.11 Portland cement: ASTM C 150, Type IIA or V.
2.12 Concrete: ASTM C 94, compressive strength of 4,000 psi.
2.13 Precast Reinforced Concrete Manhole Sections: ASTM C 478.
3.0 EXECUTION:
3.1 Adjacent Facilities: Unless otherwise dimensioned, the sewer shall not be closer horizontally than ten feet to a water-supply main or service line, except that where the bottom of the water pipe will

be at least twelve inches above the top of the sewer pipe, the horizontal spacing may be a minimum of six feet. Where gravity-flow sewers cross above water lines, the sewer pipe for a distance of ten feet on each side of the crossing shall be fully encased in 4 inches of concrete or shall be acceptable pressure pipe with no joint closer horizontally than three feet to the crossing.

3.1.1 Roads, Railroads, and Airfields: Sewer pipe shall be suitably encased in a sleeve of rigid conduit under primary access road crossings, railroad crossings, and at airfield runways and taxiways where aircraft are moved under their own power.

3.1.2 Structures: Where sewer pipe is required to be installed within three feet of an existing building or structural foundation, the sewer pipe shall be sleeved.

3.2 Pipe Laying: Pipe laying shall proceed upgrade with the spigot ends of bell and spigot pipe and tongue ends of tongue and groove pipe pointing in the direction of the flow.

3.3 Leakage Tests: Lines shall be tested for leakage by either infiltration tests or exfiltration tests, as appropriate. Leakage shall not exceed 0.2 gallons per inch diameter per 100 feet of pipeline per hour.

3.4 Test for Deflection: When flexible pipe is used, a deflection test shall be made on the entire length of the installed pipeline upon completion of all work, including the leakage test, backfill, and placement of any fill, grading, paving, concrete, or superimposed loads.

3.5 Building Connections shall include the lines to and connection with the building waste drainage piping at a point approximately 5 feet outside the building.

Erosion Control

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of mesh or netting for erosion control. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Jute Mesh: Fed. Spec. CCC-C-467.

2.2 Plastic Mesh: Manufacturer's recommendation.

2.3 Plastic Netting: Manufacturer's recommendation.

2.4 Polypropylene Mesh: Manufacturer's recommendation.

3.0 EXECUTION:

3.1 Preparation: Grade, compact, fertilize, and seed the area to be protected.

3.2 Installation: Apply blankets either horizontally or vertically to the slope. In ditches, apply blanket in direction of water flow. Lap and anchor blankets according to the manufacturer's instructions.

Sewer Line Manholes

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of sewer line manholes. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 General: All materials shall be clean, free of defects, corrosion, and damage. All items shall be of proper type, size, design, and characteristics for the use intended. Unless otherwise specified, all items shall be factory made.

2.2 Manhole Brick: Bricks used in the repair of manholes shall comply with ASTM C 32, Grade MS.

2.3 Concrete used in the repair of manholes shall comply with ASTM C 94 with compressive strength of 3,000 psi.

2.4 Portland cement shall comply with ASTM C 150, Type 5.

2.5 Concrete Blocks for manhole repair shall comply with ASTM C 139, of the size required to match prevailing conditions.

2.6 Cement Mortar shall comply with ASTM C 270, Type M. 2.7 Precast Concrete Sections for manhole repair shall comply with ASTM C 478, utilizing Portland cement.

2.8 Manhole Steps shall be of cast iron construction in compliance with ASTM A 48, Class 20-B or ASTM

A 536, with a minimum tensile strength of 35,000 psi.
2.9 Grout shall be of Portland cement, metallic or nonmetallic, nonshrink or expansive type, complying with ASTM C 476 or ASTM C 658.
2.10 Epoxy Mortar shall be utilized to fill all deteriorated joints of brick manholes.
2.11 Castings shall be gray iron, complying with ASTM A 48, Class 20B, or ductile iron, complying with ASTM A 536.
2.12 Frames and Covers shall be for light-duty traffic, with 24-inch entrance diameter, anchored to the manhole structure.
2.12.1 Waterproof Frame and Cover shall be gasket sealed with bolts for lid and shall comply with "Frames and Covers," above. Bolts and nuts shall be steel.
2.12.2 Replacement Covers shall be solid, flat top, of the proper design and load rating, and fit the existing frame without need for adapters or additional hardware.
2.12.3 Cover Height Adjustment Devices shall be expandable to fit the frame rim size and adjustable vertically to match the required finished grade elevation.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Cleaning Existing Surfaces: Prior to applying grout, scrape surfaces of all loose material, dry of excess water, and clean of organics, slimes, or dust.
3.1.2 Manhole Crack Preparation: Drill holes in cracks at the extreme ends and at 6- to 9-inch intervals with a masonry bit.
3.2 Installation:
3.2.1 Grouting, Interior of Manhole: Grout and seal interior wall of manhole by hand application, giving a trowel finish.
3.2.2 Grouting, Exterior of Manhole: If pressure grouting from ground surface, insert applicator directly above area to be grouted and inject grout until grout enters manhole through crack. If pressure grouting from inside manhole, insert grout applicator at each drilled hole along the crack and repeatedly pump until grout emerges through the crack and annular space between hole and applicator.
3.2.3 Curing of Grout: Cure Portland cement grout in a damp atmosphere by closing all entrances to the manhole.

Sewer Line Grouting
1.0 DESCRIPTION OF WORK: This specification covers sewer line grouting. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Grout shall be applicable to sewer conditions and as required to seal the pipe from leaks. Type of grout used shall be compatible with the soil and moisture conditions and shall provide watertight seals under all internal and external conditions to which the sewer shall be subjected.
2.2 Chemical Grout shall be acrylamide gel or polyurethane foam.
2.2.1 Acrylamide Gel shall be an aqueous solution of acrylamide and N,N' methylenebisacrylamide powders, with the proper catalyst, such as B-dimethylaminopropionitrile and ammonium persulfate, mixed in the proper proportions and concentrations to achieve the desired results, depending on the field conditions.
2.2.2 Polyurethane Foam Grout shall be an aqueous solution of liquid urethane polymer, with a water-soluble amine accelerator.
2.3 Epoxy Mortar Grout shall comply with ANSI A118.3.
2.4 Portland cement Grout shall comply with ASTM C 476.
3.0 EXECUTION:
3.1 Preparation:
3.1.1 Alternate Sewage Discharge shall be provided to a downstream manhole.
3.1.2 Preparatory Cleaning: Prior to beginning of grouting work, sewers to be repaired shall be cleaned of all debris, sediments, and tuberculation.
3.2 Installation:

3.2.1 Grouting shall take place at all joints determined to require repair and at cracks and crevices where infiltration or exfiltration is occurring or has a possibility of occurring.

3.2.2 Grouting of Lateral Connections and Manhole External Drops shall consist of pumping grout to fill the entire length of the lateral pipe and manhole drops until the grout exfiltrates through the various leaks. Allowing for proper grout setting time, ream the grouted pipe of excess grout in its entirety. Remove all excess grout without being discharged in the main sewer and dispose of properly.

3.2.3 Manual Grout Application: Grout large sewers allowing the physical entrance of personnel utilizing probe-type applications and injecting the grout material directly in the leaks or through holes drilled at the leaks. Grouting shall continue until all leaks are stopped.

3.2.4 Testing of Grouted Sewers:

3.2.4.1 Air Testing of each individual joint and crevice shall be conducted upon setting of the in-place grout. The test shall be for not less than 30 seconds at each location, at pressures greater than or equal to the hydrostatic head caused by the maximum expected groundwater elevation. Record pressures at each location at five second intervals with an accuracy of 0.05 psi. Repair locations having pressure drops due to air leaks using grout or another approved method, until all leaks are stopped. Retest location after repairs are made.

3.2.4.2 Hydrostatic Testing:

3.2.4.2.1 Upon completion of grouting a section of sewer, the line shall be hydrostatically tested for leaks. Repair leaks using grout or another approved method, until all leaks are stopped. Retest line section after repairs are made.

3.2.4.2.2 Infiltration and Exfiltration Leakage into or out of the sewer shall not exceed the equivalent of 100 gallons per day, per inch of diameter, per mile of sewer from any section between successive manholes. The infiltration test may be used when the ground water is at least 2 feet higher than the pipe crown. Measure leakage with a weir. The exfiltration test shall consist of plugging successive upstream manholes and service connections and filling of line from the upstream manhole with water to a depth of 2 feet or more above the pipe crown or the ground water, whichever is higher.

3.2.4.3 Pneumatic Testing: Upon completion of grouting a section of sewers, the line shall be pneumatically tested for leaks in compliance with ASTM C 828. Repair leaks using grout or another approved method, until all leaks are stopped. Retest line section after repairs are made.

3.2.5 Performance of Grouted Sewers: Grouted sewer lines shall have no more than 100 gallons per inch diameter per mile of sewer per day, infiltration or exfiltration, upon completion of the work. Regrout sections of sewers experiencing more than the allowable leakage or otherwise repair by approved methods.

Sewer Line Cleaning

1.0 DESCRIPTION OF WORK: This specification covers sewer line cleaning. Cleaning procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS: All materials shall be clean, free of defects, corrosion, and damage. All items shall be of proper type, size, design, and characteristics for the use intended. Unless otherwise specified, all items shall be factory-made.

2.1 Portable Cleaning Equipment: Equipment used in the cleaning of sewer lines shall be as required to complete the work for the size, length, and conditions of the sewer. Portable and mobile equipment shall comply with Water Pollution Control Federation Manual of Practice No. 7.

2.2 Chemicals shall be of the strength required to perform the work. The chemicals shall not be damaging to pipe materials, manholes, pumping equipment, nor treatment process and shall not be contaminated by foreign substances.

3.0 EXECUTION:

3.1 Preparation:

3.1.1 Protection required to prevent damage to adjacent materials, equipment, fixtures, and finishes shall be provided. Necessary protective clothing and accessories for personnel working with chemicals shall be provided.

3.1.2 Ventilation of Sewers: Contractor shall provide proper ventilation for personnel working in the sewer.
3.1.3 Alternate Sewage Discharge: Contractor shall provide an alternate routing of sewage discharge to a downstream manhole.
3.1.4 Traffic: Contractor shall provide all traffic signs required to safely direct traffic at and around work areas.
3.2 Installation:
3.2.1 Direction of Work: Sewer line cleaning work, with the exception of hydraulic scouring, shall proceed in the downstream direction. Cleaning by hydraulic scouring shall proceed in the upstream direction.
3.2.2 Testing: Upon completion of cleaning operation, test sewer lines for proper operation and observe for a period of 24 hours. Clean out all stoppages and the retest the line for proper operation.

Septic Tanks and Grease Traps

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of septic tanks and grease traps. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS: Concrete Repair Material shall be epoxy type grout in compliance with Applicable standards and/or.
3.0 EXECUTION:
3.1 Septic Tanks and Grease Traps shall be drained and cleaned.
3.2 Adequate Ventilation shall be provided and precautions against the presence of explosive vapors shall be taken if it is necessary to enter the septic tank.
3.3 Soil Absorption System: Remove and dispose of vegetation roots impeding the flow of water in the soil absorption system properly. Restore all noticeable irregularities in the ground surface, caused by removal, by filling with soil that matches surrounding soil.
3.4 Filling Abandoned Septic Tanks and Grease Traps: Clean and fill abandoned septic tanks and grease traps with compacted soil.

Siphon Tank and Siphons

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and maintenance of sewage treatment plant dosing siphon tanks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Tank Repair Material shall be epoxy type grout complying with Applicable standards and/or.
2.2 Concrete Coatings:
2.2.1 Outside and Above Grade shall be epoxy type in compliance with Mil. Spec. MIL-P-24441.
2.2.2 Inside and Below Grade shall be Coal-tar epoxy type in compliance with SSPC-PAINT 16.
2.3 Steel Repair Material shall be steel plate or epoxy cement and fiberglass cloth.
2.4 Corroded or Defective Siphons: Replace those parts corroded or defective with new parts compatible with the unit, as recommended by the manufacturer.
2.5 Steel Coatings:
2.5.1 Red-Lead Base Coat shall comply with Fed. Spec. TT-P-86, Type I.
2.5.2 Aluminum Paint shall comply with Fed. Spec. TT-P-38.
3.0 EXECUTION:
3.1 Corroded or Broken Pipe and Fittings: Replace as required.
3.2 Minor Leaks: Repair minor leaks in the tank using material and surface preparation and application methods recommended by the material manufacturer.
3.3 Spalled Areas: Repair as required.
3.4 Cleaning and Coating:

3.4.1 Interior Concrete Surfaces of the tank shall be cleaned with high pressure water or steam to remove all dirt and residue, allowed to dry, and brush sandblasted in compliance with SSPC-SP 7.
3.4.2 The exterior concrete surfaces of the tank shall be cleaned by means of brush sandblasting in compliance with SSPC-SP 7. The surfaces shall be blown down with air to remove the blasting residue and dust, and two coats of epoxy-polyamide paint shall be applied.
3.4.3 Holes and voids in the concrete surfaces left from the blast cleaning shall be filled by means of troweling and squeeze application of an epoxy filler. The surfacing material shall be allowed to cure overnight, and then two coats of Coal-tar epoxy complying with SSPC-PAINT 16 shall be applied.
3.4.4 Submerged ferrous metal surfaces that are exposed to the sewage shall be sandblasted in compliance with SSPC-SP 10 and coated with two coats of coal-tar epoxy.
3.4.5 Ferrous metal surfaces that are not submerged shall be cleaned by means of sandblasting in compliance with SSPC-SP 6. Surfaces inaccessible to sandblasting shall be power tool cleaned in compliance with SSPC-SP 3. Surfaces shall be coated with one coat of red-lead base paint. After the base paint has dried sufficiently, two coats of Aluminum finish paint shall be applied.

Grease Interceptors

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of grease interceptors. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Semi-Automatic Grease Draw-Off: Unit shall be on-floor type, cast iron, porcelain, or painted inside and out, with internal air relief, grease draw-off piping, and valve with flow control fitting. Draw-off piping and nozzle may be interchanged in field to make unit a right- or left-handed installation. Unit shall also have double wall trap with removable baffles and gasketed cover with low pressure chamber. The pipe size of the influent line shall be based on the influent flow rate and grease capacity.
2.2 Manual Grease Draw-Off: Unit shall be on-floor type, partially recessed or flush-with-floor type, cast iron, porcelain, or painted inside and out, with internal air relief and flow control fitting. Unit shall have double wall trap, removable baffles, gasketed cover bearing plumbing, and drainage seal of approval. The pipe size of the influent line shall be based on the influent flow rate and grease capacity.
2.3 Manual Grease Draw-Off, Coated Steel Type: Unit shall be high volume on floor or partially recessed, with internal air relief, double wall trap, removable baffles, gasketed non-skid cover, and flow control fitting. The pipe size of the influent line shall be based on the influent flow rate and grease capacity.
3.0 EXECUTION: The unit shall be placed in the influent line of the waste water disposal and treatment system.

Imhoff Tanks

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of sewage treatment plant Imhoff tanks. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Coatings:
2.1.1 Epoxy-Filler Compound for concrete surfaces shall comply with Applicable standards and/or.
2.1.2 Coal-tar epoxy shall comply with SSPC-PAINT 16.
2.1.3 Epoxy paint shall comply with Mil. Spec. MIL-P-24441.
2.1.4 Red-lead base paint shall comply with Fed. Spec. TT-P-86, Type I.
2.1.5 Aluminum finish paint shall comply with Fed. Spec. TT-P-38.
2.2 Steel Tank Repair Material for minor leaks shall be a two-component epoxy sealing compound. For

badly corroded areas, a steel plate of the same composition and thickness as the original tank shall be used.

2.3 Pipe and Fittings for replacement shall be equivalent to the existing pipe and fittings.

3.0 EXECUTION:

3.1 Preparation: Drain the contents of the tank and dispose of the sludge and sewage.

3.2 Leak Repair:

3.2.1 Concrete Tanks: Repair concrete tank leaks by cleaning and chipping or sandblasting the area of the leak and applying two-component epoxy concrete sealant.

3.2.2 Steel Tanks: Repair steel tank leaks by cleaning, scraping, chipping, or sandblasting the area of the leak and applying epoxy steel sealant. Repair badly corroded areas of steel tanks by cutting out the corroded area and welding a section of new steel plate in place. Welding shall be in compliance with AWS D1.1.

3.3 Pipe and Fittings: Replace pipe and fittings as required.

3.4 Cleaning and Coatings:

3.4.1 Interior Concrete Surfaces of the tank shall be cleaned with high pressure water or steam to remove dirt and residue, allowed to dry, and brush sandblasted.

3.4.2 Holes and voids in the concrete surfaces left from the blast cleaning shall be filled by means of troweling and squeeze application of epoxy filler. Two coats of Coal-tar epoxy shall be applied to the surface after the epoxy has cured.

3.4.3 Submerged ferrous metal surfaces such as piping and equipment that are exposed to the sewage shall be sandblasted and coated with two coats of coal-tar epoxy.

3.4.4 Exterior Concrete Surfaces of the tank shall be cleaned by means of brush sandblast. The surfaces shall be blown down with air to remove the blasting residue and dust, and two coats of epoxy-polyamide paint shall be applied.

3.4.5 Ferrous metal surfaces that are not submerged shall be cleaned by means of sandblasting. Coat surfaces with one coat of red-lead base paint. After the base paint has dried sufficiently, apply two coats of Aluminum finish paint.

Sewer Line Pipe Lining

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of sewer line pipe lining. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Lining Material:

2.1.1 Polyethylene Pipe: Extruded, flexible industrial grade, high density (Type 3 or 4) in 40 foot lengths, complying with ASTM D 2239 and D 2447.

2.1.1.1 Diameter: Outside diameter shall be as large as possible while allowing for ease of pulling into the existing sewers. Pipe dimensions shall comply with ASTM D 2447 and D 2837.

2.1.1.2 Liner Thickness and Class shall be suitable for the use intended. The tolerance on the pipe wall thickness shall be as noted in Table 2 of ASTM D 2447.

2.1.1.3 Gravity Sanitary, Gravity Storm, and Gravity Industrial Sewers shall be Schedule 40.

2.1.1.4 Gravity Thermal Discharge Sewers shall be Schedule 80.

2.1.1.5 Low Pressure Sewers shall be Schedule 40, complying with ASTM D 2239.

2.1.1.6 High Pressure Sewers shall be Schedule 80, complying with ASTM D 2239 and D 2837.

2.1.1.7 Chemical Resistance: Pipe liner shall be resistant to chemical attack, erosion, and corrosion.

2.1.1.8 Fittings shall be fabricated from polyethylene pipe. The polyethylene fittings shall have the same pressure rating as the pipe and shall comply with ASTM D 3261.

2.1.2 Cement-Mortar Lining:

2.1.2.1 Portland cement shall comply with ASTM C 150, Type 1.

2.1.2.2 Pozzolan Cement shall comply with ASTM C 618 and shall not comprise more than 20 percent of total cement amount, by weight.

2.1.2.3 Sand shall be well graded, clean, free from organic and extraneous matter. One hundred percent

shall pass the 16-mesh size screen.

2.1.2.4 Lining Thickness: Cement lining shall be not less than 1/8 inch for pipe sizes 4 to 14 inches, not less than 3/16 inch for pipe sized 16 inches and larger, and not less than 1/4 inch for steel pipe 16 inches and larger.

2.1.3 Reinforced Mortar Pipe Slip-Lining:

2.1.3.1 Gravity Sewers: Slip-lining shall be of glass fiber reinforced polyester mortar pipe, complying with ASTM D 3262.

2.1.3.2 Pressure Sewers (Force Mains): Slip-lining shall be of glass fiber reinforced polyester mortar pipe complying with ASTM D 2517.

2.1.3.3 Diameter: Outside diameter shall be as large as possible while allowing for ease of pulling into existing sewers, as recommended by the manufacturer.

2.1.3.4 Chemical Resistance: Pipe liner shall be resistant to chemical attack, erosion, and corrosion.

2.1.3.5 Fittings: Fittings shall be manufactured of the same materials as is the glass fiber reinforced polyester mortar pipe.

2.1.4 Epoxy-Mortar Lining:

2.1.4.1 Epoxy Compound shall comply with ASTM D 1763.

2.1.4.2 Admixtures shall be well graded with one hundred percent passing the 16-mesh size screen. All admixtures shall improve the workability, density, and strength of the mortar.

2.1.4.3 Lining Thickness: For pipe sizes 4 to 14 inches, epoxy mortar lining thickness shall be not less than 1/8 inch. For pipe sizes 16 inches and larger, epoxy mortar lining shall be not less than 3/16 inch.

2.2 Joint:

2.2.1 Slip-Lining:

2.2.1.1 Polyethylene Pipe Butt Joints: Pipe lengths, fittings, and flanged connections to be joined by thermal butt fusion shall be of the same type, grade, and class of polyethylene compound and supplied by pipe supplier.

2.2.1.2 Flanged Joints shall consist of a polyethylene flange, thermally butt fused to the ends of the pipe. The companion flange shall be steel or cast iron and nylon-coated.

2.2.1.3 Lateral Service Connections: Sidewall connections shall be made with polyethylene pipe sections of the same material, grade, and class as the liner material and shall have the same pressure ratings. Lateral connections shall be watertight.

2.2.2 Reinforced Mortar Lining:

2.2.2.1 Bell and spigot joints shall be the inverted type.

2.2.2.2 Manhole Joints and Connections shall be oakum ring and grout as required.

3.0 EXECUTION:

3.1 Slip-Lining, Polyethylene Pipe:

3.1.1 Insertion of Liner: Liner shall be laid at a constant line and grade as the existing pipe, without undulations or damage. Where the existing pipe is not at constant grade, the liner shall follow as true a constant grade as possible.

3.1.2 Grouting: At manholes, annular space shall be packed with oakum and expansion grout or nonshrink grout as required. At existing line, after liner has been inserted, grout wherever existing pipe has failed structurally.

3.1.3 Concrete Encasement: Crown of liner shall be encased in concrete a minimum thickness of 6 inches for the entire length of the excavated trench and out at least 6 inches each side of the bottom half of the original pipe remaining down to firm soil. Wherever existing concrete encasement has been removed, the liner shall be encased in the same manner as the original pipe.

3.1.4 Thrust Blocks: Concrete thrust blocks shall be provided as required.

3.2 Cement Mortar and Epoxy Mortar Lining:

3.2.1 Cement Mortar Mixing: One part cement to one and one-half parts of sand by volume.

3.2.2 Application of Lining: The lining shall be applied to produce a smooth, uniform thickness throughout the interior of the pipe line.

3.2.3 Curing of the Cement Mortar Lining: Immediately upon completion of the lining of a length of pipe between access openings or at the end of a day's run, the section of pipe shall be closed at each end, the access openings covered to prevent the circulation of air, and the atmosphere kept moist.

3.2.4 Reconnection of Pipes After Lining: Close and make watertight all openings in the sewer lines.
3.2.5 Pressure Test and Leaks: Hydrostatic and leakage test shall be conducted on all pipe that is cleaned and lined.
3.3 Reinforced Mortar Pipe Lining:
3.3.1 Joining of Pipe Ends: Liner sections containing bell and spigot joints shall be joined using an O-ring.
3.3.2 Grouting Work shall be accomplished following the same techniques as described in paragraph Slip-Lining, Polyethylene Pipe.
3.4 Cement Mortar Lining:
3.4.1 Epoxy Mortar Lining: Excessive mortar shall be removed from the manhole walls and bottom. Manhole bottom shall receive special care in making all transitions smooth.
3.4.2 Work at Service Connections: Plugs or caps shall be placed at the access point of the service connection to the sewer and shall be removed once the mortar has set. The completed lining shall not be damaged.
3.5 Reinforced Mortar Pipe Lining: Joining of fiberglass reinforced polyester mortar pipe shall be carried out in the trench, with the first section of liner already inserted.
3.6 Lateral Connections: Service to connections shall be provided for and continued after installation of the lining.
3.7 Testing: Upon completion of lining operation, the sewer line shall be tested for proper operation and shall be observed for a period of 24 hours. All deficiencies shall be corrected.
3.8 Pavement Restoration: All disturbed pavement shall be restored to its original condition and shall match existing adjacent.
3.9 Inspection: Large diameter sewers shall be inspected from inside to ensure that all lateral connections and joints are in proper order. Sewers that have been cement-lined may be inspected for a smooth finish, while plugs and caps are being removed.

Sewage Treatment Lagoons

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and maintenance of sewage treatment lagoons. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Concrete Block shall comply with ASTM C 129.
2.2 Concrete Grout shall comply with Applicable standards and/or.
2.3 Riprap Stone shall comply with AREA-01.
2.4 Concrete Repair Material shall comply with Applicable standards and/or.
2.5 Sand shall comply with ASTM C 33.
2.6 Portland cement shall comply with ASTM C 150, Type V.
2.7 Rubble shall consist of broken concrete or broken stone.
3.0 EXECUTION:
3.1 Algae Removal shall be by mechanical or manual methods and shall include, but not be limited to, skimming, pumping through a screen, raking, or draining and cleaning the lagoon.
3.2 Slope and Dike Reconstruction shall be made to re-establish the original design configuration and grades. Place riprap, where required, so that its angle of repose is not exceeded.
3.3 Liner Reconstruction and Repair shall be made with materials compatible with the existing liner and compatible with the wastewater and sludge to be contained therein.
3.4 Repairs to Elastomeric Membrane Liners shall be made with like material and shall overlap all cuts, tears, fractures or other defects a minimum of 4 inches. Cut repair pieces square or rectangular. The method of bonding the new material to existing material shall be similar to the original joint banding method, except when the original joints have failed. In this case, the material supplier shall demonstrate that an alternate jointing system shall be satisfactory to the Authorized Member Representative. Replace earth or sand cover removed during repair or replacement of plastic liner to the same thickness as the original installation.
3.5 Repairs to Non-Elastomeric Membrane Liners shall be made by cutting out defective areas back to

sound liner material and replacing with similar material. Joints shall be watertight.

Fences and Gates

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of fences and gates. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Ground Rods, Down Conductors, and Connectors:

2.1.1 Ground Rods: Galvanized steel rods, 3/4 inch in diameter by 10 feet in length.

2.1.2 Down Conductors: No. 8 copper wire or equivalent.

2.1.3 Connectors: Pressure type bolted or compression type.

2.2 Foundations shall be concrete with a minimum 28-day strength of 3,000 psi, and shall extend from 3 feet 6 inches below finished grade to 2 inches above finished grade. Tops of foundations shall slope away from posts. Extend gate post foundations to the underside of the bottom hinge. Foundations for line posts shall be 10 inches in diameter. Foundations for terminal and gate posts shall be the diameter of the post plus 8 inches but not less than 12 inches.

3.0 EXECUTION:

3.1 Existing Fence Connections: Wherever new fencing joins an existing fence, either at a corner or at the intersection of straight line fences, a corner post with brace post shall be set at the junction and braced. If the connection is made elsewhere than the corner of the fencing, the last span of the existing fence shall contain a brace span.

3.2 Security Fence: Wherever existing fencing fabric is embedded in concrete or earth, or attached to an earth-embedded galvanized steel sheet, repairs shall be made as follows:

3.2.1 Earth Embedment: Install new fabric or galvanized steel sheet to depth of existing. Attach steel sheet securely to adjacent existing sheeting and new and existing fencing fabric. Thoroughly backfill and compact soil in repair area.

3.2.2 Concrete Embedment: Install fence fabric to the depth of existing fabric. Place concrete to match existing configuration. Clean all exposed fencing of concrete that is a result of new construction.

3.3 Gate Installation: Install, plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage, as recommended by the fence manufacturer. Install and adjust hardware for smooth operation and lubricate where necessary.

3.4 Grounding: Ground on each side of every gate where crossed by high-tension-line crossings, at 1,000 to 1,500 foot intervals along fence in isolated areas, and at 500 to 750 foot intervals when in close proximity (100 feet or less) to public roads, highways, and buildings. Down conductors shall run full height of fence wherever wood posts are used and shall be securely fastened to each strand of wire to provide electrical continuity.

3.5 Field Painting: At the completion of repair work, touch up all surfaces damaged by construction operations. Galvanized surfaces shall be painted with zinc-oxide paint. Wood, steel, vinyl coated, aluminized, and other fencing materials shall be touched up following the manufacturer's recommendations or to match existing finish.

3.6 Final Grading: The final ground surface shall be graded to remove irregularities and maintain the clearance between the bottom of the fence and the ground surface.

3.7 Seeding and Sodding: Seed or sod all lawn areas disturbed by repair and maintenance operations with a plant variety of the same species as that in adjacent areas. Areas where grass does not take hold shall be reseeded or resodded as directed by the Authorized Member Representative.

Steel Chain Link Fencing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of steel chain-link fencing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:
2.1 Galvanized Fabric shall comply with Fed. Spec. RR-F-191/1, Type I, of 9 gauge wire and 2-inch mesh.
2.2 Framework: Posts, top rails, and braces shall be galvanized steel pipe in compliance with Fed. Spec. RR-F-191/3, Class 1.
2.3 Gates shall comply with Fed. Spec. RR-F-191/2 and shall be of the same type, size, and shape as the existing. Provide a keeper to automatically engage and hold the gate leaf open until manually released, a center plunger rod, a center stop, vertical lift framework, and sliding track.
2.4 Electric Operator for gates shall include a totally enclosed motor, starter, gear reduction, clutch, limit switch, and housing. Operator shall be controlled by an electric lock. Slide gate operators shall be equipped with magnetic brake, manual disconnect, and chain drive. Swing gate operators shall be equipped with a crank arm.
2.5 Accessories:
2.5.1 Barbed Wire shall comply with Fed. Spec. RR-F-191/4 and shall be two strands of 12-1/2 gauge galvanized steel wire, twisted, with four point barbs spaced five inches apart.
2.5.2 Post Caps: Pressed steel or malleable iron, galvanized, and of the configuration required.
2.5.3 Extension Arms for barbed wire shall extend outward at a 45 degree angle and shall have provision for attaching three strands of barbed wire with the top strand approximately one foot above the fence fabric.
2.5.4 Stretcher Bars: Minimum 3/16-inch by 3/4-inch steel bars, galvanized in compliance with ASTM A 123.
2.5.5 Stretcher Bar Bands: Heavy pressed steel bands, galvanized in compliance with ASTM A 123.
2.5.6 Tension Wire: Spring coil or crimped wire of minimum seven gauge galvanized steel with minimum tensile strength of 80,000 pounds per square inch and coating as specified for the fabric.
2.5.7 Fasteners: Steel wire with an ASTM A 641, Class 1 galvanized coating.
2.5.8 Slat Inserts: California Redwood treated with a stain preservative to maintain appearance.
2.5.9 Boulevard Clamps: Stamped 13 gauge mild steel, galvanized, in compliance with ASTM A 641, Class 1. Clamps for vinyl coated fence shall have the vinyl coating applied over the zinc coating.
3.0 EXECUTION:
3.1 Posts: Set plumb, in straight alignment with other posts, evenly spaced and rigidly set. Set posts to a depth of 3 inches above the bottom of the concrete foundation.
3.2 Rails:
3.2.1 Top Rail: Install continuous through post caps, securely fastening to end, corner, pull, and gate posts with rail end.
3.2.2 Intermediate and bottom rails: Attach to line posts with boulevard clamps and to terminal posts with rail ends.
3.3 Truss Bracing: Securely fasten to end, corner, pull, and gate posts 12 inches below cap and extend to the adjacent line post. Braces shall be trussed from the line post to the bottom of the terminal post with round rods and turnbuckles.
3.4 Fabric:
3.4.1 Repair (Cutting and Patching) of Fabric: Cut out the damaged fabric, position new fabric to line up with existing mesh, and securely fasten to existing fabric.
3.4.2 Replacement of Fabric: Stretch to proper tension and securely fasten to terminal posts using stretcher bars.
3.4.3 Restretching Existing Fabric: Stretch existing fabric indicated to be restretched to proper tension and refasten to posts and rails.
3.5 Barbed Wire: Stretch and secure to extension arms with heavy wire pins.
3.6 Gate Hinges: Install to prevent twisting or turning under action of the gate and to swing through 180 degrees from closed to open position.

Steel Rod and Bar Fencing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of steel rod and bar fencing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product

manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Pickets shall be of height and style required to match existing, solid mild steel bar, galvanized in compliance with ASTM A 123.

2.2 Framework: Posts and rails shall be of length and style to match existing, solid mild steel, galvanized in compliance with ASTM A 123.

2.3 Gates:

2.3.1 Frame: Galvanized steel, all welded construction.

2.3.2 Truss Rods: Galvanized steel as required for stability, minimum 3/16 inch in diameter.

2.3.3 Hardware: Gate latches, hinges, gate track, trolley, rollers, plunger rod, and locks as required.

2.4 Accessories:

2.4.1 Brackets: Malleable iron or pressed steel of the sizes and configurations required to adequately support attached members, minimum 3/16 inch thick.

2.4.2 Trim: Flat caps for all posts and pickets where required. Caps shall be galvanized cast iron or zinc die castings of thickness standard to the manufacturer.

2.4.3 Sleeves: Where required, sleeves shall be minimum 16-gauge steel tubing of the required configuration to receive post. Sleeves shall be galvanized in compliance with ASTM A 123.

3.0 EXECUTION:

3.1 Pickets: Fasten pickets to rails with clip angles and bolts and nuts.

3.2 Posts: Set posts in sleeves or footings as required to match existing conditions.

3.3 Brackets: Brackets for wall mounting and change of grade shall be securely fastened to wall and/or posts with appropriate fasteners.

3.4 Alignment: Finished fencing shall be in proper alignment with all posts plumb.

3.5 Welding: Comply with AWS D1.1.

3.6 Repair: Items shall be straightened, welded, sufficiently bolted, or otherwise strengthened as required.

Wrought Iron Rod and Bar Fencing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of wrought iron rod and bar fencing including ornamental malleable iron fencing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Pickets shall be 3/8-inch square wrought iron rods of the required length and configuration.

2.2 Gates: Hardware shall be compatible with existing hardware in appearance and function.

2.3 Accessories:

2.3.1 Brackets: Brackets for fastening fencing to walls, floor, posts, and other attachments shall be wrought iron.

2.3.2 Trim: Provide iron trim items as required.

2.3.3 Bolts and Nuts shall be ASTM A 307 and galvanized in compliance with ASTM A 153.

3.0 EXECUTION:

3.1 Pickets shall be welded to rails. Welding shall comply with AWS standards and shall seal the joint against moisture.

3.2 Rails shall be securely fastened to posts with angle brackets.

3.3 Posts shall be set in sleeves or footings to match existing conditions. Posts set in sleeves shall have the annular space between the sleeve and post filled with lead or sulfur.

3.4 Brackets for wall mounting and change of grade shall be securely fastened to wall and/or posts with appropriate fasteners.

3.5 Gates:

3.5.1 Frame: Iron rod and bar rails and pickets shall be welded with full welds into sections in a pattern matching existing fencing. Rail-and-picket sections shall be fastened to posts with angle brackets, bolts, and nuts.

3.5.2 Bracing: Iron rod or bar braces shall be welded in place when required to strengthen the gate.

Precast Concrete and Masonry Fencing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of precast concrete and masonry fencing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Fence Materials:

2.1.1 Pre-Cast Concrete: Match existing fencing units in all dimensions, patterns, colors, and textures. Units shall comply with ASTM C 145 Grade N, Type 1 for solid units and ASTM C 90 Grade N, Type 1 for hollow units, and ACI 318 as applicable.

2.1.2 Brick: Exposed brick masonry shall comply with ASTM C 216, Grade SW. Brick for below grade shall comply with ASTM C 62, Grade SW. Brick shall be selected for appearance to match existing brick in dimension, color, and texture.

2.1.3 Mortar:

2.1.3.1 Mortar shall comply with ASTM C 270, Type S and shall be 1 part Portland cement (ASTM C 150), 1/2 part lime (ASTM C 207), and 4-1/2 parts sand (ASTM C 144). Sand for joints 1/4 inch or less shall pass a No. 16 sieve. Sand containing any substance that will stain the masonry shall not be used. Waterproofing admixtures shall be approved by the Authorized Member Representative.

2.1.3.2 Colored Mortar shall be a factory-formulated mixture of masonry cement complying with ASTM C 91 and mortar color.

2.1.4 Masonry Grout: Coarse grout for masonry lintels and for filling cells in masonry units shall consist of 1 part Portland cement, 1/10 part lime, and 1-1/2 parts sand. Fine grout for bedding and grouting steel and for all other applications shall consist of 1 part Portland cement, 1/10 part lime, and 2-1/2 parts sand. Use waterproofing admixture in all grout used in exterior walls.

2.2 Posts:

2.2.1 Line Posts: Line posts shall be of the same materials and configuration as existing posts with reinforcing as required.

2.2.2 Terminal and Corner Posts: Match existing terminal and corner posts in configuration and adequately reinforce.

2.2.3 Gate Posts: Gate posts shall have all attachments for gates firmly embedded and shall be of sufficient strength to withstand stresses applied by the gate.

2.3 Rails: Rails shall be of the same materials and configuration as existing rails with all accessories for firmly attaching to posts.

2.4 Gates:

2.4.1 Frame: Constructed of 2 x 4 wood members with attached pickets. Configuration of gate shall match that of existing gates.

2.4.2 Gate Bracing shall consist of a single 2 x 4 running diagonally across the gate to opposite corners of the frame. High end of brace shall be at hinge edge of gate.

2.4.3 Hardware: Hinges, latches, and other hardware shall be hot-dipped galvanized steel in compliance with ASTM A 153 and of configurations to match existing hardware.

2.4.4 Padlock: Padlocks shall comply with ASTM F 883.

2.5 Accessories:

2.5.1 Special Shapes: Special shapes, including copings and post caps, shall be as required to match existing units to be replaced.

2.5.2 Reinforcement: Masonry reinforcement, anchors, and ties shall comply with the following requirements:

2.5.2.1 Reinforcement Bars shall comply with ASTM A 615, Grade 40.

2.5.2.2 Joint reinforcement shall be prefabricated from zinc-coated cold drawn steel wire in compliance with ASTM A 641. Provide prefabricated pieces for corners and intersections of walls. Reinforcement shall be truss type, approximately two inches narrower than the nominal thickness of wall.

2.5.2.3 Wire-Mesh Ties shall be 16-gauge or larger zinc-coated steel wire woven into 1/2-inch mesh and cut in strips one inch narrower than the width of walls in which they are used. Zinc-coating shall comply with ASTM A 641.

2.5.2.4 Wire Brick Ties shall be fabricated from 3/16-inch diameter zinc-coated steel wire complying with ASTM A 641.

2.5.3 Attached Items: Light fixtures and miscellaneous items attached to the fencing shall be provided with appropriate means for securely fastening to fence components.

2.5.4 Bolts and Nuts shall be ASTM A 307 and galvanized in compliance with ASTM A 153.

2.6 Foundations:

2.6.1 Material: Where foundation work is required for maintenance and repair, the new foundation shall match the existing foundation in materials and design.

2.6.2 Depth: Foundations shall extend below frost line or to the depth of existing foundations, whichever is greater.

3.0 EXECUTION:

3.1 General:

3.1.1 All Scaffolding and Falsework shall be ample strength and well secured. Masonry work exceeding 10 feet in height shall be properly braced and supported until masonry is self-supporting.

3.1.2 Where Fresh Masonry Joins Partially or Totally Set Masonry, clean the exposed surface of the set masonry to obtain the best possible bond with the new work. Remove all loose masonry units and mortar.

3.2 Mixing Mortar and Grout:

3.2.1 Mix in a Mechanical Batch Mixer for a minimum of 5 minutes after all materials have been added.

3.2.2 Mix Grout in compliance with ASTM C 476. Grout shall have a consistency at time of placement to yield a slump of 10 to 11 inches as determined by ASTM C 143.

3.3 Reinforcement:

3.3.1 Install Horizontal Continuous Joint reinforcement in all unit masonry fences. Reinforcement shall start not more than 8 inches above the masonry supporting surface and end within the top full mortar joint, or to match existing conditions and shall be spaced at maximum 16-inch centers vertically.

3.3.2 Joint reinforcement shall be placed approximately 1/2 inch from masonry faces.

3.3.3 At intersections, bond each course with wire mesh ties or prefabricated Joint reinforcement spaced not to exceed 16 inches vertically.

3.3.4 Install Vertical Reinforcement bars of the size indicated on the drawings in the hollow cores of masonry units as required. Fill all cells containing reinforcement for the full height of the reinforcement with grout.

3.4 Precast Concrete:

3.4.1 Bond shall be laid to match existing pattern. Lay hollow concrete masonry units with full mortar coverage on horizontal and vertical face shells. Webs shall also be bedded in all courses of posts, in starting course on footings and solid foundation walls and around cells that are to be reinforced or filled with grout.

3.4.2 All Exposed Mortar Joints shall be tooled with a round jointer to produce smooth, dense, concave joints, except as otherwise required to match existing mortar joints.

3.5 Brick:

3.5.1 Bond shall be laid out to maintain joints to uniform thickness throughout.

3.5.2 Brick shall be laid with completely filled mortar joints to match existing. Mortar beds shall be spread smooth. The ends of brick shall be buttered with sufficient mortar to fill the end joint.

3.5.3 All Exposed Mortar Joints shall be tooled with a round jointer to produce smooth, dense, concave joints.

3.6 Pointing and Cleaning: Upon completion, all new joints shall be carefully pointed, filling all holes. Cut out defective joints and repoint them with mortar. Keep all exposed masonry clean and free of mortar as the work progresses. Clean masonry surfaces using fiber brushes and trisodium phosphate solution; acid shall not be used for any masonry cleaning. Rinse surfaces with clean water immediately after cleaning.

Permanent Wood Fencing

1.0 DESCRIPTION OF WORK: The specification covers the furnishing and installation of materials for repair and maintenance of permanent wood fencing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Pickets:

2.1.1 Size: Wood for pickets shall match the existing fencing in material, configuration, dimensions, texture, and finishes.

2.1.2 Attachment: Hot-dipped galvanized nails complying with Fed. Spec. FF-N-105 shall be used to fasten pickets to rails.

2.2 Framework:

2.2.1 Line Posts: 4 x 4 of required length to match existing post height and extend into the ground as required to assure rigid installation.

2.2.2 Terminal and Corner Posts: 4 x 4 of required length.

2.2.3 Gate Posts: 4 x 6 and of the length required for firm embedment to resist gate action.

2.2.4 Top Rail: 2 x 4 of length required to span between posts.

2.2.5 Where Bracing is Required, it shall match top and bottom rails in dimension and finish.

2.2.6 Metal Posts and Rails: Solid mild steel galvanized in compliance with ASTM A 123 of the length and style required to match existing.

2.3 Gates:

2.3.1 Frame: 2 x 4 members with attached pickets. Configuration of gate shall match that of existing gates.

2.3.2 Bracing: Single 2 x 4 running diagonally across the gate to opposite corners of the frame.

2.3.3 Hardware: Hinges, latches, and other hardware shall be hot-dipped galvanized and of configurations to match existing hardware. Bolts and nuts shall comply with ASTM A 307 and galvanized in compliance with ASTM A 153.

2.4 Finish: All wood fence members shall be given a pressure preservative treatment in a closed retort. The treatment shall comply with Fed. Spec. TT-W-00571. Wood cut or sawed after treatment shall have the cut surfaces well brush-coated with the preservative used in the treatment. Paint to match existing after treatment and installation.

3.0 EXECUTION:

3.1 Posts: Hold in line in a true vertical position by temporary bracing until backfilling is completed. Compact by hand tamping or other suitable methods to a density comparable to that of adjacent ground. Posts of fencing that are higher than four feet and exposed to strong winds and posts at all gates shall be of heavy construction and shall be embedded in concrete.

3.2 Rails: Install at the height and in the manner required to match existing fencing, and secure to post with fasteners similar to existing.

3.3 Pickets: Space, attach, and position to match existing pattern and attachment methods.

3.4 Accessories: Install to match existing conditions.

Temporary Fencing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of temporary fencing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Pickets:

2.1.1 Size: Wood pickets shall be 3/8 inch thick, 1-1/2 inches wide, and 48 inches high.

2.1.2 Coating: Red oil paint or stain.

2.1.3 Spacing: Approximately two inches apart.

2.1.4 Attachment: Bind together with three double strands of wire.

2.2 Framework:

2.2.1 Materials: Wire shall be 13 gauge galvanized steel, complying with ASTM A 641.

2.2.2 Types: The framework shall consist of three parallel double strands of wire twisted between pickets to hold them securely in place.

2.2.3 Wire Connectors: Wire for attaching fabric to metal posts shall be nine gauge.

2.2.4 Staples and Nails shall comply with Fed. Spec. FF-N-105. Staples and nails shall be zinc-coated and of sufficient length for purpose required.

2.3 Gates:

2.3.1 Frame: Frames shall consist of two parallel horizontal wooden members with pickets attached at two-inch spacing.

2.3.2 Bracing: Two wooden members placed diagonally on the gate between the frame boards.

2.3.3 Hardware shall include two strap hinges, latching device, and stop bar, all of zinc-coated steel, in compliance with ASTM A 153.

2.4 Supports:

2.4.1 Steel: Line posts and uprights shall be drive type, T sections, and provided with suitable anchor plate. The sections shall be hot-rolled steel complying with ASTM A 702, galvanized in compliance with ASTM A 123. The T sections shall have the following minimum sizes:

Post Length (Feet)	Post Weight (Pounds)
5	7.32
5 1/2	7.99
6	8.65
6 1/2	9.32
7	9.98
7 1/2	10.64
8	11.31
9	12.64
10	13.97

2.4.2 Wood: Posts shall be cut from cedar, Douglas fir, pine, or other approved species of timber. Posts shall be peeled, treated, dressed, and cured. All wood posts and braces shall be given a pressure preservative treatment in a closed retort. The treatment shall comply with Fed. Spec. TT-W-00571. Wood cut or sawed after treatment shall have the cut surfaces well brush-coated with the preservative used in the treatment.

2.4.3 Braces: Steel braces shall have same configuration as line posts and uprights without the anchor plate. Wood braces shall be treated No. 2 or better grade, Douglas fir or southern yellow pine. Braces shall meet all of the requirements for wood posts.

2.4.4 Location: Posts shall be evenly spaced to adequately support the fence framework.

3.0 EXECUTION:

3.1 Wood Posts: Hold in line in a true vertical position by temporary bracing until backfilling is completed. Compact by hand tamping or other suitable methods to a density comparable to that of adjacent ground.

3.2 Steel Posts: Hold in a vertical position and drive to the required depths by an approved post driver. Post tops shall not be damaged during driving.

3.3 Corner, Brace, Or End Panels: Construct corner, brace, or end panels at the beginning and terminal ends, at gate openings, at all intersections, and at all corners or changes in horizontal alignment of fences, in existing fence on both sides of junction with new fence (except when junction is at a corner already braced), and on both sides of cattle guards.

3.4 Pull Posts shall be constructed when the distance of unbraced fencing exceeds 640 feet. Pull posts shall be spaced equidistant in the fence at intervals of 640 feet or less.

3.5 Framework Installation: Stretch to proper tension and securely fasten to posts. Top and bottom wires of fabric shall be tied or stapled to each post. Tie or staple every other wire to alternating posts. Every wire shall be tied or stapled to corner, pull, end, and gate posts. Wire for tied fabric shall be nine gauge.

3.6 Picket Replacement: Where required, new pickets shall be securely fastened into the existing wire

framework using 13 gauge galvanized wire.

3.7 Restretching Existing Fabric: Fabric designated to be restretched shall be restretched to proper tension and refastened to posts. Excess fabric extending beyond the post shall be removed.

Farm-Type Wire Fencing

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for the repair and replacement of farm-type wire fencing. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Fabric shall be galvanized steel wire complying with ASTM A 116.

2.2 Framework:

2.2.1 Steel:

2.2.1.1 Posts shall comply with ASTM A 702, T-section, zinc-coated.

2.2.1.2 Stays shall be 9-1/2 gauge twisted wire, galvanized in compliance with ASTM A 641, Class 3.

2.2.2 Wood: Posts shall be cut from cedar, Douglas fir, pine, or other approved species of timber. Posts shall be peeled, treated, dressed, and cured and shall contain no unsound knots. All posts shall match existing post dimensions. All wood posts and braces shall be given a pressure preservative treatment in a closed retort. The treatment shall comply with Fed. Spec. TT-W-00571. Wood cut or sawed after treatment shall have the cut surfaces well-coated with the preservative used in the treatment.

2.3 Braces: Steel braces shall have the same configuration as line posts and uprights without the anchor plate. Braces shall meet all of the requirements for wood posts.

2.4 Connectors:

2.4.1 Wire for Attaching Fabric to Posts shall be 12-1/2 gauge or coarser, galvanized in compliance with ASTM A 641, Class 3.

2.4.2 Staples and Nails shall comply with Fed. Spec. FF-N-105. Staples and nails shall be zinc-coated and of sufficient length for purpose required.

2.5 Gates:

2.5.1 Tubular Steel:

2.5.1.1 Frame shall be a minimum of 1-3/8 inch outside diameter tubular steel, braced with a sturdy center bar and diagonal adjustable brace wire to prevent sagging. Gates shall be fitted with hinges. All material shall be hot-dipped zinc-coated.

2.5.1.2 Fabric for Gates shall be as specified for the fence and shall be securely tied to the framework at top, bottom, and sides with 9-gauge wire.

2.5.2 Angle Iron:

2.5.2.1 Frame shall be fabricated of angle iron with cross ties and stays of light angle iron. Frame shall be zinc-coated in compliance with ASTM A 120 or A 153.

2.5.2.2 Fabric for Gates shall be as specified for the fence and shall be securely tied to the framework at top, bottom, and sides with 9-gauge wire.

2.5.3 Wood: Provide a 3/8-inch minimum diameter galvanized steel truss rod and turnbuckle.

2.6 Barbed Wire:

2.6.1 Barbed Wire shall comply with ASTM A 121 and shall be made from 2 strands of 12-1/2 gauge galvanized steel wire, twisted, with four-point barbs spaced five inches apart. Wire shall have Class 2 zinc coating.

2.7 Hardware:

2.7.1 Gate Hardware shall include the following:

2.7.1.1 Bottom Hinge shall be designed to carry the weight of the gate.

2.7.1.2 The Upper Hinge shall be adjustable.

2.7.1.3 Lock with Chain shall be 1-3/4 inch size complying with ASTM F 883.

2.7.1.4 Keeper shall automatically engage and hold the gate leaf open until manually released.

2.7.1.5 Center Plunger Rod.

2.7.1.6 Center Stop.

2.7.1.7 Vertical Lift.
2.7.1.8 Sliding Track.
2.7.2 Lightning Arresters, Insulators and Insulator Clamps, Fasteners, Signs, and Other Accessories shall be provided and installed as required.
3.0 EXECUTION:
3.1 Wood Posts: Hold in line in a true vertical position by temporary bracing until backfilling is completed. Compact by hand tamping or other suitable methods to a density comparable to that of adjacent ground. Refasten all braces, gates, hardware, fabric, and other accessories.
3.2 Steel Posts: Steel posts shall be held in a vertical position and driven to the required depths by an approved post driver. Tops of posts shall not be damaged by driving operation.
3.3 Corner, Brace, or End Panels: Corner, brace, or end panels shall be constructed at the beginning and terminal ends, at gate openings, at all intersections, at all corners or changes in horizontal alignment of fences, in existing fence on both sides of junction with new fence, (except when junction is at a corner already braced), and on both sides of cattle guards.
3.4 Pull Posts shall be constructed when the distance of unbraced fencing exceeds 640 feet. Pull posts shall be spaced equidistant in the fence at intervals of 640 feet or less.
3.5 Wire Installation: Barbed and/or woven wire fabric shall be stretched to proper tension and securely fastened to posts. Top and bottom wires of fabric shall be tied or stapled to each post. Tie or staple every other wire to alternating posts. Every wire shall be tied to corner, pull, end, and gate posts. Wire for tying woven wire fabric and barbed wire shall be 9-gauge.
3.6 Restretching Existing Fabric: Fabric indicated to be restretched shall be restretched to proper tension and refastened to posts. Excess fabric extending beyond the post shall be removed.
3.7 Alignment: Finished fencing shall be plumb and in proper alignment with posts, and all wire work shall be taut.

Electrical Traffic Control Signals

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of electrical traffic control signals. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 General: Replacement equipment items shall be regularly manufactured products.
2.2 Concrete Poles: Cement ASTM C 150; aggregate ASTM C 33; minimum compressive strength 6,000 psi when tested in compliance with AASHTO T22. Tensioning steel shall comply with ASTM A 603. Strands shall not be tensioned above 70 percent of the rated ultimate strength. Epoxy compound for sealing hollow cores shall comply with ASTM D 1763.
2.3 Galvanized Conduit Nipples: UL 514B.
2.4 Ground Wire: Cast-in-concrete pole, No. 6 stranded bare wire, ASTM A 603.
2.5 Wood Poles: ANSI 05.1, waterborne preservative-treated in compliance with AWPA C3, Retention Zone 1.
2.6 Structural Steel: ASTM A 36.
2.7 Steel Pipe: ASTM A 53.
2.8 Steel Bars: ASTM A 576.
2.9 Wire Strand: ASTM A 475.
2.10 Zinc Coatings: Members, ASTM A 123; fasteners, ASTM A 153.
2.11 Mast Arms for Supporting Traffic Signals: ASTM A 36; aluminum alloy 3003, or alloy alcad 3004 complying with ASTM B 209.
2.12 Concrete for Pull Boxes: ASTM C 94, 3,000 psi.
2.13 Cast-Iron Covers: ASTM A 48.
2.14 Signal Lens: Manufactured in compliance with Article 5 and 6, ITE Technical Report Number 1.
2.15 Loop Wire for Vehicle Detectors: No. 14 AWG or No. 12 AWG, stranded copper wire, type TTHN, THWN, or THW, ASTM B3.
2.16 Grout: One part cement complying with ASTM C 150 and two parts sand complying with ASTM C

33.

2.17 Conduit: Polyvinyl chloride, UL 651, Schedule 40 or galvanized rigid metal, ASTM B3.
2.18 Ground Wire: Soft drawn copper, bare, stranded, ANSI C7.1.
2.19 Electrical Work: NFPA No. 70.
3.0 EXECUTION:
3.1 Scheduling and Coordination: The Contractor shall ensure that required notices have been given and that power interruptions have been scheduled and approved.
3.2 Traffic: Provide temporary traffic signs at and around work area. Signs and locations shall be as approved by the Authorized Member Representative.
3.3 Vehicle Detector Assemblies, Loop Type: Saw out existing loops to be replaced to their full depth. Install and seal loop wire. Splice and solder loop wire and lead-in cable and wrap a minimum of two wraps with silicone tape and heavy-duty electrical tape. Install sealant in compliance with the manufacturer's recommendations. Excavate and remove existing lead-in cable to be replaced, and install new lead-in cable in place and connect to cabinet ground.

Traffic Signs

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of traffic signs. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Sign Foundations:
2.1.1 Replacement Foundation Footing Concrete shall be a mixture of cement complying with ASTM C 150 and aggregate complying with ASTM C 33. Compressive strength shall be 2,800 psi at 28 days.
2.1.2 Sulfur Mortar shall comply with ASTM C 287.
2.1.3 Reinforcing Steel shall comply with ASTM A 615.
2.2 Sign Supports shall be of the "break-away" type. Supports shall be strong enough to resist applicable wind forces without damage, but shall be designed to experience a brittle rupture type failure or a "quick separation" type joint.
2.2.1 Sign Support, Aluminum:
2.2.1.1 Replacement Castings shall be Alloy A356.0-T6 in compliance with ASTM B 108.
2.2.1.2 Replacement Structural Members shall comply with ASTM B 308.
2.2.1.3 Replacement Bars, Rods, Shapes, and Tubes shall comply with ASTM B 221, alloy 6061-T6.
2.2.1.4 Replacement Bolts, Nuts, and Screws shall match items being replaced and shall be alloy 2024-T4 with anodic coating complying with ASTM B 580, or 6061-T6 in compliance with ASTM B 211. Bolt heads shall be hexagon. Bolt threads shall be Class 2, 2A, or 2B in compliance with ANSI B18.2.1. Nuts shall be hexagon shaped in compliance with ANSI B18.2.2.
2.2.1.5 Replacement washers shall be furnished from sheet metal complying with ASTM B 209, alloy alclad 2024-T3 or T4.
2.2.2 Sign Support, Steel:
2.2.2.1 Replacement Structural Members shall comply with ASTM A 36.
2.2.2.2 Replacement Bars shall comply with ASTM A 108.
2.2.2.3 Replacement Pipe shall comply with ASTM A 53 standard weight.
2.2.2.4 Replacement Fasteners shall comply with ASTM A 307 and ASTM A 325.
2.2.2.5 Replacement Anchor Bolts for anchoring base plates to concrete bases and nuts and washers shall be galvanized in compliance with ASTM A 153.
2.2.3 Sign Support, Wood:
2.2.3.1 Replacement Wood Sign Post shall be of the species listed in AASHTO M168, dressed four sides and having a pyramidal top cut before being treated.
2.2.3.2 Replacement Sign Post shall be pressure treated with creosote or creosote-tar solution complying with AWPB LP-55.
2.3 Sign Face:
2.3.1 Replacement Plywood Sign Face shall be grade HDOAB G-1 EXTERIOR, in compliance with DOC PS 1. Material shall be cut to size in compliance with ANSI D6.1E.

2.3.2 Replacement Galvanizing Steel Sign Face shall comply with USDOT FHA MUTCD.
2.4 Reflective Sheeting shall be enclosed lens unless otherwise directed by the Authorized Member Representative.
2.4.1 Enclosed Lens Reflective Sheeting shall comply with Fed. Spec. L-S-300.
2.4.2 Reflective Sheeting shall comply with FP-79 minimum reflective intensity. Measurements shall comply with Fed. Spec. L-S-300.
2.4.3 Color shall be matched visually and within the limits shown on the Color Tolerance Charts issued by the Federal Highway Administration. The diffuse day color of the reflective sheeting shall be determined in compliance with ASTM E 97.
2.4.4 Film:
2.4.4.1 General: Reflective sheeting shall be sufficiently flexible to be easily cut to shape and permit application over, and conformance to, moderate shallow embossing characteristic of certain sign borders and symbols.
2.4.4.2 Surface: Sheeting surface shall be smooth and flat, shall facilitate cleaning and wet performance, and shall exhibit 85 degrees glossmeter rating of not less than 40, as specified in ASTM D 523. The sheeting surface shall withstand cleaning with gasoline, VM&P Naphtha, mineral spirits, turpentine, methanol, and xylol.
2.5 Demountable Sign Face Materials:
2.5.1 Acrylic Plastic Reflectors: Replacement demountable sign letters, digits, arrows, borders, and alphabet accessories shall be reflectorized and shall consist of acrylic plastic reflectors supported by embossed aluminum frames. They shall comply with the Standard Alphabet for Highway Signs, of the Federal Highway Administration, Series E.
2.5.2 Design and Fabrication: The letters shall be modified as necessary to accommodate the required reflectors. All items except border strips shall be fabricated from 0.040-inch minimum sheet aluminum. Border strips shall be of 0.032-inch minimum sheet aluminum. Mounting holes shall be provided within the frames to permit the use of screws, rivets or other acceptable fasteners. The size and spacing of the reflector holes shall provide maximum night legibility and visibility of the finished cutout figure.
2.5.3 General Requirements: The reflectors shall be of acrylic plastic meeting the requirements of Fed. Spec. L-P-380, Type I, Class 3. The reflectors shall be yellow or colorless. The lens shall consist of a smooth front surface, free from projections or indentations other than for identification, and a rear surface bearing a prismatic configuration that will effect total internal reflection of light.
2.5.4 Reflective Sheeting:
2.5.4.1 Demountable Sign Letters, Digits, Arrows, Borders, and Alphabet Accessories, when so specified, shall be reflectorized with reflective sheeting supported by flat aluminum backing and shall comply with the Standard Alphabet Highway Signs of the Federal Highway Administration.
2.5.4.2 Design and Fabrication: Letter design shall be Series E, modified for legibility. All items except border strips shall be fabricated from 0.040-inch sheet aluminum, 6061-T6 alloy, with mounting holes to permit use of screws, rivets, or other acceptable fasteners.
2.6 Highway Delineators, Enclosed Lens Type: Replacement reflectors shall be of acrylic plastic and a minimum of 3 inches in diameter. They shall be mounted in a heavy-duty housing with a back plate. The reflector shall consist of a clear and transparent plastic lens, which shall be colorless, and a plastic back of the same material, fused to the lens under heat and pressure around the entire perimeter to form a homogeneous unit, permanently sealed against dust, water, and water vapor. The acrylic plastic shall comply with Fed. Spec. L-P-380, Type I, Class 3.
2.7 Highway Delineators, High Intensity Type:
2.7.1 Replacement Reflectorized Delineators shall consist of a reflective sheeting compound of glass spheres, embedded in a weatherproof, synthetic, noncellulose material. The overall size of the plastic reflectors shall be 4 inches by 5 inches, with a reflective area of at least 17.5 square inches.
2.7.2 Delineators shall be silver-white when viewed with reflected light.
2.8 Highway Delineators Including Posts and Attachments:
2.8.1 Reflective Sheeting: Replacement reflective sheeting for delineators shall match delineators being replaced.
2.8.2 Delineator Posts and Accessories shall be of steel or aluminum. They shall have the necessary holes

for attachment of the delineator housing. The assembly shall be furnished with the necessary bolts, nuts, and washers for attaching to the posts.

2.8.3 Insulating Materials: Neoprene, for separation of aluminum and steel parts, shall contain at least 60 percent, by volume, of pure neoprene. Other material may be used, subject to the approval of the Authorized Member Representative as to pliability and ability to withstand wear caused by stretching or distortion.

2.8.4 Reflector Units for guardrail installation shall match existing reflector being replaced in size and color.

2.8.5 Highway Delineators shall be supplemented with directional guidance signs as directed by the Authorized Member Representative. Signs shall be the chevron alignment type and shall comply with ANSI D6.1E, Type W 1-8.

2.9 Painting Panels for Nonreflectorized Background:

2.9.1 Replacement Metal Panels for sign categories not required to be reflectorized shall have a nonreflectorized background composed of one spray coat of primer and two finish coats of baked enamel.

2.9.2 Finish Coats shall be baked alkyd resin enamels meeting Fed. Spec. TT-E-529, Class B, of a composition that affects the finished background surface. When thoroughly dry, the colors shall match those described in the current Highway Blue Color Tolerance Chart, PR Color No. 3, or in Highway Green Color Tolerance Chart, PR Color No. 4, of the Federal Highway Administration.

2.9.3 Wood Signs shall have two coats of oil paint complying with Fed. Spec. TT-P-52. Message paint shall be a single coat of oil paint. All colors shall comply with ANSI D6.1E.

2.10 Sign Wash Detergent shall comply with ASTM D 3399.

3.0 EXECUTION:

3.1 Footings for Signs, Posts, and Supports:

3.1.1 Backfill Material shall be at or near optimum moisture and neither dry nor saturated. It shall be tamped thoroughly in place.

3.1.2 Concrete Footings may be cast in place or precast. Hand mixing of concrete will be permitted where the quantity does not exceed one-half cubic yard.

3.2 Erection of Signs and Sign Supports: Sign posts shall be erected vertically. Posts erected in sleeves shall be anchored with sulphur mortar. Mortar shall comply with ASTM C 287. Sign faces shall be positioned to be generally perpendicular to the line-of-sight for the observer. Reflectorized signs shall be inspected at night. If specular reflection is apparent on any sign, its position shall be adjusted by the Contractor to eliminate the condition.

3.3 Delineators and Hazard Markers: Delineator posts shall be driven to a depth of 30 inches.

3.4 Removal of Existing Signs and Posts:

3.4.1 Damaged, Obsolete, or Change of Purpose Signs and Posts shall be removed and delivered to a storage area designated by the Authorized Member Representative. Post hole shall be backfilled, tamped, and made level with the adjacent surface. Disturbed paving, sidewalks, and grassed areas shall be replaced with matching material of same quality and quantity as existing.

3.4.2 Signs and Posts to be Replaced shall be removed and replaced by new signs and posts in identical locations. Backfill around post shall be thoroughly compacted to hold posts securely in a vertical position.

Playing Fields

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of materials for repair and maintenance of playing fields. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Fills required to bring the sub grade of playing surfaces up to required elevation shall be placed in horizontal layers of not more than 8 inches in loose thickness. The top layer of all fills and excavated areas under the playing surfaces shall be compacted to 95 percent CE 55 maximum density. Each lower layer shall be compacted to at least 90 percent of MIL-STD-621, Method 100,

CE 55 maximum density.

2.2 Sand-Clay Playing Surfaces shall consist of a stone foundation course, a clay foundation course, a wearing course and, where equipped, a drainage filter course, constructed on the prepared sub grade.

2.2.1 Stone Foundation Course: A layer at least 3 inches thick of 3/4- to 1-1/2 inch crushed stone shall be spread over the sub grade or over the drainage filter course constructed thereon and shall be given preliminary compaction by rolling, followed by a filler consisting of 1/4- to 1/2-inch crushed stone to fill voids in the underlying stone. The stone foundation course shall be compacted to a minimum of 90 percent of CE 55 maximum density.

2.2.2 Clay Foundation Course: Selected inorganic fat clay (CH) shall be evenly spread on the stone foundation course to produce a compacted layer not less than 3 inches thick. The clay layer shall be compacted to a minimum of 90 percent of CE 55 maximum density.

2.2.3 Wearing Course: The approved inorganic clay-silt mixture of approximately 50 percent each of clay and silt shall be screened through a 1/4-inch mesh screen. The wearing course shall be mixed in proportions of 1 part sand to 2 parts clay-silt by volume. The wearing course shall be compacted to at least 90 percent of CE 55 maximum density and shall range from 1 to 1-1/2 inches in thickness.

2.2.4 Drainage Filter Course: The drainage filter course shall consist of a well-graded aggregate course encased in a geotextile material and laid in such a manner to allow water to freely drain from the playing surfaces. The geotextile material shall be a woven or non-woven filter material with a minimum permeability of 0.02 cm/sec. The material shall be resistant to mildew, ratting, insects, rodents, and chemicals normally encountered in a subsurface drainage system.

2.3 Bituminous Concrete Playing Surfaces shall consist of a base course, prime coat, bituminous leveling course, tack coat, surface course, color coating and, where required, a drainage filter course, all constructed on a prepared sub grade. The stabilized-aggregate base course shall be compacted at optimum moisture to at least 95 percent CE 55 maximum density. Marshall stability shall not be less than 500 pounds and the flow shall not be greater than 20/100 inch. The bituminous mixture shall be compacted until the voids in the total mix are reduced to less than 4.0 percent by volume.

2.3.1 Thickness of Courses: Base course shall be 4 inches thick after compaction. Leveling course shall be 1-1/2 inches thick after compaction unless directed otherwise. Surface course shall be 1 inch thick after compaction.

2.3.2 Color Coating and Marking Paint: After curing of the bituminous surface course, the entire playing surface shall be covered with a color coat as required.

2.4 Portland cement Concrete Playing Surfaces:

2.4.1 Aggregate: The nominal aggregate size shall be 1-1/2 inches to No. 4 sieve size and shall conform to ASTM C 33.

2.4.2 Portland cement: The cement shall conform to ASTM C 150, Type IA or IIA; or ASTM C 595, Type IP-A.

2.4.3 Thickness: Horizontal Portland cement concrete playing surfaces shall consist of concrete slabs 4 inches thick.

2.5 Maintenance of Sand-Clay Surfaces: Prior to final acceptance, the Contractor shall make one application of 3/4 pound of calcium chloride per square yard to the sand-clay surface of the entire playing area.

2.6 Portable Outdoor Bleachers:

2.6.1 Bleachers shall be designed to support a uniformly distributed live load of 100 pounds per square foot of gross horizontal projection and a horizontal wind load of 30 lbs/sq ft of gross vertical projection. All seat and foot plank members shall be designed to support not less than 120 pounds per linear foot.

2.6.2 Wood Seating and Walk Boards shall be preservative-treated and painted.

2.7 Steel Basketball Poles: Minimum diameter 3-1/2 inches; galvanized pipe.

2.8 Running Track: Gravel and cinders over stone base; compaction to 90 percent of CE 55 maximum density. One hundred percent by weight of the gravel and cinders shall pass the 3/4-inch screen, and 90 percent of the gravel and cinders shall be retained on the No. 4 screen.

3.0 EXECUTION: (Section not used).

Recreational Facilities

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of miscellaneous/recreational facilities. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Materials shall be resistant to corrosion and degradation by ultraviolet rays. Hardware and fittings shall be at least as corrosion-resistant as the materials fastened.

2.1.1 Steel Plates, Pipe, Tubing, Sheets, Wire Ropes, Chains, and Miscellaneous Shapes shall be stainless steel or galvanized steel, even if painted or coated with vinyl or other protective finish. All open pipe and tube ends shall have rain caps.

2.1.2 Wood shall be all-heart cedar, cypress, or redwood or shall be treated with a non-toxic preservative. Wood shall not be used where it will be in direct contact with the ground, unless approved by the Authorized Member Representative.

2.1.3 Fiberglass shall be smooth fiberglass-reinforced polyester with gelcoat coating and shall meet the following minimum physical properties: 22,000 psi flexural strength, 15,000 psi tensile strength, and 20,000 psi compressive strength.

2.1.4 Aluminum shall be anodized.

2.1.5 Foundations shall be 3,000 psi compressive strength concrete, reinforced as required. Provide embedded anchorage items as required.

2.2 Playground Equipment, shall include, but not be limited to, see-saws, slides, swings, whirlers, and monkey bars, shall be prefabricated and designed to withstand the anticipated structural loads.

2.2.1 Exposed Surfaces shall be smooth (except where required to be nonslip) seamless, and nonsplintering.

2.2.2 Steps, Platforms, and Other Flat Surfaces Subject to Foot Traffic shall be non-slip, but not abrasive and shall be formed to exclude or drain away water.

2.2.3 Fastening shall be flush, concealed, or otherwise formed or located to prevent injury to children playing on the equipment.

2.2.4 Slides shall have stainless steel sliding surfaces.

2.3 Bike Racks shall be mounted, and sections (if rack is sectional) shall be attached with tamper-proof fasteners.

2.4 Fiberglass Shelters shall be reinforced with steel, aluminum, or wood framework as required. Shelter roof shall be sloped to drain. Fiberglass edges shall be returned so that they are not exposed. Shelters shall be prefabricated and designed to withstand the anticipated live, dead, and wind loads.

2.5 Fire Rings shall be Iron Mountain Forge Model Number 120-X or approved equal.

2.6 Pedestal Grills shall be Iron Mountain Forge Model Number 220-X or approved equal.

2.7 6' Long, Galvanized Frame, Aluminum Top and Seat Picnic Table shall be Iron Mountain Forge Model Number 238-6GA or approved equal.

2.8 6' Long, Galvanized Frame, Vinyl Clad Top and Seat Picnic Table shall be Iron Mountain Forge Model Number 238-6GV or approved equal.

3.0 EXECUTION: Recreational facilities shall be installed plumb, aligned, and securely anchored to the ground. Adjust equipment with moving parts until operation is smooth and easy.

Topsoil

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of topsoil. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Topsoil shall be the existing surface soil stripped and stockpiled on the site.

2.2 pH Adjusters:

2.2.1 Agricultural Limestone shall have a minimum calcium carbonate equivalent of 90 percent.
2.2.2 Other Liming Materials shall have a minimum calcium carbonate equivalent of 80 percent.
2.2.3 Aluminum Sulfate shall be commercial grade.
2.3 Soil Conditioners and Amendments:
2.3.1 Peat shall be a natural product conforming to ASTM D 2607.
2.3.2 Sand shall be clean and free of toxic materials.
2.3.3 Vermiculite shall be horticultural grade and free of any toxic materials.
2.3.4 Rotted Manure shall be unleached stable or cattle manure containing no chemicals or ingredients harmful to plants.
2.3.5 Rotted Sawdust shall be free of chips, stones, sticks, soil, and toxic substances.
2.3.6 Gypsum shall be 90 percent pure and free of any toxic materials.
2.4 Fertilizer shall be commercial grade, free flowing, uniform in composition and shall conform to applicable State and Federal regulations. Granular fertilizer shall conform to Fed. Spec. O-F-241, Type I, Level B.
2.5 Soil Fumigant shall be 97 percent methyl bromide and 3 percent chloropicrin.
2.6 Mulch shall be straw, hay, or fiber mulch applied simultaneously with grass seed and fertilizer.
2.6.1 Straw shall be stalks from oats, wheat, rye, barley, or rice that are free from noxious weeds, mold, or other objectionable material.
2.6.2 Hay shall be native hay, sudan-grass hay, broomsedge hay, or other herbaceous mowings, free from noxious weeds, mold, or other objectionable material.
2.6.3 Wood Cellulose Fiber for use with hydraulic application of grass seed and fertilizer shall consist of specially prepared wood cellulose fiber or a combination of wood cellulose and recycled newsprint fibers.
2.7 Asphalt Adhesive for application with straw or hay mulch shall be cutback asphalt conforming to ASTM D 2028, or emulsified asphalt conforming to ASTM D 977.
2.8 Herbicide and Pesticide use must comply with all applicable State and Federal laws.
3.0 EXECUTION:
3.1 Placing Topsoil: Topsoil shall be distributed uniformly and spread evenly to an average thickness of 3 inches, with a minimum thickness of 2 inches. Soil compacted by construction equipment or soil on compacted cut slopes of grades shall be pulverized to a minimum depth of 2 inches by disking or plowing before applying topsoil.
3.2 Application of Soil Conditioners: All fertilizers, pH adjusters, and soil conditioners shall be incorporated into the soil to a depth of at least 4 inches.
3.3 Application of Soil Amendments: Soil amendments shall be spread uniformly over the soil and thoroughly incorporated into the existing soil to a depth of 8 inches.
3.4 Mulch shall be spread uniformly in a continuous blanket, using 1-1/2 tons per acre.

Sodding and Seeding

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of seed and sod. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.
2.0 PRODUCTS:
2.1 Seed shall be the latest season's crop and shall be delivered in original sealed packages bearing the producer's guaranteed analysis for percentages of mixtures and pure live seed. Seed shall be labeled in conformance with U.S. Department of Agriculture rules and regulations under the Federal Seed Act and applicable state seed laws. Weed seed shall not exceed 1 percent by weight of the total mixture.
2.2 Sod shall be nursery grown, field sod, certified sod, or approved sod as classified in the ASPA Guideline Specifications to Turfgrass Sodding.
2.3 Sprigs shall be healthy living stems, stolons, or rhizomes and attached roots of grass without adhering soil. Sprigs shall include two to three nodes, shall be 4 to 6 inches long, and shall be obtained from approved sources where the sod is heavy and dense. Harvesting and planting operations shall be coordinated to prevent exposure of sprigs to the sun for more than 30 minutes

before covering and moistening.
2.4 Water shall not contain elements toxic to plant life.
3.0 EXECUTION:
3.1 Preparation: Except on slopes steeper than 2 horizontal to 1 vertical, the soil shall be tilled to a depth of at least 4 inches. On slopes between 2 horizontal to 1 vertical and 1 horizontal to 1 vertical tillage, depths shall be 2 inches. On slopes steeper than 1 horizontal to 1 vertical, no tillage will be permitted.
3.2 Application:
3.2.1 Planting Seasons and Conditions: Planting shall not be done when the ground is frozen, snow covered, or in an unsatisfactory condition for planting.
3.2.2 Seed shall be broadcast uniformly. The seed shall be covered to an average depth of 1/4 inch.•02933
3.2.3 Immediately After Seeding, the entire area shall be firmed with a roller and the soil moistened to a depth of 6 to 8 inches.
3.2.4 Sodding shall be accomplished in accordance with the ASPA Guideline Specifications to Turfgrass Sodding.
3.2.5 When Spot Sodding, the sod shall be cut into plugs 2 inches square or 2 inches in diameter. The individual pieces of sod shall be placed on 12-inch centers and pressed firmly into the soil by foot pressure or by tamping.
3.2.6 After Sod Pieces Have Been Placed in Position, the sodded area shall be rolled or tamped so that air pockets are eliminated.
3.2.7 Water Shall Be Applied to the sodded areas at a rate sufficient to ensure thorough wetting of the soil to a depth of at least 4 inches.
3.2.8 Sprigging: Sprigs shall be planted in such quantity as to provide a minimum of 25 viable sprigs or 108 linear inches of viable sprigs per square yard of areas.
3.2.8.1 Immediately After Sprigging Operations Have Been Completed, the planted area shall be firmed with a cultipacker or a roller.
3.2.8.2 Water Shall Be Applied at the time of sprigging operations wetting the soil to a depth of 4 inches.
3.2.9 Protection of Turfed Areas: Immediately after seeding, sodding, or sprigging, the area shall be protected against traffic or other use by erecting barricades, as required, and approved signs shall be placed at appropriate intervals until final acceptance.

Landscape Irrigation System
1.0 DESCRIPTION OF WORK: This specification covers the complete irrigation system including: pipe, tubing, fitting, bubbler and emitter heads, control units, and all appurtenances necessary for an operating system. The system shall be Contractor designed, and installed with Authorized Member Representative approval.
2.0 PRODUCTS:
2.1 Piping and Fittings:
2.1.1 Copper Tubing: ASTM B 88, Type K; solder joint fittings, ASME B16.22 and B16.18 using 95-5 tin antimony solder.
2.1.2 PVC Pipe: ASTM D 1785, PVC 1120, Schedule 40 or 80, or ASTM D 2241, PVC 1120 SDR 21, Class 200; threaded or socket type, solvent cemented.
2.1.3 Polyethylene Pipe: ASTM D 2239, PE3406, SDR 15; insert fittings shall be used with stainless steel clamps.
2.1.4 Tubing for use with drip emitters shall be either polyethylene or polybutylene and shall have a minimum working pressure of 100 psi at 37 C.
2.2 Risers for Pop-up Bubbler Heads shall be of the double-swing joint type.
2.3 Application Devices shall be as specified herein.
2.3.1 Pop-up spray heads shall conform to Fed Spec WW-H-001220, Type II, class as required for the spray pattern needed.
2.3.2 Shrubbery sprinkler heads shall be brass nozzle type with adjustable conical spray coverage for permanent aboveground mounting or riser or pop-ups, height compatible with ground cover.
2.3.3 Bubbler heads shall be of the umbrella type in which the flow is evenly distributed around the

perimeter of a flat plate on top of the bubbler. The bubbler shall be so adjustable as to provide half or full circle patterns and operating range of 20 psi to 90 psi. The flow rate shall be adjustable for gallonage and pressure by an easily accessible regulating screw.

2.3.4 Drip emitters shall be made of rigid, black, ultraviolet-resistant plastic. Each emitter head shall consist of at least two distinct pieces and be designed for easy and complete disassembly for cleaning. The emitters shall be capable of clog-free operation using water filtered through a 30-mesh screen. Emitters shall be multi-headed and shall be spaced to vary with soil conditions and wetted irrigation area.

2.4 Valves:

2.4.1 Gate valves less than 3 inches shall conform to MSS SP-80, Type 1, Class 150, with threaded or soldered ends.

2.4.2 Gate valves 3 inches and larger shall conform to AWWA C509, with flanged ends.

2.4.3 Pressure Reducing Valves: One valve shall be installed with each solenoid control valve. The valves shall be hydraulically operated, pilot operated, globe or angle type, and may be actuated either by diaphragm or piston. Valve bodies shall be bronze and shall conform to MSS SP-80, Type 1, Class 150. Valve stem shall be stainless steel. Valve discs and diaphragms shall be synthetic rubber. Valve seats shall be bronze. Pilot controls shall be bronze with stainless steel working parts.

2.4.4 Solenoid control valves shall be heavy-duty, all brass construction suitable for 150 psi working pressure and shall be a globe-type diaphragm valve of normally closed design.

2.4.5 Manual drain valves less than 2-1/2 inches shall be MSS SP-80, Type 3, Class 150, with soldered or threaded ends. Manual drain valves 2-1/2 inches and larger shall be MSS SP-85, Type II, Class 250, with threaded or flanged ends.

2.4.6 Automatic drain valves shall be brass or plastic, spring-loaded ball drip type, 150 pounds, and threaded ends, designed to close at 6 foot pressure head with positive seal at 3 psi pressure or greater, and be open to drain at less than 3 psi pressure.

2.4.7 Reduced pressure principle assemblies, double check valve assemblies, atmospheric (nonpressure) type vacuum breakers, and pressure type vacuum breakers shall be tested, approved, and listed in accordance with FCCHR-01. Backflow preventers with intermediate atmospheric vent shall be in accordance with ASSE 1012. Reduced pressure principle backflow preventers shall be in accordance with ASSE 1013.

2.5 Accessories:

2.5.1 Valve keys for manually operated valves shall be 1/2 inch diameter by 3 feet long, tee handles and keyed to fit valves.

2.5.2 Valve Boxes: Boxes shall be reinforced concrete pipe with cast-iron cover. Plastic valve boxes and covers, 9 in. inside diameter and self-draining, may be used as an option when approved by the Authorized Member Representative and in accordance with ASTM D 638. The word "IRRIGATION" shall be cast on cover.

3.0 EXECUTION:

3.1 Placing and Laying: Pipe shall not be laid in water or when trench conditions are otherwise unsuitable for the work. Water shall be kept out of the trench until the material in the joints has hardened or until caulking or jointing is completed. When work is not in progress, open ends of pipe, fittings, and valves shall be securely closed so that no substance will enter the pipes or fittings. Pipe ends left for future connections shall be valved, plugged, or capped, and anchored as shown or as directed.

3.2 Testing:

3.2.1 Hydrostatic Tests: After all new piping and risers are in place and prior to the installation of heads, each control valve shall be opened separately and the system shall be thoroughly flushed. After flushing, risers shall be capped and the entire system shall be subjected to a hydrostatic pressure test for a period of four hours. No testing shall be done until the last joint has had at least 12 hours to set. Leaking joints, cracked or defective pipe or valves shall be cut out and replaced and the complete test repeated until satisfactory results are obtained as approved by the Authorized Member Representative.

3.2.2 Operational Test: After the hydrostatic test, heads shall be installed and the system completed and tested to demonstrate functional efficiency. The entire system shall be operated on a normal basis

for at least one month. Deficiencies such as clogging of emitters shall be corrected by the Contractor.

Plantings

1.0 DESCRIPTION OF WORK: This specification covers the furnishing and installation of plantings. Products shall match existing materials and/or shall be as directed by the Authorized Member Representative. Installation procedures shall be in accordance with the product manufacturer's recommendations. Demolition and removal of materials shall be as required to support the work.

2.0 PRODUCTS:

2.1 Plants:

2.1.1 Plants shall be nursery grown or plantation grown stock conforming to ANSI Z60.1 and shall bear botanical names listed in the publication for Standardized Plant Names.

2.1.2 Planting Stock shall be well-branched and well-formed, sound, vigorous, healthy, and free from disease, sun-scald, windburn, abrasion, and harmful insects or insect eggs and shall have healthy, normal, and unbroken root systems.

2.1.3 Balled and Burlapped Plants and balled and potted plants shall have ball sizes and ratios conforming to ANSI Z60.1.

2.1.4 Bare-Root Plants shall be dug with the root system substantially intact but with the earth carefully removed.

2.1.5 Container Grown Plants shall have sufficient root growth to hold the earth intact when removed from containers but shall not be root bound.

2.2 Inert Membranes:

2.2.1 Polyethylene shall conform to ASTM D 2103 and shall be 4 mils thick and black in color.

2.2.2 Roofing Felt shall conform to ASTM D 250, Type II.

2.2.3 Fiberglass Mat shall be of lime borosilicate glass fibers with an average fiber diameter of 8 to 12 microns and 2- to 4-inch strands of fiber bonded with phenol formaldehyde resin. The mat shall be 100 percent textile glass fiber.

2.3 Granular Fill for Plant Pit and Bed Drainage: Granular fill for filling over excavations and for bedding of pipes shall consist of uniformly graded sand, stone, gravel, or stone screenings free from an excess of soft or unsound particles or other objectionable matter.

2.4 Mulch shall be free from deleterious materials and shall be stored so as to prevent inclusion of foreign materials.

2.5 Trunk Wrapping Material: Tree wrap shall be two thicknesses of crinkled paper cemented together with a layer of bituminous material.

2.6 Guying and Staking Material: Stakes for tree support and ground stakes shall be treated with preservative and sized for their usage. Accessories for guying and staking shall include wire and cable, turnbuckles, eyebolts, and deadmen as the project requires.

2.7 Edging Material for plantings shall be composed of wood, metal, or plastic, as the project requires.

2.8 Antidessicant shall be an emulsion that will provide a film over plant surfaces permeable enough to permit transpiration and will not damage the plant.

2.9 Herbicides and Pesticides used must comply with all applicable state and federal laws and be registered with the U.S. Environmental Protection Agency.

3.0 EXECUTION:

3.1 Clearing and Grading: Clearing shall consist of the satisfactory removal and disposal of brush, snags, and rubbish occurring within the area designated.

3.2 Protection of Existing Vegetation: If lawns have been established prior to planting operations, the surrounding turf shall be covered before excavations are made in a manner that will protect turf areas. Existing trees, shrubbery, and beds that are to be preserved shall be barricaded in a manner that will effectively protect them during planting operations.

3.3 Turf Removal: Where planting beds occur in existing turf areas, the turf shall be removed to a depth that will ensure the removal of the entire root system.

3.4 Plant Pits shall be dug to produce vertical sides and flat, uncompacted bottoms.

3.5 Planting Seasons and Conditions: Planting shall be done when the ground is not frozen, snow covered, or in an otherwise unsuitable condition for planting.

3.6 Setting Plants: Balled and burlapped and container-grown plants shall be handled and moved only by the ball or container. Plants shall be set plumb and held in position until sufficient soil has been firmly placed around roots or ball.
3.7 Fertilization: After establishment of finished grade around plants, all pit and bed areas shall be topdressed with fertilizer at rates recommended by the manufacturer. Fertilizer shall be applied to existing trees at rates recommended by the manufacturer.
3.8 Watering: All watering shall be done in a manner that will provide uniform coverage but will not cause erosion or damage to the finished surface. Sufficient water shall be applied to penetrate the planting bed to a depth of 4 inches.
3.9 Wrapping: The trunks of deciduous trees shall be wrapped immediately after planting.
3.10 Staking and Guying: Plants 4 to 6 feet tall shall be single staked. Plants over 6 feet tall shall be double staked. Hose chafing guards shall be used where wire would contact the plant.
3.11 Pruning: New plant material shall be pruned as required. Trimmings shall be removed from the site. Cuts 1/2 inch in diameter and larger shall be painted with tree wound dressing.
3.12 Maintenance During Installation: Maintenance operations shall begin immediately after each plant is planted and shall continue as required until final acceptance.

DIVISION 33-UTILITIES

Site Utility Distribution Piping

1.0 DESCRIPTION OF WORK: This specification covers site utility distribution piping, and/or materials as directed by the Authorized Member Representative.
2.0 PRODUCTS:
2.1 Polyvinyl Chloride (PVC) Plastic Piping:
2.1.1 Pipe and Fittings: Pipe, AWWA C900, shall be plain end or gasket bell end, Pressure Class 150 (DR 18) with cast-iron-pipe-equivalent OD. Molecular Oriented (MO) PVC pipe, AWWA C900,shall be plain end or gasket bell end, Pressure Class 150 with cast-iron-pipe-equivalent OD. Fittings shall be gray iron or ductile iron, AWWA C110/A21.10 or AWWA C153/A21.53, and have cement-mortar lining, AWWA C104/A21.4, standard thickness. Fittings with push-on joint ends shall conform to the same requirements as fittings with mechanical-joint ends, except that bell design shall be modified, as approved, for push-on joint suitable for use with PVC plastic pipe specified in this paragraph. Pipe color is to be blue or white.
2.1.2 Joints and Jointing Material: Joints for pipe shall be push-on joints, ASTM D 3139. Joints between pipe and metal fittings, valves, and other accessories shall be compression-type joints/mechanical joints, ASTM D 3139 and AWWA A21.11. Provide each joint connection with an elastomeric gasket suitable for the bell or coupling with which it is to be used. Gaskets for push-on joints for pipe, ASTM F 477. Gaskets for compression-type joints/mechanical joints for joint connections between pipe and metal fittings, valves, and other accessories, AWWA A21.11, for mechanical joints. Mechanically coupled joints using a sleeve-type mechanical coupling, as specified in paragraph entitled "Sleeve-Type Mechanical Couplings," may be used as an optional jointing method in lieu of push-on joints on plain-end PVC plastic pipe, subject to the limitations specified for mechanically coupled joints using a sleeve-type mechanical coupling and to the use of internal stiffeners as specified for compression-type joints in ASTM D 3139. 2.
2.1.3 High Density Polyethylene (HDPE) Plastic Pipe ASTM F-714-Pipe Std.; ASTM D3261 – Fittings Std.; AWWA C-901; 3" – 8" SDR 11.0, 160 psi. HDPE inside diameter shall equal or exceed PVC inside diameter.
2.1.4 Valves, Hydrants, and Other Water Main Accessories: Gate Valves on Buried Piping: AWWA C500, AWWA C509, or UL 262. Unless otherwise specified, valves conforming to: (1) AWWA C500 shall be nonrising stem type with double-disc gates and mechanical-joint ends, (2) AWWA C509 shall be nonrising stem type with mechanical-joint ends, and (3) UL 262 shall be inside-screw type with operating nut, double-disc or split-wedge type gate, designed for a hydraulic working pressure of 150 psi, and shall have mechanical-joint ends. Materials for UL 262 valves shall conform to the reference standards specified in AWWA C500. Valves shall open by counterclockwise rotation of the valve stem. Stuffing boxes shall have 0-ring stem seals. Stuffing boxes shall be bolted and

constructed so as to permit easy removal of parts for repair. In lieu of mechanical-joint ends and push-on joint ends, valves may have special ends for connection to sleeve-type mechanical coupling. Valve ends and gaskets for connection to sleeve-type mechanical coupling shall conform to the applicable requirements specified for the coupling. Provide 6 inch size valves with gearing, AWWA C500. Valves shall be of one manufacturer.

2.1.5 Fire Hydrants: Hydrant: AWWA C502, UL 246, dry barrel type, inside dimension of 7 inches (175 mm) minimum, with minimum 5 inches (125 mm) diameter valve seat opening; minimum net water area of barrel not less than 190 percent of valve opening; 6 inch (150 mm) bell or mechanical joint inlet connection with accessories, gland bolts, and gaskets. Hydrant outlets shall have 0.90 discharge coefficients.

2.1.6 Hydrant Extensions: Fabricate in multiples of 6 inches (150 mm) with rod and coupling to increase barrel length.

2.1.7 Hose and Streamer Connection: Match sizes with utility company, two hose nozzles, one pumper nozzle. Install a Storz connection in place of the 4-1/2" steamer connection.

2.1.8 Finish: Primer and two coats of enamel in color to be selected by base.

2.1.9 Casing (under roadways): Casing under all paved roads shall meet, at a minimum, the following: a. Wall Thickness: (Steel Casing) All casings shall be 0.188", ASTM A139, Grade B. b. Steel casing shall be coated inside and out with approved primer plus one coat of asphaltum paint on outside. c. All casing as a minimum shall extend 3 feet beyond the edge of roadway surfaces.

2.1.10 Casing/Pipe Spacers: The Contractor shall provide casing spacers for all piping routed through steel casing. The spacers shall be stainless steel construction with UHMW polymer runners and shall be in two (2) halves. The nuts and bolts used shall be stainless steel. A total of no less than two (2) spacers per joint of pipe shall also be used plus one (1) near the openings (ends) of the casing. The Contractor shall provide casing end seals on all casings. The end seals shall wrap around the casing and carrier pipes after installation to provide a barrier to backfill debris and seepage. Stainless steel bands shall be used to secure the end seals.

2.2 Water Service Line Materials**:** Plastic Piping - Plastic pipe and fittings shall bear the seal of the National Sanitation Foundation for potable water service. Plastic pipe and fittings shall be supplied from the same manufacturer. Polyvinyl Chloride (PVC) Plastic Piping: ASTM D 1785, Schedule 40; or ASTM D 2241, with SDR as necessary to provide 150 psi minimum pressure rating. Fittings, ASTM D 2466. Pipe and fittings shall be of the same PVC plastic material and shall be one of the following pipe/fitting combinations, as marked on the pipe and fitting, respectively: [PVC 1120/PVC I; PVC 1220/PVC 12;] PVC 2120/PVC II; PVC 2116/PVC II. Solvent cement for jointing, ASTM D 2564.

2.2.1 Insulating Joints - Joints between pipe of dissimilar metals shall have a rubber-gasketed or other suitable approved type of insulating joint or dielectric coupling which will effectively prevent metal-to-metal contact between adjacent sections of piping.

2.2.2 Corporation Stops - Ground key type; bronze, ASTM B 61 or ASTM B 62; and suitable for the working pressure of the system. Ends shall be suitable for solder-joint or flared tube compression type joint. Threaded ends for inlet and outlet of corporation stops, AWWA C800; coupling nut for connection to flared copper tubing, ASME/ANSI B16.26.

2.2.3 Curb Boxes - Provide a curb box for each curb or service stop. Curb boxes shall be of cast iron of a size suitable for the stop on which it is to be used. Provide a round head. Cast the word "WATER" on the lid. Each box shall have a heavy coat of bituminous paint.

3.0 EXECUTION:

3.1 Location Of Water Lines**:** Terminate the work covered by this section at a point approximately 5 feet from the building, unless otherwise indicated. Do not lay water lines in the same trench with gas lines or electric wiring. 1. Water Piping Installation Parallel With Sewer Piping a. Normal Conditions: Lay water piping at least 10 feet horizontally from a sewer or sewer manhole whenever possible. Measure the distance edge-to-edge.

3.2 Unusual Conditions: When local conditions prevent a horizontal separation of 10 feet, the water piping may be laid closer to a sewer or sewer manhole provided that: (1) The bottom (invert) of the water piping shall be at least 18 inches above the top (crown) of the sewer piping. (2) Where this vertical separation cannot be obtained, the sewer piping shall be constructed of AWWA-

approved water pipe and pressure tested in place without leakage prior to backfilling. (3) The sewer manhole shall be of watertight construction and tested in place.

3.3 Installation of Water Piping Crossing Sewer Piping:

3.3.1 Normal Conditions: Water piping crossing above sewer piping shall be laid to provide a separation of at least 18 inches between the bottom of the water piping and the top of the sewer piping.

3.3.2 Unusual Conditions: When local conditions prevent a vertical separation described above, use the following construction: (1) Sewer piping passing over or under water piping shall be constructed of AWWA-approved ductile iron water piping, pressure tested in place without leakage prior to backfilling. (2) Water piping passing under sewer piping shall, in addition, be protected by providing a vertical separation of at least 18 inches between the bottom of the sewer piping and the top of the water piping; adequate structural support for the sewer piping to prevent excessive deflection of the joints and the settling on and breaking of the water piping; and that the length, minimum 20 feet, of the water piping be centered at the point of the crossing so that joints shall be equidistant and as far as possible from the sewer piping.

3.3.3 Pipe Laying And Jointing: Remove fins and burrs from pipe and fittings. Before placing in position, clean pipe, fittings, valves, and accessories, and maintain in a clean condition. Provide proper facilities for lowering sections of pipe into trenches. Do not under any circumstances drop or dump pipe, fittings, valves, or any other water line material into trenches. Cut pipe accurately to length established at the site and work into place without springing or forcing. Replace by one of the proper length any pipe or fitting that does not allow sufficient space for proper installation of jointing material. Blocking or wedging between bells and spigots will not be permitted. Lay bell-and-spigot pipe with the bell end pointing in the direction of laying. Grade the pipeline in straight lines; avoid the formation of dips and low points. Support pipe at proper elevation and grade. Secure firm, uniform support. Wood support blocking will not be permitted. Lay pipe so that the full length of each section of pipe and each fitting will rest solidly on the pipe bedding; excavate recesses to accommodate bells, joints, and couplings. Provide anchors and supports where indicated and where necessary for fastening work into place. Make proper provision for expansion and contraction of pipelines. Keep trenches free of water until joints have been properly made. At the end of each work day, close open ends of pipe temporarily with wood blocks or bulkheads. Do not lay pipe when conditions of trench or weather prevent installation. Depth of cover over top of pipe shall not be less than 2 1/2 feet. Install access fittings to permit disinfection of water system.

3.3.4 Connections To Existing Water Lines: Make connections to existing water lines after approval is obtained and with a minimum interruption of service on the existing line. Scheduling of any outage requires a minimum of one week prior notice for the user of the facility. Make connections to existing lines under pressure in accordance with the recommended procedures of the manufacturer of the pipe being tapped.

3.3.5 Special Requirements For Installation Of Water Mains

3.3.6 Installation of PVC Plastic Water Main Pipe and Associated Fittings: Make push-on joints with the elastomeric gaskets specified for this type joint, using either elastomeric-gasket bell-end pipe or elastomeric-gasket couplings. For pipe-to-pipe push-on joint connections, use only pipe with push-on joint ends having factory-made bevel; for push-on joint connections to metal fittings, valves, and other accessories, cut spigot end of pipe off square and re-bevel pipe end to a bevel approximately the same as that on ductile-iron pipe used for the same type of joint. Use an approved lubricant recommended by the pipe manufacturer for push-on joints. Make compression-type joints/mechanical joints with the gaskets, glands, bolts, nuts, and internal stiffeners previously specified for this type joint; assemble in accordance with the requirements of AWWA C605 for joining PVC pipe to fittings and accessories, with the applicable requirements of AWWA C600 for joint assembly, and with the recommendations of Appendix A to AWWA C111/A21.11. Cut off spigot end of pipe for compression-type joint/mechanical-joint connections and do not re-bevel. Assemble joints made with sleeve-type mechanical couplings in accordance with the recommendations of the coupling manufacturer using internal stiffeners as previously specified for compression-type joints.

3.3.7 Pipe Anchorage: Provide concrete thrust blocks. Thrust blocks shall be in accordance with the requirements of AWWA C605 for reaction or thrust blocking and plugging of dead ends, except that

size and positioning of thrust blocks shall be as indicated. Use concrete, ASTM C 94, having a minimum compressive strength of 4,000 psi at 28 days. 3. Install a # 10 gage copper trace wire with buried PVC pipe to facilitate location with an electronic detector. Install wire 8 to 12 inches above pipeline and terminate 3 to 4 inches above grade. Do not wrap wire around pipe. The magnetic detectable conductor must have a brightly colored plastic covering with the "Water Service" imprinted in large letters.

3.3.8 Installation of Valves: Make and assemble joints to gate valves as specified for making and assembling the same type joints between pipe and fittings.

3.3.9 Installation of Hydrants: Install hydrants in accordance with AWWA C600 for hydrant installation and as indicated. Make and assemble joints as specified for making and assembling the same type joints between pipe and fittings. Install hydrants with the 4 1/2 inch connections facing the adjacent paved surface. If there are two paved adjacent surfaces, contact the Contracting Officer for further instructions.

3.3.10 Disinfection - Disinfect new water piping and existing water piping in accordance with AWWA C651and as required by State permit. Bacteriological samples shall be taken on two consecutive days at the connection to the existing system, the end point of the new addition, on each new line branching off main, and every 1,200 feet on straight runs of pipe.

7. D.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Jarrett Nelson, Public Works Project Manager

Co-Submitter: Sam Beckett

Date: 08/31/2023

Meeting Date: 09/05/2023

TITLE:

Consideration and Approval of a Contract: A Construction Manager at Risk (CMAR) Construction Services Contract for the Annual Street Maintenance and Overlay Fall 2023 Program to C and E Paving & Grading, LLC in the amount of $4,902,067.20.

STAFF RECOMMENDED ACTION:

1. Approve the Annual Street Maintenance Overlay Fall 2023 Program and execute a CMAR Contract with C and E Paving & Grading, LLC for a Guaranteed Maximum Price (GMP) of $4,902,067.20 (which includes an Owner's Contingency of $20,000.00); and
2. Authorize the City Manager to execute the necessary documents.

Executive Summary:

The Public Works Streets Section maintains approximately 700 lane miles of roadway surface infrastructure for the citizens, regional community members, and visitors. Roadways throughout the city vary in design and capacity. In addition to automobile travel, all modes of transportation are integrated and encouraged within the right of way. Modes of travel, such as, mass transit, bicycle, and pedestrian opportunities are prevalent and our Streets crews strive to provide transportation infrastructure that is well connected and as safe as possible for travel, regardless of the chosen mode. The City's Annual Street Maintenance Overlay and Chip Seal Program is an effort to improve aging infrastructure within our existing transportation network. Planning efforts include an evaluation of the asphalt surface, edge treatments, recent overlay project sections, roads that meet maintenance need, and road stripe engineering. Once the identified needs are prioritized, Streets utilizes funding provided from two sources to address the needs. The first source of revenue is Highway User Revenue Funds (HURF), or what's commonly referred to as the gas tax, a state shared revenue. The second source of revenue provided is sales tax proceeds collected as a result of the 2014 voter approved Road Repair and Street Safety Program (RRSS). This Council action, if approved, will allow Streets to deliver the Annual Street Maintenance Fall 2023 Overlay utilizing local contractor C and E Paving & Grading, LLC and improve the community transportation infrastructure.

Financial Impact:

The Street's capital program was reviewed and approved in the FY 2023-2024 budget process. The total cost of the Annual Street Maintenance Overlay Fall 2023 Program is $4,902,067.20 and is funded from account number 046-06-163-3321-6-4443 with a budget of $7,435,232 and secondarily with 048-05-120-3462-6-4444 for sidewalk infill.

Policy Impact:

The award of the CMAR contract to C and E Paving & Grading, LLC. will authorize the delivery of the City's Annual Street Maintenance Overlay Program 2023. The overlay work will ensure that the City is maintaining its streets and providing for a well-protected and increased overall condition index for roadways. Once completed this Fall, the efforts will result in an improved quality transportation network. The City continues to support initiatives creating and maintaining quality infrastructure throughout the transportation network.

Connection to PBB Priorities/Objectives, Carbon Neutrality Plan & Regional Plan:

Priority Based Budget Key Community Priorities and Objectives

The maintenance of the transportation system is a critical part of “high performing governance” that supports not only community members but also first responders ability to deliver their services and is a high priority in PBB.

Carbon Neutrality Plan

The asphalt mix design used in the overlay portion and chip seal binders for the project has recycled asphalt incorporated into the mix, thus reducing the usage of new fossil fuels.

Regional Plan

Transportation and Public Infrastructure - Deliver quality community assets and continue to advocate and implement a highly performing multi-model transportation system.

Has There Been Previous Council Decision on This:

Yes. The City Council has awarded the CMAR contract to C and E Paving & Grading, LLC in previous years for the annual street maintenance and overlay program and they have provided necessary materials and services. Transportation maintenance programs has been a topic of discussion in previous sessions. Direction and feedback has been provided in multiple forums, such as the goal setting process, the annual budgetary process, and community service delivery expectation discussions. Clear direction has been provided to maintain our transportation system, establish asset inventory, deliver capital programs of improvement and meet the community expectations.

Options and Alternatives:

1. Approve the CMAR for the 2023 Streets Maintenance Program GMP in the amount of $4,902,067.20 to C and E Paving & Grading, LLC as proposed; or
2. Request that the City continue to negotiate the scope of work and financial resources to a different outcome or expectation; or
3. Reject the CMAR and direct staff to pursue a different type of procurement delivery method and approach to work programming.

Background/History:

The City has established an annual program to maintain existing street pavements. The program includes three major elements: non-structural upgrades of asphalt overlay, minor concrete repairs, accessibility improvements including sidewalk/ramp replacement and chip sealing. The citizens of Flagstaff approved the Road Repair and Street Safety Maintenance Program (RRSS) (Prop. 406). This is a dedicated sales tax providing funding of $100 million over 20 years. The program has been aggressively addressing capital projects that have been identified to be in a high state of disrepair on the front end of the program with strong support for annual maintenance until the sales tax sunsets in 2034.

The overlay and chip seal street segments are selected after evaluation of the street condition using pavement management asset software. Each street pavement is assigned an overall condition index (OCI) based on the type and severity of the distress observed. A pavement that has no distress is given an OCI of 100. Each pavement distress such as cracking or roughness reduces the street's OCI. The street pavements are ranked by OCI and the pavements exhibiting the most severe distress are programmed for resurfacing treatments and improvements. Chip seal techniques are also used to protect recently overlaid sections to prolong the life of the asphalt surface.

The Arizona State Legislature has authorized the use of Alternative Project Delivery Methods (APDM) as a method of project delivery. Included in these delivery methods the City of Flagstaff can procure a construction team utilizing a Qualifications Based Selection process for construction services from a firm deemed most qualified to perform the work. The enabling legislation also allows for provision of multiple Guaranteed Maximum Prices (GMP) under a single procurement.

At the March 17, 2020, City Council meeting, Council approved the award of the initial Professional Engineering Design Phase Services contract for the 2020, 2021 and 2022 programs to Peak Engineering, Inc. Working collaboratively with City staff and C and E Paving and Grading, LLC, the team develops the annual program, costing evaluation, project scheduling, design document review, prioritization of roadway segments, logistics, quantity estimating, and preparation of final construction documents.

Key Considerations:

The past performance and delivery of the Streets maintenance programs, overlay and chip seal from C and E Paving & Grading, LLC has been excellent. The ability to prioritize the projects and have a continuous conversation with the contractor in a meaningful way has resulted in cost savings, expanded work program and good quality in a timely manner.

Expanded Financial Considerations:

None

Community Benefits and Considerations:

Proposition 406, approved in 2014, has been a significant and positive influence on this maintenance program. The community benefit of improving the overall road conditions saves countless staff hours for repair and thousands of dollars in temporary repairs and improves the overall roadway safety. The overlay and chip seal projects have been aggressive and targeted our most degraded streets. The projects can seem large in scope and they do cause some temporary disruption to our daily travel routines. Acceptance of the temporary disruption and inconvenience can be challenging but the long-term benefits, efficiencies of bundling of improvements is good stewardship. Community notifications of construction programs are advertised and communicated via different mediums to provide general impacts and talking points as they relate to the project.

Community Involvement:

The community continues to support transportation related initiatives demonstrating a strong understanding of supporting a quality infrastructure. City staff often receive citizen feedback and public participation to support our efforts of core service delivery. In addition to the constant feedback, the voters approved the Road Repair Street Safety Program and the results have been positive.

Expanded Options and Alternatives:

1. Deny the requested action and provide direction on how to best deliver the voter approved program and dedicated funding allocation of the Streets Maintenance Overlay Program 2023; or
2. Discontinue the use of the CMAR process and request that the program be procured through an alternate project delivery method.

Attachments: Construction Contract 2023
Exhibit B - GMP
Exhibit C - Special Provisions
Exhibit C - Project Plans

City of Flagstaff, Arizona

Street Maintenance Program 2021, 2022, 2023

CONSTRUCTION MANAGER AT RISK

CONSTRUCTION SERVICES - 2023

PROJECT NOs. ST33214 & ST30731

Agreement No. 2021-30

MAYOR
Becky Daggett

CITY COUNCIL

AUSTIN ASLAN
DEBORAH HARRIS
KHARA HOUSE
LORI MATTHEWS
JIM MCCARTHY
MIRANDA SWEET

CITY MANAGEMENT

City Manager
Greg Clifton

Water Services Director
Shannon Jones

Community Development Director
Dan Folke

Public Works Director
Scott Overton

City Engineering
Paul Mood

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CITY OF FLAGSTAFF, ARIZONA

STREET MAINTENANCE PROGRAM 2021, 2022, 2023

CONSTRUCTION MANAGER AT RISK

CONSTRUCTION SERVICES AGREEMENT - 2023

PROJECT No. ST33214 & ST30731; Agreement No. 2021-30

This Construction Services Agreement ("Agreement"), is made and entered into by and between the City of Flagstaff, an Arizona municipal corporation ("City"), and C and E Paving & Grading, L.L.C., an Arizona Limited Liability Company, hereinafter designated the ("Construction Manager at Risk" or CMAR) on this ___ day of _____, 20__.

RECITALS

A. The City is authorized and empowered by provisions of the City Charter to execute agreements for construction services.

B. The City intends to construct Street Maintenance Program 2021, 2022 and 2023 CMAR – Construction Phase Services as more fully described in Exhibit "A" attached ("Project").

C. To undertake the construction administration of the Project the City has entered into a separate agreement with Peak Engineering, Inc. ("Design Professional.")

D. CMAR has represented to the City that it has the ability to provide construction services for the Project, and based on this representation, the City hereby engages CMAR to provide these services and construct the Project.

E. Agreement # 2021-30 has been executed previously between the City and CMAR to perform design phase services for the Project. Those services may continue during the duration of this Agreement.

NOW THEREFORE**,** for and in consideration of the mutual covenants and considerations hereinafter contained, it is agreed by and between the City and CMAR as follows:

Article 1 - Definitions

"Agreement" - This written document signed by the City and CMAR covering the construction phase of the Project, and including other documents itemized and referenced in, or attached to, and made part of this Agreement.

"Change Directive" - A written order prepared and signed by the City, directing a change in the Work prior to agreement on an adjustment in the Contract Price and the Contract Time.

"Change Order" - A type of Contract amendment issued after execution of the Contract Documents or future GMP Amendments signed by the City and CMAR, agreeing to changes to a GMP, for substantial unanticipated alterations in the character of Work. The Change Order shall state the following: the addition, deletion or revision in the scope of Work; the amount of the adjustment to the Contract Price; and the extent of the adjustment to the Contract Times or other modifications to Agreement terms.

"The City ("Owner" or "OWNER") - The City of Flagstaff, a municipal corporation, with whom CMAR has entered into this Agreement and for whom the services are to be provided pursuant to said Contact. Regulatory activities handled by the City of Flagstaff Community Development, Fire and Planning Departments or any other City Department are not subject to the responsibilities of the City under this Agreement.

"City's Representative" - The person designated in Subsection 8.3.1.2.

"City's Senior Representative" - The person designated in Subsection 8.3.1.1.

"CMAR" - The firm selected by the City to provide construction services as detailed in this Agreement.

"CMAR's Contingency" - A fund to cover cost growth during the Project used at the discretion of CMAR usually for costs that result from Project circumstances. The amount of CMAR's Contingency shall be negotiated as a separate line item in each GMP package. Use and management of CMAR's Contingency is described in Subsection 5.3.1.

"CMAR's Representative" - The person designated in Subsection 8.3.2.2.

"CMAR's Senior Representative" - The person designated in Subsection 8.3.2.1.

"Construction Documents" - Certain plans, specifications and drawings prepared by the Design Professional after correcting for permit review requirements or dated plans and specifications specifically identified as the "Construction Documents" herein or in an Exhibit or Addendum which is attached hereto.

"Construction Fee" - CMAR's administrative costs, home office overhead, and profit as applicable to this Project whether at CMAR's principal or branch offices.

"Contract Documents" - The following items and documents in descending order of precedence executed by the City and CMAR: (i) all written modifications, amendments and Change Orders; (ii) this Agreement, including all exhibits and attachments; (iii) Construction Documents; (iv) GMP Plans and Specifications.

"Contract Price" - The amount or amounts set forth in Article 5.

"Contract Time" - The days, as set forth in Article 4, the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work, subject to Winter Shutdown.

"Cost of the Work" - The direct costs necessarily incurred by CMAR in the proper performance of the Work. The Cost of the Work shall include direct labor costs, subcontract costs, costs of materials and equipment incorporated in the completed construction, costs of other materials and equipment, temporary facilities, permit and license fees, materials testing, and related items. The Cost of the Work shall not include CMAR's Construction Fee, General Conditions Costs, and taxes.

"Critical Path Method" - A scheduling technique used to predict project duration by analyzing which sequence of activities has the least amount of scheduling flexibility thus identifying the path (sequence) of activities which represent the longest total time required to complete the Project. Delay in completion of the identified activities shall cause a delay in achieving Substantial Completion.

"Day(s)" - Calendar days unless otherwise specifically noted in the Contract Documents.

"Design Phase Contract" - The agreement between the City and CMAR for Services provided by CMAR during the design phase which may include the following: design recommendations, Project scheduling, constructability reviews, alternate systems evaluation, cost estimate, Minority Business Enterprise/Woman's Business Enterprise/Small Business Enterprise **("MBE/WBE/SBE")** utilization, subcontractor bid phase services, GMP preparation and other services set forth in this Agreement or reasonably inferable therefrom.

"Design Professional" - A qualified, licensed design professional who furnishes, design**,** construction documents, and/or construction administration services required for the Project.

"Differing Site Conditions" - Concealed or latent physical conditions or subsurface conditions at the Site that, (i) materially differ from the conditions indicated in the Contract Documents or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the Work.

"Final Completion" - 100% completion of all construction Work noted in or reasonably inferred from the Contract Documents, including but not limited to all Punch Lists work, all record and close-out documents specified in Owner's Project specifications and Owner training/start up activities.

"Float" - The number of Days by which an activity can be delayed without lengthening the Critical Path and extending the Substantial Completion date.

"General Conditions Costs" - Includes, but is not limited to the following types of costs for CMAR during the construction phase: (i) payroll costs for Project manager or CMAR for work conducted at the Site, (ii) payroll costs for the superintendent and full-time general foremen, (iii) payroll costs for other management personnel resident and working at the Site, (iv) workers not included as direct labor costs engaged in support (e.g. loading/unloading, clean-up, etc.), (v) costs of offices and temporary facilities setup solely for this Project including office materials, office supplies, office equipment and minor expenses, (vi) cost of utilities, fuel, sanitary facilities and telephone services at the Site, (vii) costs of liability and other applicable insurance premiums not included in labor burdens for direct labor costs, (viii) costs of bond premiums, (ix) costs of consultants not in the direct employ of CMAR or Subcontractors.

"Guaranteed Maximum Price" or "GMP" - The sum of the maximum Cost of the Work; the Construction Fee; General Conditions Costs, taxes, and CMAR's Contingency.

"GMP Plans and Specifications" - The plans and specifications upon which the Guaranteed Maximum Price proposal is based.

"Legal Requirements" - All applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the Project or Site, the practices involved in the Project or Site, or any Work.

"Notice to Proceed" or "NTP" - The directive issued by the City, authorizing CMAR to start Work.

"Opening Physical Conditions" – The current physical conditions present on the Site as jointly documented by an inspection of the Site by City and CMAR at the Pre-construction Conference.

"Owner's Contingency" - A fund to cover cost growth during the project used at the discretion of the Owner usually for costs that result from Owner directed changes or unforeseen Site conditions. The amount of the Owner's contingency shall be set solely by the Owner and shall be in addition to the Project costs included in CMAR's GMP packages. Use and management of the Owner's contingency is described in Section 5.3.2.

"Performance Period" - The period of time allotted in the Contract Documents to complete the Work comprised within a GMP. The Performance Period shall be stated with each GMP and shown on the Project Master Schedule.

"Payment Request" - The City form used by CMAR to request progress payments for Work in accordance with Article 7.

"Pre-construction Conference" – A Conference held between City and CMAR prior to the commencement of any Work, as scheduled by the City's Representative or designee.

"Product Data" - Illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by CMAR to illustrate materials or equipment for some portion of the Work.

"Project" - The work to be completed in the execution of this Agreement as amended and as described in the Recitals above and in Exhibit "A" attached.

"Project Record Documents" - The documents created pursuant to Section 2.10.

"Samples" - Physical examples, which illustrate materials, equipment or workmanship and establish standards by which the Work shall be evaluated.

"Schedule of Values" - A statement furnished by CMAR to the City's Representative for approval, reflecting the portions of the GMP allotted for the various parts of the work and used as the basis for evaluating CMAR's applications for progress payments.

"Shop Drawings" - Drawings, diagrams, schedules and other data specially prepared for the Work by CMAR or a Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

"Site" - Land or premises on which the Project is located.

"Specifications" - The part(s) of the Contract Documents for the construction phase consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

"Subcontractor" - An individual or firm having a direct Agreement with CMAR or any other individual or firm having an Agreement with the aforesaid Contractors at any tier, who undertakes to perform a part of the construction phase Work for which CMAR is responsible.

"Submittals" - Documents and/or things that may be produced or presented by one party for consideration review or such other actions as may be required by this Agreement by another party, entity or person. Examples of Submittals include, but are not limited to, preliminary or evolving drafts, product data samples, etc.

"Substantial Completion" - The established date when the Work or designated portion thereof is sufficiently complete, in accordance with the Contract Documents so that the Owner may occupy the Work, or designated portion thereof, for the use for which it is intended. This may include, but is not limited to: (i) Approval by the City or State Fire Marshall and/or other state or local authorities having jurisdiction over the Work or a portion thereof (Certificate of Occupancy); (ii) all systems in place, functional, and displayed to, and accepted by, the City or it's representative; (iii) City operation and maintenance training complete; (iv) HVAC test and balance completed with reports provided to the Design Professional for review; (v) Operational and Maintenance manuals and final Project Record Documents delivered to the City or Design Professional for review.

"Supplier" - A manufacturer, fabricator, supplier, distributor, material man or vendor having a direct agreement with CMAR or any Subcontractor to furnish materials or equipment to be incorporated in the construction phase Work by CMAR or any Subcontractor.

"Winter Shutdown" – The period of time typically including December through March during which no Work will be performed by any person or entity (including but not limited to the CMAR) on the Project and CMAR shall shutdown, properly insulate and shelter the Project in a safe and workmanlike manner pursuant to local, state and federal laws. Although December through March is typically the time frame, the City reserves the right to initiate and terminate a Winter Shutdown at the City's sole discretion in the event of adverse weather conditions. A Winter Shutdown may be declared by the City despite delays, *for any reason,* on the Project.

"Work" - The entire completed construction or the various separately identifiable parts thereof, required to be furnished during the construction phase. Work includes and is the result of performing or furnishing labor and furnishing and incorporating materials, resources and equipment into the construction, and performing or furnishing services and documents as required by the Contract Documents for the construction phase.

Article 2 - CMAR's Services and Responsibilities

2.0 CMAR shall furnish any and all labor, materials, equipment, transportation, utilities, services and facilities required to perform all Work for the construction of the Project, and to completely and totally construct the same and install the material therein for the City. All Work shall be performed in a good and workmanlike and substantial manner and within the care and skill of a qualified CMAR in Flagstaff, Arizona. The Work shall be to the satisfaction of the City and strictly pursuant to and in conformity with the Project's Contract Documents. It is not required that the services be performed in the sequence in which they are described.

2.1 General Services

2.1.1. CMAR's Representative shall be reasonably available to the City and shall have the necessary expertise and experience required to supervise the Work. CMAR's Representative shall communicate regularly with the City but not less than once a week and shall be vested with the authority to act on behalf of CMAR. CMAR's Representative may be replaced only with the written consent of the City.

2.2 Government Approvals and Permits

2.2.1 Unless otherwise provided, CMAR shall obtain all applicable and/or necessary permits, approvals and licenses required for the prosecution of the Work from any government or quasi-government entity having jurisdiction over the Project. CMAR is specifically reminded of the need to obtain the applicable and/or necessary environmental permits or file the applicable and/or necessary environmental notices.

2.2.2 Copies of the permits and notices listed in Subsection 2.2.1 above must be provided to the City's Representative prior to starting the permitted activity. In the case of Fire Department permits, a copy of the application for permit shall also be provided to the City's Representative. This provision does not constitute an assumption by the City of an obligation of any kind for violation of said permit or notice requirements.

2.2.3 City shall be responsible for City of Flagstaff review and permit(s) fees for building and demolition permits. City shall also pay review fees for grading and drainage, water, sewer, and landscaping. City shall also pay for utility design fees for permanent services.

2.2.4 CMAR shall be responsible for all other permits and review fees not specifically listed in Subsection 2.2.3 above.

2.2.5 CMAR is responsible for the cost of water meter(s), water and sewer taps, fire lines and taps, and all water bills on the project meters until Substantial Completion of the Project. Arrangements for construction water are CMAR's responsibility.

2.3 Pre-construction Conference

2.3.1 Prior to the commencement of any Work, the City's Representative or designee shall schedule and conduct a Preconstruction Conference.

At the Pre-Construction Conference, City and CMAR shall document the Opening Physical Conditions of the Site as jointly documented by an inspection of the Site by City and CMAR at

the Pre-Construction.

2.3.2 The purpose of this conference is to establish a working relationship between CMAR, utility firms, and various City agencies. The agenda shall include critical elements of the work schedule, submittal schedule, cost breakdown of major lump sum items, Payment Requests and processing, coordination with the involved utility firms, the level of Project Record Documents required and emergency telephone numbers for all representatives involved in the course of construction.

2.3.3 The Notice to Proceed date shall be concurred with by the parties or set by the City at the Preconstruction Conference. After the meeting and upon receipt of a signed Agreement and delivery of the required bonds and insurance in a City approved format, a Notice to Proceed letter shall be issued confirming the construction start date, Performance Period and if applicable, the Substantial Completion date. If a Substantial Completion date is established the conditions of the Substantial Completion shall be listed and/or as set forth in Article 1 herein. Failure by CMAR to provide the properly executed bond and insurance forms in a timely manner may delay the construction start date; however, it shall not alter the proposed Substantial Completion date nor be a basis for any time extension request or other claims.

2.3.4 CMAR shall provide a Schedule of Values based on the categories used in the buyout of the Work but not greater than the approved GMP and identifying CMAR's Contingency. The Schedule of Values shall subdivide the Work into all items comprising the Work. The Schedule of Values shall contain sufficient detail to identify each individual element of the Work and shall relate to the approved GMP Schedule. The Schedule of Values shall be subject to approval by the City's representative.

2.3.5 Minimum attendance by CMAR shall be CMAR's Representative, who is authorized to execute and sign documents on behalf of the firm, the job superintendent, and CMAR's safety officer.

2.4 Control of the Work

2.4.1 Unless otherwise provided in the Contract Documents to be the responsibility of the City or a separate Contractor, CMAR shall provide through itself or Subcontractors the necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities and other temporary facilities to permit CMAR to complete the Work consistent with the Contract Documents.

2.4.2 CMAR shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents. CMAR shall at all times exercise complete and exclusive control over the means, methods, sequences and techniques of construction.

2.4.3 CMAR's Representative or CMAR's Superintendent shall be present at the Site at all times that construction activities are taking place.

2.4.3.1 All elements of the Work shall be under the direct supervision of a foreman or his designated representative on the Site who shall have the authority to take actions required to properly carry out that particular element of the work.

2.4.3.2 In the event of noncompliance with this Section, the City may require CMAR to stop or suspend the Work in whole or in part.

2.4.4 Where the Contract Documents require that a particular product be installed and/or applied by an applicator approved by the manufacturer, it is CMAR's responsibility to ensure the Subcontractor employed for such work is approved by the manufacturer.

2.4.5 Before ordering materials or doing work, CMAR and each Subcontractor shall verify

measurements at the Site and shall be responsible for the correctness of such measurements. No extra charge or compensation shall be allowed because of differences between actual dimensions and the dimensions indicated on the drawings; differences which may be found shall be submitted to the City for resolution before proceeding with the Work.

2.4.6 CMAR shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to CMAR with the Contract Documents before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the City at once.

2.4.7 CMAR shall establish and maintain all building and construction grades, lines, levels, and bench marks, and shall be responsible for accuracy and protection of same. This Work shall be performed or supervised by a civil engineer or surveyor licensed as such in the State of Arizona.

2.4.8 Any person employed by CMAR or any Subcontractor who, in the opinion of the City, does not perform his or her work in a proper, skillful, and safe manner or is intemperate or disorderly shall, at the written request of the City, be removed from the Work by CMAR or Subcontractor employing such person, and shall not be employed again in any portion of Work without the written approval of the City. CMAR or Subcontractor shall hold the City harmless from damages or claims which may occur in the enforcement of this Section.

2.4.9 CMAR assumes responsibility to the City for the proper performance of the work of Subcontractors and any acts and omissions in connection with such performance. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between the City and any Subcontractor or Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

2.4.10 CMAR shall coordinate the activities of all Subcontractors. If the City performs other work on the Project or at the Site with separate contractors under the City's control, CMAR agrees to reasonably cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.5 Control of the Work Site

2.5.1 Throughout all phases of construction, including suspension of Work, CMAR shall keep the Site reasonably free from debris, trash and construction wastes to permit CMAR to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Upon Substantial Completion of the Work, or a portion of the Work, CMAR shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit the City to occupy the Project or a portion of the Project for its intended use.

2.5.2 CMAR shall take whatever steps, procedures or means to prevent any dust nuisance due to construction operations. The dust control measures shall be maintained at all times to the satisfaction of the City and in accordance with the requirements of the Arizona Department of Environmental Quality rules and regulations.

2.5.3 CMAR shall maintain ADA, ADAAG and ANSI accessibility requirements during construction activities in an occupied building or facility. ADA, ADAAG and ANSI accessibility requirements shall include, but not be limited to, parking, building access, entrances, exits, restrooms, areas of refuge, and emergency exit paths of travel. CMAR shall be responsible for the coordination of all work to minimize disruption to building occupants and facilities.

2.5.4 Only materials and equipment which are to be used directly in the Work shall be brought to and stored on the Site by CMAR. When equipment is no longer required for the Work, it shall

be removed promptly from the Site. Protection of construction materials and equipment stored at the Site from weather, theft, damage and all other adversity is solely the responsibility of CMAR.

2.6 Shop Drawings, Product Data and Samples

2.6.1 Shop Drawings, Product Data, Samples and similar Submittals are not Contract Documents. The purpose of their submittal is to demonstrate, for those portions of the Work for which Submittals are required, the way CMAR proposes to conform to the information given and the design concept expressed in the Contract Documents.

2.6.2 CMAR shall review, approve, verify, and submit to the City five copies of each Shop Drawing, Product Data, Sample, and similar Submittals required by the Contract Documents in accordance with the approved GMP schedule as shown in Exhibit "B" as to cause no delay in the Work or in the activities of the City or of separate contractors. Submittals made by CMAR, which are not required by the Contract Documents, may be returned without action.

2.6.3 CMAR shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples, or similar Submittals until the respective submittal has been approved by the City or City's designee. Such Work shall be in accordance with approved Submittals.

2.6.4 By approving, verifying and submitting Shop Drawings, Product Data, Samples and similar Submittals, CMAR represents that CMAR has determined and verified materials, field measurements and field construction criteria related thereto, or shall do so, and has checked and coordinated the information contained within such Submittals with the requirements of the Work and of the Contract Documents.

2.6.5 CMAR shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the City's approval of Shop Drawings, Product Data, Samples or similar Submittals unless CMAR has specifically informed the City in writing of such deviation at the time of submittal and the City has given written approval to the specific deviation. CMAR shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar Submittals by the City's approval thereof.

2.6.6 CMAR shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar Submittals, to revisions other than those requested by the City on previous Submittals.

2.6.7 Informational Submittals upon which the City is not expected to take responsive action may be so identified in the Contract Documents.

2.6.8 When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the City shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

2.7 Quality Control, Testing and Inspection

2.7.1 All materials used in the Work shall be new and unused, unless otherwise noted, and shall meet all quality requirements of the Contract Documents.

2.7.2 All construction materials to be used on the Work or incorporated into the Work, equipment, plant, tools, appliances or methods to be used in the Work may be subject to the inspection and approval or rejection by the City. Any material rejected by the City shall be removed immediately and replaced in an acceptable manner.

2.7.3 The procedures and methods used to sample and test material shall be determined by the City. Unless otherwise specified, samples and tests shall be made in accordance with the

most recently adopted edition of the City of Flagstaff Engineering Division Design and Construction Standards and Specifications.

2.7.4 The City shall select a City or Independent Testing Laboratory and shall pay for initial City Acceptance Testing.

2.7.4.1 When the first and/or subsequent tests indicate noncompliance with the Contract Documents, the cost associated with that noncompliance and the cost of all tests, except the first test, shall be paid for by CMAR. CMAR's Contingency cannot be utilized for the cost of re-testing.

2.7.4.2 When the first and/or subsequent tests indicate noncompliance with the Contract Documents, all retesting shall be performed by the same testing agency.

2.7.5 CMAR shall cooperate with the selected testing laboratory and all others responsible for testing and inspecting the work and shall provide them access to the Work at all times.

2.7.6 At the option of the City, materials may be approved at the source of supply before delivery is started.

2.7.7 Code compliance testing and inspections required by codes or ordinances, or by a plan approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid by CMAR, unless otherwise provided in the Contract Documents.

2.7.8 CMAR's convenience and quality control testing and inspections shall be the sole responsibility of CMAR and paid by CMAR.

2.8 Trade Names and Substitutions

2.8.1 Unless indicated that no substitutions are permitted, CMAR may request a substitution or alternative to Contract Document references to equipment, materials or patented processes by manufacturer, trade name, make or catalog number, subject to the following:

2.8.2 The substitution shall be submitted by CMAR in writing to the City.

2.8.3 CMAR shall certify that the substitution shall perform the functions and achieve the results called for by the general design, be similar and of equal substance, and be suited to the same use as that specified.

2.8.4 The submittal shall state any required changes in the Contract Documents to adapt the design to the proposed substitution.

2.8.5 The submittal shall contain an itemized estimate of all costs and credits that will result directly and indirectly from the acceptance of such substitution, including cost of design, license fees, royalties, and testing. Also, the submittal shall include any adjustment in the Contract Time created by the substitution.

2.8.6 CMAR if requested by the City shall submit Samples or any additional information that may be necessary to evaluate the acceptability of the substitution.

2.8.7 The City shall make the final decision and shall notify CMAR in writing as to whether the substitution has been accepted or rejected.

2.8.8 If the City does not respond in a timely manner, CMAR shall continue to perform the Work in accordance with the Contract Documents and the substitution shall be considered rejected.

2.9 Project Record Documents

2.9.1 During the construction period, CMAR shall maintain at the Site a set of blueline or blackline prints of the Construction Document drawings and shop drawings for Project Record Document purposes.

2.9.1.1 CMAR shall mark these drawings to indicate the actual installation where the installation varies appreciably from the original Construction Documents. CMAR shall give particular attention to information on concealed elements, which would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:

- Dimensional changes to the drawings.
- Revisions to details shown on drawings
- Depths of foundations below first floor
- Locations and depths of underground utilities
- Revisions to routing of piping and conduits.
- Revisions to electrical circuitry.
- Actual equipment locations.
- Duct size and routing.
- Locations of concealed internal utilities.
- Changes made by Change Order, Change Order Directive, Field Order, Record of Field Change, ASI's and RFI's.
- Addenda and other details not on original Agreement Drawings.

2.9.1.2 CMAR shall mark completely and accurately Project Record Drawing prints of Construction Documents or Shop Drawings, whichever is the most capable of indicating the actual physical condition. Where Shop Drawings are marked, show cross-reference on the Construction Documents location.

2.9.1.3 CMAR shall mark Project Record Drawings sets with red erasable colored pencil.

2.9.1.4 CMAR shall note RFI Numbers, ASI Numbers and Change Order numbers, etc., as required to identify the source of the change to the Construction Documents.

2.9.1.5 CMAR shall, as a condition of Substantial Completion, submit Project Record Drawing prints and Shop Drawings to the City or its representative for review and comment.

2.9.2 Upon receipt of the reviewed Project Record Drawings from the City, CMAR shall correct any deficiencies and/or omissions to the drawings and prepare the following for submission to the City within 14 Days:

2.9.2.1 CMAR shall provide a complete set of electronic Project Record Drawings prepared in AutoCAD format compatible with City of Flagstaff CADD technology. The Design Professional shall provide files of the original Construction Documents to CMAR for the use of preparing these final Project Record Drawings or CMAR may contract with the Design Professional to revise and update the electronic drawing files. Each drawing shall be clearly marked with "As-Built Document."

2.9.2.2 CMAR shall provide a complete set of reproducible mylars from the final AutoCAD drawings.

2.9.2.3 CMAR shall provide the original copy of the Project Record Drawings (redline mark-ups).

2.10 Project Safety

2.10.1 CMAR recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting, (ii) the Work,

including materials and equipment incorporated into the Work or stored on-Site or off-Site, and (iii) all other property at the Site or adjacent thereto.

2.10.2 CMAR assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work.

2.10.3 CMAR shall, prior to commencing construction, designate a Safety Representative with the necessary qualifications and experience to supervise the implementation and monitoring of all safety precautions and programs related to the Work. Unless otherwise required by the Contract Documents, CMAR's Safety Representative shall be an individual stationed at the Site who may have other responsibilities on the Project in addition to safety.

2.10.4 The Safety Representative shall make routine daily inspections of the Site and shall hold weekly safety meetings with CMAR's personnel, Subcontractors and others as applicable.

2.10.5 CMAR and Subcontractors shall comply with all Legal Requirements relating to safety, as well as any City-specific safety requirements set forth in the Contract Documents, provided that such City-specific requirements do not violate any applicable Legal Requirement.

2.10.6 CMAR shall immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to City's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

2.10.7 CMAR's responsibility for safety under this Section is not intended in any way to relieve Subcontractors and Sub-Subcontractors of their own contractual and legal obligations and responsibility for (i) complying with all Legal Requirements, including those related to health and safety matters, and (ii) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injury, losses, damages or accidents resulting from their performance of the Work.

2.11 **Warranty**

2.11.1 CMAR warrants to City that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship.

2.11.2 CMAR's warranty obligation shall be for one (1) year, except for such greater period as may be required by the technical specifications.

2.11.3 Nothing in this warranty is intended to limit any manufacturer's warranty which provides The City with greater warranty rights than set forth in this Section or the Contract Documents. CMAR shall provide City with all manufacturers' warranties upon Substantial Completion.

2.11.4 Nothing in this warranty is intended to limit any other remedy at law that may be available to the City.

2.12 Correction of Defective Work

2.12.1 CMAR agrees to correct any Work that is found to not be in conformance with the Contract Documents, including that part of the Work subject to Section 2.12 above, within a period of one (1) year from the date of Substantial Completion of the Work or any portion of the Work, or within such longer period to the extent required by the Contract Documents, or as may be available to the City by law. A progress payment, or partial or entire use or occupancy of the Project by the City, shall not constitute acceptance of Work not in accordance with the Contract Documents.

2.12.2 During the performance of the Work, CMAR shall take meaningful steps to commence correction of such nonconforming Work as notified by the City or as discovered by CMAR. This includes the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work affected by the nonconforming Work. If CMAR fails to commence the necessary steps during the performance of the Work, City, in addition to any other remedies provided under the Contract Documents, may provide CMAR with written notice that City shall commence correction of such nonconforming Work with its own forces.

2.12.3 CMAR shall, take meaningful steps to commence correction of nonconforming Work subject to Section 2.12 and/or Section 2.13.1 above, within seven (7) days of receipt of written notice from City. This includes the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work affected by the nonconforming Work. If CMAR fails to commence the necessary steps within such seven-day period, City, in addition to any other remedies provided under the Contract Documents, may provide CMAR with written notice that City shall commence correction of such nonconforming Work with its own forces. If City does perform such corrective Work, CMAR shall be responsible for all reasonable costs incurred by City in performing such correction.

2.12.4 For nonconforming Work that creates an emergency requiring an immediate response, CMAR shall respond and initiate corrections within twenty-four hours.

2.12.5 The one year period referenced in Subsection 2.13.1 above applies only to CMAR's obligation to correct nonconforming Work relative to the warranty set forth in that section and is not intended to constitute a period of limitations for any other rights or remedies the City may have regarding CMAR's other obligations under the Contract Documents or as may be allowed by law.

Article 3 - The City's Services and Responsibilities

3.1 Duty to Cooperate.

3.1.1 City shall, throughout the performance of the Work, cooperate with CMAR and perform its responsibilities, obligations and services in a timely manner to facilitate CMAR's timely and efficient performance of the Work and so as not to delay or interfere with CMAR's performance of its obligations under the Contract Documents.

3.1.2 City shall furnish at CMAR's request, at no cost to CMAR, a CADD file of the Construction Documents in AutoCAD format compatible with the City of Flagstaff CADD technology.

3.2 The City's Representative

3.2.1 City's Representative shall be responsible for providing City (as defined in Article I) supplied information and approvals in a timely manner to permit CMAR to fulfill its obligations under the Contract Documents.

3.2.2 City's Representative shall also provide CMAR with prompt notice if City's Representative observes any failure on the part of CMAR to fulfill its contractual obligations, including any default or defect in the project or non-conformance with the drawings and specifications.

3.2.3 The City may utilize field inspectors to assist the City's Representative during construction in observing performance of CMAR. The inspector is for the purpose of assisting the City's Representative and should not be confused with an inspector with a City regulatory department.

3.2.3.1 The field inspector shall be authorized to inspect all Work and materials furnished. Such inspection may extend to all or part of the Work and to the preparation, fabrication or manufacture of the materials to be used.

3.2.3.2 The field inspector shall not be authorized to issue instructions contrary to the Construction Documents or to act as foreman for CMAR.

3.2.3.3 The field inspector shall have the authority to reject work or materials until any questions at issue can be decided by the City's Representative.

3.2.3.4 The furnishing of such services for the City shall not make the City responsible for or give the City control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs or responsibility for CMAR's failure to perform the work in accordance with Contract Documents.

3.3 Design Professional Services

3.3.1 The City may contract separately with one or more Design Professionals to provide construction administration of the Project. The Design Professional's Agreement as well as other firms hired by the City shall be available for review by CMAR. CMAR shall not have any right however, to limit or restrict any contract provisions and/or modifications that are mutually acceptable to the City and Design Professional.

3.3.2 The City may contract with the Design Professional to provide some or all of the following services during the performance of the Work.

3.3.2.1 Provide oversight of the Work. The City and CMAR shall endeavor to communicate through the Design Professional. Communications by and with the Design Professional's consultants shall be through the Design Professional.

3.3.2.2 Conduct Site visits at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine in general if the Work is being performed in accordance with the Contract Documents. The Design Professional shall keep the City informed of progress of the Work and any noted defects and deficiencies of the Work, and shall endeavor to guard the City against defects and deficiencies in the Work. The Design Professional may have authority to reject construction, which does not conform to the Construction Documents and to require additional inspection or testing of the construction in accordance with Section 2.7.

3.3.2.3 Review and recommend approval of Payment Requests.

3.3.2.4 Review and approve or take other appropriate action upon CMAR's Submittals such as Shop Drawings, Product Data and Samples in accordance with Section 2.6.

3.3.2.5 Interpret and decide matters concerning performance under and requirements of the Contract Documents on written request of either the City or CMAR. The Design Professional's response to such requests shall be made with reasonable promptness and within any time limits agreed upon.

3.3.2.6 Prepare Change Orders, and may authorize minor changes in the Work as provided in Section 6.6.1.

3.3.2.7 Conduct inspections to determine Substantial Completion and Final Acceptance.

3.3.2.8 Receive and forward to the City for the City's review and records written warranties and related documents required by the Contract Documents and assembled by CMAR.

3.4 **City's Separate Contractors**. City is responsible for all work performed on the Project or at the Site by separate contractors under City's control. City shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with CMAR in order to enable CMAR to timely complete the Work consistent with the Contract Documents.

3.5 Permit Review and Inspections

3.5.1 If requested by CMAR, the City's Representative shall provide assistance and guidance in obtaining necessary reviews, permits and inspections, however, the responsibility for obtaining the necessary reviews, permits and inspections remains with CMAR.

3.5.2 Regulating agencies of the City, such as Community Development, Fire, Planning, Building Inspection, Environmental Services, and Engineering Departments, enforce Legal Requirements. These enforcement activities are not subject to the responsibilities of the City under this Agreement.

Article 4 - Contract Time

4.0 Contract Time.

4.0.1 Contract Time shall start with the Notice to Proceed ("NTP") with construction services and shall end with Substantial Completion.

4.0.2 Where there is more than one GMP, each GMP shall establish a separate NTP date and a Performance Period. The Performance Periods for individual GMPs may be sequential or concurrent as established in the individual Notices to Proceed. The Performance Period for the GMP under this Agreement shall be 365 days starting with the NTP.

4.0.3 CMAR agrees that it shall commence timely performance of the Work and shall achieve substantial completion within the Performance Periods and Contract Time.

4.0.4 All of the times set forth in this Article 4 shall be subject to adjustment in accordance with Article 6.

4.0.5 Time is of the essence, for times and time matters set forth in Article 4 and the rest of this Agreement.

Pursuant to Section 9.3 below, if, in the sole discretion of the Capital Improvements Department of the City of Flagstaff, the Project is not at Substantial Completion prior to the advent of adverse weather conditions, a Winter Shutdown shall occur during which no Work will be performed by any person or entity (including but not limited to the CMAR) on the Project and CMAR shall shutdown, properly insulate and shelter the Project in a safe and workmanlike manner pursuant to local, state and federal laws. Although December through March is typically the time frame, the City reserves the right to initiate and terminate a Winter Shutdown at the City's sole discretion in the event of adverse weather conditions. A Winter Shutdown may be declared by the City despite delays, *for any reason,* on the Project.

4.1 Substantial Completion

4.1.1 Substantial Completion shall be for the entire Project unless a partial Substantial Completion is identified in the approved GMP schedule and stated in the Notice to Proceed letter or as may be mutually agreed by the parties in writing. Substantial Completion shall be in accordance with its definition in Article 1 and with the criteria set forth in the Notice to Proceed.

4.1.2 Prior to notifying the City in accordance to Section 4.1.3 below, CMAR shall inspect the Work and prepare and submit to the City a comprehensive list of items to be completed or corrected. CMAR shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of CMAR to complete all Work in accordance with the *Co*ntract Document**s.**

4.1.3 CMAR shall notify City when it believes the Work, or to the extent permitted in the Contract Documents, a portion of the Work, is substantially complete.

4.1.4 Within five (5) days of City's receipt of CMAR's notice, the City and CMAR shall jointly inspect such Work to verify that it is substantially complete in accordance with the requirements of the Contract Documents.

4.1.5 If such Work is substantially complete, City shall prepare and issue a Certificate of Substantial Completion that shall set forth (i) the date of Substantial Completion of the Work or portion thereof, (ii) the remaining items of Work that have to be completed within thirty (30) calendar days before Final Acceptance, (iii) provisions (to the extent not already provided in the Contract Documents) establishing City's and CMAR's responsibility for the Project's security, maintenance, utilities and insurance pending Final Acceptance and (iv) an acknowledgment that warranties commence to run on the date of Substantial Completion, except as may otherwise be noted in the Certificate of Substantial Completion.

4.1.6 City, at its option, may use a portion of the Work which has been determined to be substantially complete, provided, however, that (i) a Certificate of Substantial Completion has been issued for the portion of Work addressing the items set forth in Section 4.1.5 above, (ii) CMAR and City have obtained the consent of their sureties and insurers, and to the extent applicable, the appropriate government authorities having jurisdiction over the Project, and (iii) City and CMAR agree that City's use or occupancy shall not interfere with CMAR's completion of the remaining Work.

4.2 Final Completion. Upon receipt of written notice that the Work or identified portions of the Work is ready for final inspection and acceptance, City and CMAR shall jointly inspect to verify that the remaining items of Work have been completed as set forth in Section 4.1.5. The City shall issue a Final Completion Letter and payment pursuant to Section 7.5.

4.3 Liquidated Damages

4.3.1 CMAR understands that if Substantial Completion is not attained within the Contract Time as adjusted, the City shall suffer damages, which are difficult to determine and accurately specify. CMAR agrees that if Substantial Completion is not attained within the Contract Time as adjusted, CMAR shall pay the City $1,070.00 (to be determined on an agreement by agreement basis) per day as liquidated damages for each Day that Substantial Completion extends beyond the date determined by the Contract Time as adjusted and further agrees that such amount is reasonable under the circumstances.

4.3.2 CMAR understands that if Final Completion is not attained within the Contract Time as adjusted, the City shall suffer damages, which are difficult to determine and accurately specify. CMAR agrees that if Final Completion is not attained within the Contract Time as adjusted, CMAR shall pay the City $1,070.00 (to be determined on an agreement by agreement basis) per day as liquidated damages for each Day that Final Completion extends beyond the date

determined by the Contract Time as adjusted and further agrees that such amount is reasonable under the circumstances.

4.4 Project Master Schedule

4.4.1 The Project Master Schedule approved as part of a GMP shall be updated and maintained throughout the Work by CMAR.

4.4.2 The Project Master Schedule shall be revised by CMAR as required by conditions and progress of the Work, but such revisions shall not relieve CMAR of its obligations to complete the Work within the Contract Time, as such dates may be adjusted in accordance with the Contract Documents.

4.4.3 Updated Project Master Schedules shall be submitted monthly by CMAR to the City as part of the Payment Request.

4.4.3.1 CMAR shall provide City with a monthly status report with each Project Master Schedule detailing the progress of the Work, including: (i) if the Work is proceeding according to schedule, (ii) any discrepancies, conflicts, or ambiguities found to exist in the Contract Documents that require resolution, and (iii) other items that require resolution so as not to jeopardize ability to complete the Work as presented in the GMP and within the Contract Time.

4.4.3.2 With each schedule submittal CMAR shall include a transmittal letter including the following:

- Description of problem tasks (referenced to field instructions, requests for information ("RFI's"), as appropriate.
- Current and anticipated delays including:
  - Cause of the delay
  - Corrective action and schedule adjustments to correct the delay
  - Known or potential impact of the delay on other activities, milestones, and/or the date of Substantial Completion
- Changes in construction sequence
- Pending items and status thereof including but not limited to:
  - Time Extension requests
  - Other items
- Substantial Completion date status:
  - If ahead of schedule, the number of calendar days ahead
  - If behind schedule, the number of calendar days behind
- Other project or scheduling concerns

4.4.4 City's review of and response to the Project Master Schedule is only for general conformance with the scheduling requirements of the Contract Documents. The review shall not relieve CMAR from compliance with the requirements of the Contract Documents or be construed as relieving CMAR of its complete and exclusive control over the means, methods, sequences and techniques for executing the Work.

4.4.5 The Project Master Schedule shall include a Critical Path Method ("CPM") diagram schedule that shall show the sequence of activities, the interdependence of each activity and indicate the Critical Path.

4.4.5.1 The CPM diagram schedule shall be in Days and indicate duration, earliest and latest start and finish dates for all activities, and total Float times for all activities except critical activities. The CPM diagram shall be presented in a time scaled graphical format for the Project as a whole.

4.4.5.2 The CPM diagram schedule shall indicate all relationships between activities.

4.4.5.3 The activities making up the schedule shall be in sufficient detail to assure that adequate planning has been done for proper execution of the Work and such that it provides an appropriate basis for monitoring and evaluating the progress of the Work.

4.4.5.4 The CPM diagram schedule shall be based upon activities, which would coincide with the Schedule of Values.

4.4.5.5 The CPM diagram schedule shall show all Submittals associated with each work activity and the review time for each submittal.

4.4.5.6 The schedule shall show milestones, including milestones for Owner-furnished information, and shall include activities for Owner-furnished equipment and furniture when those activities are interrelated with CMAR activities.

4.4.5.7 The schedule shall include a critical path activity that reflects anticipated weather delay during the performance of the Agreement. The duration shall reflect the average climatic range and usual industrial conditions prevailing in the locality of the Site. Weather data shall be based on the information set forth on the City of Flagstaff's Table of "Monthly Anticipated Adverse Weather Calendar Days" and the explanatory paragraphs attached thereto.

4.4.6 The Project Master Schedule shall consider the City's and the tenants' occupancy requirements showing portions of the Project having occupancy priority, and Contract Time.

4.4.7 Float time shall be as prescribed below:

4.4.7.1 The total Float within the overall schedule, is not for the exclusive use of either the City or CMAR, but is jointly owned by both and is a resource available to and shared by both parties as needed to meet Agreement milestones and the Project completion date.

4.4.7.2 CMAR shall not sequester shared Float through such strategies as extending activity duration estimates to consume available Float, using preferential logic, or using extensive crew/resource sequencing, etc. Since Float time within the schedule is jointly owned, no time extensions shall be granted nor delay damages paid until a delay occurs which extends the Work beyond the Substantial Completion date and then only if any such extensions or damages are shown to be justified under the Contract Documents.

4.4.7.3 Since Float time within the schedule is jointly owned, it is acknowledged that City-caused delays on the Project may be offset by City-caused time savings (i.e., critical path Submittals returned in less time than allowed by the Agreement, approval of substitution requests and credit changes which result in savings of time to CMAR, etc.). In such an event, CMAR shall not be entitled to receive a time extension or delay damages until all City-caused time savings are exceeded, and the Substantial Completion date is also exceeded.

Article 5- Contract Price

5.0.1 CMAR agrees at his own cost and expense, to completely construct and install all Work and materials as called for by this Agreement, free and clear of all claims, liens and charges whatsoever, in the manner and under the conditions specified in the Contract Documents, within the time or times stated in the approved GMP.

5.1 Contract Price

5.1.1 The Contract Price shall be as approved in the Guaranteed Maximum Price Proposal attached as Exhibit "B" and an amount of **$4,882,067.20** with an additional **$20,000.00** allowed for Owner's Contingency for a total contract price of **$4,902,067.02**.

5.1.2 The Cost of the Work is actual costs and is a not-to-exceed reimbursable amount.

5.1.3 The General Conditions Costs will be included in the GMP as a not to exceed amount and paid for on actual costs based on submitted and approved invoices. The Construction Fee will be paid as a firm lump sum.

5.1.4 Taxes are deemed to include all sales, use consumer and other taxes, which are legally enacted when negotiations of the GMP were concluded, whether or not yet effective, or merely scheduled to go into effect. Taxes are actual costs and are a not-to-exceed reimbursable amount.

5.2 Guaranteed Maximum Price

5.2.1 The Guaranteed Maximum Price is composed of the maximum Cost of the Work; the Construction Fee; General Conditions Costs; taxes; and, CMAR's contingency all of which are not-to-exceed cost reimbursable or lump sum amounts defined in Articles 5.1 and 5.3. CMAR is at risk to cover any additional Project costs. If the Cost of Work amount, set forth in the GMP, is in excess of the actual Cost of Work and/or CMAR's Contingency, said amount by which the Cost of Work set forth in the GMP is in excess of the actual Cost of Work and/or CMAR's Contingency, shall revert to the City.

5.2.2 The GMP is subject to adjustments made in accordance with Article 6 and by GMP amendments to this Agreement.

5.2.3 GMP amendments are cumulative except for CMAR's Contingency. The amount of CMAR's Contingency for each GMP shall be negotiated separately.

5.2.4 If the GMP requires an adjustment due to changes in the scope of the Work the cost of such changes is determined subject to Article 6. The markups that may be allowed on such changes shall be no greater than the markups delineated in the approved GMP.

5.3 Contingencies

5.3.1 CMAR's Contingency is an amount CMAR may use at its sole discretion for, an increase in the Cost of Work, and may use for increases in General Conditions Costs with written approval of the City. CMAR's Contingency is assumed to be a direct Project cost and all applicable markups shall be applied at the time of GMP submission.

5.3.2 When CMAR utilizes CMAR's Contingency funds, CMAR shall make the appropriate changes to the Schedule of Values with the next regular progress payment request. CMAR shall deduct the amount of CMAR's Contingency funds used from CMAR's Contingency line item and add the same amount to the line item on the Schedule of Values where the funds were used. If CMAR's contingency funds are used for a new line item that was not given with the original Schedule of Values, these shall be so indicated.

5.3.3 Owner's Contingency are funds to be used at the sole discretion of the Owner to cover any increases in Project costs that result from Owner directed changes or unforeseen Site conditions. Owner's Contingency shall be added to the GMP amount provided by CMAR, the sum of which shall be the full Contract Price for construction. At the time that Owner's Contingency is used the appropriate markups shall be applied.

5.4 Open Book. CMAR shall submit to the City upon request all payrolls, reports, estimates, records and any other data concerning the Work performed or to be performed or concerning materials supplied or to be supplied, as well as Subcontractor or Consultant payment applications or invoices and such Subcontractor's or Consultant progress payment checks. The requirements of this Section shall be included in all Agreements between CMAR and its Subcontractors and Consultants. The City may exercise its rights under this Section as often

as reasonably necessary in the City's sole judgment to assure the City has a complete and accurate understanding of all Project costs.

Upon project closeout and immediately prior to the release of final payment, the CMAR shall provide to the City a Final Cost Report detailing all Project costs for each division of work with supporting documentation for materials, labor, equipment and other appurtenant items.

Article 6 - Changes to the Contract Price and Time

6.0 Delays to the Work

6.0.1 If CMAR is delayed in the performance of the Work that shall cause a change in the date of Substantial Completion due to acts, omissions, conditions, events, or circumstances beyond its control and due to no fault of its own, or, those for whom CMAR is responsible, the Contract Times for performance shall be reasonably extended by Change Order. However, the City and the CMAR must agree on the determination of whether acts, omissions, conditions, events, or circumstances are actually beyond the CMARs control and/or whether they are due to no fault of the CMAR, or those for whom CMAR is responsible; if the City and the CMAR do not agree, then an independent third party, selected by both parties, shall make the determination of whether acts, omissions, conditions, events, or circumstances are actually beyond the CMARs control and/or whether they are due to no fault of the CMAR, or those for whom CMAR is responsible.

6.0.2 CMAR shall request an increase in the Contract Time by written notice including an estimate of probable effect of delay on progress of the Work within three (3) days of the occurrence of the delay. In the case of a continuing delay only one request is necessary.

6.0.3 By way of example, events that shall entitle CMAR to an extension of the Contract Time include acts or omissions of City or anyone under City's control (including separate Contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions, delays by regulating agencies, wars, floods, labor disputes, unusual delay in transportation, epidemics abroad, earthquakes, adverse weather conditions not reasonably anticipated, and other acts of God.

6.0.4 If adverse weather conditions are the basis for a request for additional Contract Time, such requests shall be documented by data substantiating that weather conditions were abnormal for the period of time and could not have been reasonably anticipated, and that weather conditions had an adverse effect on the scheduled Substantial Completion. All terms, conditions and definitions necessary for the application of this paragraph shall be as set forth on the City of Flagstaff's Table of "Monthly Anticipated Adverse Weather Calendar Days" and the explanatory paragraphs attached thereto.

6.0.5 It is understood, however, that permitting CMAR to proceed to complete any Work, or any part of the Work, after the date to which the time of completion may have been extended, shall in no way act as a waiver on the part of the City of any of its legal rights herein.

6.0.6 In addition to CMAR's right to a time extension for those events set forth in this Section, CMAR shall also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for those events set forth in this Section that are beyond the control of both CMAR and City, including the events of war, floods, labor disputes, earthquakes, epidemics, adverse weather conditions not reasonably anticipated, and other acts of God and shall not be adjusted absent a showing of actual damage.

6.1 Differing Site Conditions

6.1.1 If CMAR encounters a Differing Site Condition, CMAR shall be entitled to an adjustment in the Contract Price and/or Contract Times to the extent CMAR's cost and/or time of performance are actually adversely impacted by the Differing Site Condition.

6.1.2 Upon encountering a Differing Site Condition, CMAR shall provide prompt written notice to City of such condition, which notice shall not be later than seven (7) days after such condition has been encountered. CMAR shall, to the extent reasonably possible, provide such notice before the Differing Site Condition has been substantially disturbed or altered.

6.2 Errors, Discrepancies and Omissions

6.2.1 If CMAR observes errors, discrepancies or omissions in the Contract Documents, CMAR shall promptly notify the Design Professional and request clarification.

6.2.2 If CMAR proceeds with the Work affected by such errors, discrepancies or omissions, without receiving such clarifications, CMAR does so at its own risk. Adjustments involving such circumstances made by CMAR prior to clarification by the Design Professional shall be at CMAR's risk.

6.3 The City Requested Change in Work

6.3.1 The City reserves the right to make, at any time during the progress of the Work, such alterations as may be found necessary or in the City's best interest.

6.3.2 Such alterations and changes shall not invalidate this Agreement nor release the surety and CMAR agrees to perform the Work as altered, the same as if it has been a part of the original Contract Documents.

6.3.3 The City shall request a proposal for a change in Work from CMAR, and an adjustment in the Contract Price and/or Contract Times shall be made based on a mutual agreed upon cost and time.

6.4 Legal Requirements. The Contract Price and/or Contract Times shall be adjusted to compensate CMAR for the effects of any changes in the Legal Requirements enacted after the date of their Agreement or the date of the GMP, affecting the performance of the Work.

6.5 Change Directives and Change Orders

6.5.1 City and CMAR shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for a Change Directive if any adjustments are appropriate. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the adjustment.

6.5.2 All changes in Work authorized by Change Directives and/or Change Orders shall be performed under the conditions of the Contract Documents.

6.6 Minor Changes in the Work

6.6.1 The City has authority to order minor changes in Work that do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Such changes shall be affected by written order and shall be binding on the City and CMAR. CMAR shall carry out such written orders promptly.

6.6.2 CMAR may make minor changes in Work, provided, however that CMAR shall promptly inform City, in writing, of any such changes and record such changes, if appropriate, on the Project Record Documents maintained by CMAR.

6.6.3 Minor changes in Work shall not involve an adjustment in the Contract Price and/or Contract Times.

6.7 Contract Price Adjustments

6.7.1 The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:

6.7.1.1 Unit prices set forth in this Agreement or as subsequently agreed to between the parties;

6.7.1.2 A mutually accepted, lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by City; and

6.7.1.3 Costs, fees and any other markups.

6.7.2 The markups that shall be allowed on such changes shall be no greater than the markups delineated in the approved GMP as shown on Exhibit "B".

6.7.3 If an increase or decrease cannot be agreed to as set forth in Sections 6.7.1.1 through 6.7.1.3 above and City issues a Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in their Agreement. CMAR shall maintain a documented, itemized accounting evidencing the expenses and savings associated with such changes.

6.7.4 If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices shall cause substantial inequity to City or CMAR because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

6.7.5 If City and CMAR disagree upon whether CMAR is entitled to be paid for any services required by City, or if there are any other disagreements over the scope of Work or proposed changes to the Work, City and CMAR shall resolve the disagreement pursuant to Article 8 hereof.

6.7.5.1 As part of the negotiation process, CMAR shall furnish City with a good faith estimate of the costs to perform the disputed services in accordance with City's interpretations.

6.7.5.2 If the parties are unable to agree and City expects CMAR to perform the services in accordance with City's interpretations, CMAR shall proceed to perform the disputed services, conditioned upon City issuing a written order to CMAR (i) directing CMAR to proceed and (ii) specifying City's interpretation of the services that are to be performed.

6.7.6 **Emergencies**. In any emergency affecting the safety of persons and/or property, CMAR shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or Contract Time resulting from emergency work under this Section shall be determined as provided in this Article.

6.7.7 **Force Majeure.** The parties acknowledge that there may be events that occur during the term of this Contract that are beyond the control of both the City and the Contractor, including events of war, floods, labor, disputes, earthquakes, epidemics, pandemics, adverse weather conditions not reasonably anticipated, forest fires, and other acts of God. These events may result in temporary delay or permanent shut down of the work that is the subject of this

Contract, as set forth in Exhibit B. This may be caused by such things as stay-at-home orders, loss of labor force, supply chain delays, and other impediments to timely delivery of the Contract.

The parties agree that there will be no claims arising from a temporary delay or permanent shut down caused by the events described above and that the City will pay no additional costs incurred as a result of such events.

The parties agree to act in good faith to extend the Contract completion date without any penalty to the Contractor and that the extension will be in an amount of time equal to any temporary delay. This term supersedes all other terms regarding temporary delay, permanent shut down, or increased costs.

Article 7- Procedure for Payment

7.0 For and in consideration of the faithful performance of the Work herein embraced as set forth in the Contract Documents, which are a part hereof and in accordance with the directions of the City and to the City's satisfaction, the City agrees to pay CMAR the actual Cost of the Work and any applicable General Conditions Costs including, insurance and bonding, taxes and CMAR's Construction Fee, but no more than the GMP as adjusted by any change orders. Payment for the specific Work under this Agreement shall be made in accordance with payment provisions detailed below.

7.1 GMP Payment Request

7.1.1 At the pre-construction conference prescribed in Section 2.4, CMAR shall submit for City's review and approval a Schedule of Values. The Schedule of Values shall serve as the basis for monthly progress payments made to CMAR throughout the Work.

7.1.2 At least five (5) working days prior to the date established for a Payment Request, CMAR shall submit an updated Project Master Schedule and meet with the City's Representative to review the progress of the Work as it shall be reflected on the Payment Request.

7.1.3 The Payment Request shall constitute CMAR's representation that the Work has been performed consistent with the Contract Documents, has progressed to the point indicated in the Payment Request, and that title to all Work shall pass to City free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the Work into the Project.

The Payment Request shall include, at a minimum:

1. Monthly Executive summary detailing work completed during the pay period, a statement addressing the project budget and schedule and the items of work anticipated for the upcoming pay period
2. Current critical path schedule
3. Pay application cover sheet, detailed schedule of values and conditional lien waivers upon release of progress payment
4. Subcontractor and Supplier invoices and conditional lien waivers for current pay period
5. General Conditions invoices for current pay period
6. Daily Reports for current pay period
7. Weekly reports for current pay period
8. Project meeting minutes for current pay period
9. Certified payroll reports- alphabetical by subcontractor (when required for Davis Bacon projects)

7.1.4 The Payment Request may request payment for stored equipment and materials if construction progress is in reasonable conformance with the approved schedule.

7.1.4.1 For equipment and materials suitably stored at the Site, the equipment and materials shall be protected by suitable insurance and City shall receive the equipment and materials free and clear of all liens and encumbrances.

7.1.4.2 For materials and equipment stored off the Site, the City must approve the storage. The material and equipment must be stored within Coconino County or other Sites as may be approved and be accessible for City's inspection. CMAR must establish City title to such materials and equipment or otherwise protect the City's interest and shall include applicable insurance, bonding, storage and transportation to the Site.

7.1.4.3 All bonds and insurance required for stored materials shall name the City as the loss payee to the extent of its interest in the stored materials.

7.1.5 CMAR shall submit to City on a monthly basis either on the first of the month for payment on the 15th or on the 19th of the month for payment on the 30th or 31st. If the payment date is on a Saturday, payment shall be on Friday. If the payment date is on a Sunday, payment shall be on Monday.

7.2 Payment of GMP

7.2.1 City shall make payment in accordance with A.R.S. §34-607. Payment shall be made no later than fourteen (14) days after the Payment Request is certified and approved, but in each case less the total of payments previously made, and less amounts properly retained under Section 7.3 below.

7.2.2 City shall pay CMAR all amounts properly due. If City determines that CMAR is not entitled to all or part of a Payment Request, it shall notify CMAR in writing within (7) days after the date Payment Request is received by the City. The notice shall indicate the specific amounts City intends to withhold, the reasons and contractual basis for the withholding, and the specific measures CMAR shall take to rectify City's concerns. CMAR and City shall attempt to resolve City's concerns. If the parties cannot resolve such concerns, CMAR may pursue its rights under the Contract Documents, including those under Article 8 hereof.

7.3 Retention of GMP

7.3.1 City shall retain ten percent (10%) of each Payment Request amount provided. When fifty percent (50%) of the Work has been completed by CMAR, upon request of CMAR, City may reduce the amount retained to five percent (5%) from CMAR's subsequent Payment Requests if CMAR's performance of Work has been satisfactory.

7.3.2 In lieu of retention, CMAR may provide as a substitute, an assignment of time certificates of deposit (CDs) from a bank licensed by the State of Arizona, securities of or guaranteed by the United States of America, securities of counties, municipalities and school districts within the State of Arizona or shares of savings and loan institutions authorized to transact business in Arizona.

7.3.2.1 CDs assigned to the City must be maintained at the City's single servicing bank, in the form of time deposit receipt accounts.

7.3.2.2 Securities deposited in lieu of retention must be deposited into a separate account with a bank within the State of Arizona.

7.3.2.3 CDs and Securities shall be assigned exclusively for the benefit of the City of Flagstaff pursuant to the City's form of Escrow Agreement. Escrow Agreement forms may be obtained from the Purchasing Department by contacting Matt Luhman, Purchasing Manager.

7.4 **Substantial Completion**. Upon Substantial Completion of the entire Work or, if applicable, any portion of the Work, City shall release to CMAR all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount up to two and one-half (2.5) times the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion.

7.5 Final Payment

7.5.1 After receipt of a final Payment Request, City shall make final payment within sixty (60) days after receipt by the City, provided that CMAR has completed all of the Work in conformance with the Contract Documents and a Final Completion Letter has been issued by the City.

7.5.2 At the time of submission of its final Payment Request, CMAR shall provide the following information:

7.5.2.1 An affidavit affirming that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which shall in any way affect City's interests;

7.5.2.2 A general release executed by CMAR waiving, upon receipt of final payment by CMAR, all claims, except those claims previously made in writing to City and remaining unsettled at the time of final payment; and

7.5.2.3 Consent of CMAR's surety, if any, to final payment.

7.6 Payments To Subcontractors or Suppliers

7.6.1 CMAR shall pay its Subcontractors or suppliers within seven (7) calendar days of receipt of each progress payment from the City. CMAR shall pay for the amount of Work performed or materials supplied by each Subcontractor or supplier as accepted and approved by the City with each progress payment. In addition, any reduction of retention by the City to CMAR shall result in a corresponding reduction to Subcontractors or suppliers who have performed satisfactory work. CMAR shall pay Subcontractors or suppliers the reduced retention within fourteen (14) calendar days of the payment of the reduction of the retention to CMAR. No agreement between CMAR and its Subcontractors and suppliers may materially alter the rights of any Subcontractor or supplier to receive prompt payment and retention reduction as provided herein.

7.6.2 If CMAR fails to make payments in accordance with these provisions, the City may take any one or more of the following actions and CMAR agrees that the City may take such actions:

7.6.2.1 Hold CMAR in default under this Agreement;

7.6.2.2 Withhold future payments including retention until proper payment has been made to Subcontractors or suppliers in accordance with these provisions;

7.6.2.3 Reject all future offers to perform work for the City from CMAR for a period not to exceed one (1) year from Substantial Completion date of this Project; or

7.6.2.4 Terminate this Agreement.

7.6.3 If CMAR's payment to a Subcontractor or supplier is in dispute, it shall act in compliance with A.R.S. § 32-1129.02(D) and related statutes as amended, and shall further hold the City harmless from any ensuing damages, claims or costs.

7.6.4 Should the City fail or delay in exercising or enforcing any right, power, privilege, or remedy

under this Section, such failure or delay shall not be deemed a waiver, release, or modification of the requirements of this Section or of any of the terms or provisions thereof.

7.6.5 CMAR shall include these prompt payment provisions in every subcontract, including procurement of materials and leases of equipment for this Agreement.

7.7 Record Keeping and Finance Controls

7.7.1 Records of CMAR's direct personnel payroll, reimbursable expenses pertaining to this Project and records of accounts between the City and CMAR shall be kept on a generally recognized accounting basis and shall be available for three (3) years after Final Completion of the Project.

7.7.2 The City, its authorized representative, and/or the appropriate federal agency, reserve the right to audit CMAR's records to verify the accuracy and appropriateness of all pricing data, including data used to negotiate Contract Documents and any Change Orders.

7.7.3 The City reserves the right to decrease Contract Price and/or payments made on this Agreement if, upon audit of CMAR's records, the audit discloses CMAR has provided false, misleading, or inaccurate cost and pricing data.

7.7.4 CMAR shall include a similar provision in all of its agreements with Subconsultants and Subcontractors providing services under the Contract Documents to ensure the City, its authorized representative, and/or the appropriate federal agency, has access to the Subconsultants' and Subcontractors' records to verify the accuracy of cost and pricing data.

7.7.5 The City reserves the right to decrease Contract Price and/or payments made on this Agreement if the above provision is not included in Subconsultant's and Subcontractor's Agreements, and one or more Subconsultants and/or Subcontractors do not allow the City to audit their records to verify the accuracy and appropriateness of pricing data.

7.7.6 Records and Retention Requirements: The City and its employees, agents, and authorized representatives shall have the right at all reasonable times and during all business hours to inspect and examine CMAR's records related to this Agreement. CMAR shall comply with the City of Flagstaff's records retention policy. This record retention requirement shall remain in effect following expiration of the Agreement or termination of the Agreement by either Party.

Article 8- Claims and Disputes

8.0 Requests for Agreement Adjustments and Relief.

8.0.1 If either CMAR or City believes that it is entitled to relief against the other for any event arising out of or related to Work, such party shall provide written notice to the other party of the basis for its claim for relief.

8.0.2 Such notice shall, if possible, be made prior to incurring any cost or expense and in accordance with any specific notice requirements contained in applicable sections of the Agreement.

8.0.3 In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed fourteen (14) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later.

8.0.4 Such notice shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request.

8.1 Dispute Avoidance and Resolution

8.1.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, CMAR and City each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work.

8.1.2 CMAR and City shall first attempt to resolve disputes or disagreements at the field level through discussions between CMAR's Representative and City's Representative.

8.1.3 If a dispute or disagreement cannot be resolved through CMAR's Representative and City's Representative, CMAR's Senior Representative and City's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such dispute or disagreement. Prior to any meetings between the Senior Representatives, the parties shall exchange relevant information that shall assist the parties in resolving their dispute or disagreement.

8.1.4 Except as otherwise agreed by the parties, any litigation brought by either party against the other to enforce the provisions of this Agreement shall be filed in the Coconino County Superior Court and Arizona law shall apply and control. In the event any action at law or in equity is instituted between the parties in connection with this Agreement, the prevailing party in the action shall be entitled to its costs including reasonable attorneys' fees and court costs from the non-prevailing party.

8.2 **Duty to Continue Performance**. Unless provided to the contrary in the Contract Documents, CMAR shall continue to perform the Work and City shall continue to satisfy its payment obligations to CMAR, pending the final resolution of any dispute or disagreement between CMAR and City.

8.3 Representatives of the Parties

8.3.1 The City's Representatives

8.3.1.1 City designates the individual listed below or his designee as its Senior Representative ("City's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 8.1.3:

Scott Overton, Public Works Director
3200 W. Route 66
Flagstaff, AZ 86001
(928) 213-2107
soverton@flagstaffaz.gov

8.3.1.2 City designates the individual listed below as its City's Representative, which individual has the authority and responsibility set forth in Section 8.1.2:

Jarrett Nelson, Project Manager
3200 W. Route 66
Flagstaff, AZ 86001
(928) 226-2112
Jarrett.Nelson@flagstaffaz.gov

8.3.2 CMAR's Representatives

8.3.2.1 CMAR designates the individual listed below as its Senior Representative ("CMAR's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 8.1.3:

Harvey K. Heckethorn (Corkey), President
C and E Paving & Grading, L.L.C.
P.O. Box 551
Flagstaff, Arizona 86002
candepaving@aol.com

8.3.2.2 CMAR designates the individual listed below as its CMAR's Representative, which individual has the authority and responsibility set forth in Section 8.1.2:

Harvey K. Heckethorn (Corkey), President
C and E Paving & Grading, L.L.C.
P.O. Box 551
Flagstaff, Arizona 86002
candepaving@aol.com

Article 9 – Suspension and Termination

9.0 City's Right to Stop Work

9.0.1 City may, at its discretion and without cause, order CMAR in writing to stop and suspend the Work. Such suspension shall not exceed one hundred and eighty (180) consecutive days.

9.0.2 CMAR may seek an adjustment of the Contract Price and/or Contract Time if its cost or time to perform the Work has been adversely impacted by any suspension or stoppage of Work by City.

9.1 Termination for Convenience

9.1.1 The City may terminate this Agreement at any time for any reason by giving at least thirty (30) days written notice to the CMAR. In such event, City shall pay CMAR only the direct value of its completed Work and materials supplied as of the date of termination. CMAR shall be entitled to profit and overhead on completed Work only, but shall not be entitled to anticipated profit or anticipated overhead.

9.1.2 If the City suspends the Work for one hundred eighty-one (181) consecutive days or more, such suspension shall be deemed a termination for convenience.

9.1.3 Upon such notice of termination for convenience, CMAR shall proceed with the following obligations:

9.1.3.1 Stop Work as specified in the notice.

9.1.3.2 Place no further subcontracts or orders.

9.1.3.3 Terminate all subcontracts to the extent they relate to the Work terminated. CMAR shall ensure that all subcontracts contain this same termination for convenience provision set forth in Section 9.1 et seq.

9.1.3.4 At the City's sole discretion and if requested in writing by the City, assign to the City all rights, title and interest of CMAR under the subcontracts subject to termination.

9.1.3.5 Take any action that may be necessary for the protection and preservation of the property related to this Agreement that is in the possession of CMAR and in which the City has or may acquire an interest.

9.1.4 CMAR shall submit complete termination inventory schedules no later than one hundred twenty (120) days from the date of the notice of termination.

9.1.5 The City shall pay CMAR the following:

9.1.5.1 The direct value of its completed Work and materials supplied as of the date of termination.

9.1.5.2 The reasonable and direct, actual costs and expenses attributable to such termination. Reasonable costs and expenses shall not include, among other things, anticipated profit, anticipated overhead, or costs arising from CMAR's failure to perform as required under this Agreement.

9.1.5.3 CMAR shall be entitled to profit and overhead on completed Work only, but shall not be entitled to anticipated profit or anticipated overhead. If it is determined that CMAR would have sustained a loss on the entire Work had they been completed, CMAR shall not be allowed profit and the City shall reduce the settlement to reflect the indicated rate of loss.

9.1.6 CMAR shall maintain all records and documents for three (3) years after final settlement. These records shall be maintained and subject to auditing as prescribed in Section 7.7.

9.2 The City's Right to Perform and Terminate for Cause

9.2.1 If the City provides CMAR with a written order to provide adequate maintenance of traffic, adequate cleanup, adequate dust control or to correct deficiencies or damage resulting from abnormal weather conditions, and CMAR fails to comply in a time frame specified, the City may have work accomplished by other sources at CMAR's sole expense.

9.2.2 If CMAR persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, Subconsultants and/or Subcontractors, (v) prosecute the Work with promptness and diligence to ensure that the Work is completed by the Contract Time, as such times may be adjusted, or (vi) perform material obligations under the Contract Documents, then City, in addition to any other rights and remedies provided in the Contract Documents or by law, shall have the rights set forth in Subsections 9.2.3 and 9.2.4 below.

9.2.3 Upon the occurrence of an event set forth in Subsection 9.2.2 above, City may provide written notice to CMAR that it intends to terminate this Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of CMAR's receipt of such notice.

9.2.3.1 If CMAR fails to cure, or reasonably commence to cure, such problem, then City may give a second written notice to CMAR of its intent to terminate within an additional seven (7) day period.

9.2.3.2 If CMAR, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then City may declare this Agreement terminated for default by providing written notice to CMAR of such declaration.

9.2.4 Upon declaring this Agreement terminated pursuant to Subsection 9.2.3.2 above, City may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which CMAR hereby transfers, assigns and conveys to City for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items.

9.2.5 In the event of such termination, CMAR shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, CMAR shall only be entitled to be paid for Work performed and accepted by the City prior to its default.

9.2.6 If City's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then CMAR shall be obligated to pay the difference to City. Such costs and expenses shall include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by City in connection with the reprocurement and defense of claims arising from CMAR's default.

9.2.7 If City improperly terminates the Agreement for cause, the termination for cause shall be converted to a termination for convenience in accordance with the provisions of Section 9.1.

9.3 Maintenance During Winter Shutdown of Work; Snow Removal

9.3.1 The Engineering & Capital Improvement Department of the City of Flagstaff retains the right to declare a Winter Shutdown when, in the opinion of the City, it would be unreasonable to continue Work due to adverse weather conditions. The Winter Shutdown determination is at the sole discretion of the City. If Work has been suspended due to winter weather, the CMAR shall be responsible for maintenance and protection of the improvements and of partially completed portions of the Work until final acceptance of the project. Winter Shutdown shall be by field order, change order or original contract. If repairs and/or maintenance are needed during the Winter Shutdown, the CMAR is required to perform the repairs and/or maintenance within twenty-four (24) hours of notification from the City. If the needed repairs and/or maintenance are not addressed within the timeframe, the City will accomplish the repairs and/or maintenance and deduct the cost from monies due or become due to the CMAR.

9.3.2 The City shall provide snow removal operations on active traffic lanes only. All other snow removal and maintenance operations shall be the responsibility of the Contractor. All cost associated with snow removal and proper disposal shall be considered incidental to the work including repair of temporary surface improvements due to normal wear and snow removal operations.

9.3.3 Upon termination of the Winter Shutdown by the City, the CMAR shall have the right to complete the Work and the Project.

9.3.4 The CMAR shall be solely responsible for any and all costs incurred either as a direct or indirect result of a Winter Shutdown, and shall hold the City harmless from the same.

Article 10 - Insurance and Bonds

10.0 Insurance Requirements

10.0.1 CMAR and Subcontractors shall procure and maintain until all of their obligations have been discharged, including any warranty periods under this Agreement are satisfied, insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the Work hereunder by CMAR, its agents, representatives, employees or Subcontractors.

10.0.2 The insurance requirements herein are minimum requirements for this Agreement and in no way limit the indemnity covenants contained in this Agreement.

10.0.3 The City in no way warrants that the minimum limits contained herein are sufficient to protect CMAR from liabilities that might arise out of the performance of the work under this Agreement by CMAR, its agents, representatives, employees, or subcontractors. CMAR is free to purchase such additional insurance as may be determined necessary.

10.1 Minimum Scope and Limits of Insurance. CMAR shall provide coverage with limits of liability not less than those stated below:

10.1.1 Commercial General Liability – Occurrence Form

- General Aggregate/for this Project $2,000,000/$1,000,000
- Products – Completed Operations Aggregate $1,000,000
- Each Occurrence $1,000,000

The policy shall be endorsed to include the following additional insured language: **"The City of Flagstaff shall be named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of CMAR."**

Additional Insured Status. The insurance coverage, except Workers' Compensation, required by this Agreement, shall name the CITY, its agents, representatives, directors, officials, employees, and officers, as additional insured AND be accompanied by the required endorsement. Such evidence of additional insured status shall be subject to the approval of the Risk Management Department of the City of Flagstaff. The absence of acceptable insurance and endorsement shall be deemed a breach of this agreement.

10.1.2 Automobile Liability **-** Bodily injury and property damage for any owned, hired, and non-owned vehicles used in the performance of this Agreement.

Combined Single Limit ("CSL") $1,000,000

The policy shall be endorsed to include the following additional insured language: **"The City of Flagstaff shall be named as an additional insured with respect to liability arising out of the activities performed by, or on behalf of CMAR, including automobiles owned, leased, hired or borrowed by CMAR."**

10.1.3 Worker's Compensation: The CMAR shall carry Workers' Compensation insurance to cover obligations imposed by federal and state statutes.

10.1.4 Builders' Risk Insurance or Installation Floater $4,902,067.20

In an amount equal to the initial Contract Amount plus additional coverage equal to Contract

Amount for all subsequent change orders.

10.1.4.1 The City of Flagstaff, CMAR, Subcontractors, Design Professional and Design Professional's consultant and any others with an insurable interest in the Work shall be **Named Insureds** on the policy**.**

10.1.4.2 Coverage shall be written on an all risk, replacement cost basis and **shall include coverage for soft costs, flood and earth movement**.

10.1.4.3 Coverage shall be maintained until whichever of the following shall first occur: (i) final payment has been made; or, (ii) until no person or entity, other than the City of Flagstaff, has an insurable interest in the property required to be covered.

10.1.4.4 Coverage shall be endorsed such that the insurance shall not be canceled or lapse because of any partial use or occupancy by the City.

10.1.4.5 CMAR shall provide coverage from the time any covered property becomes the responsibility of CMAR, and continue without interruption during construction, renovation, or installation, including any time during which the covered property is being transported to the construction installation Site, or awaiting installation, whether on or off Site.

10.1.4.6 Coverage shall contain a **waiver of subrogation** against the City of Flagstaff.

10.1.4.7 CMAR is responsible for the payment of all policy deductibles.

10.1.5 Umbrella/Excess Liability Insurance not less than $2,000,000 per occurrence combined limit Bodily Injury and Property Damage, that "follows form" and applies in excess of the Commercial General Liability, Automobile Liability as required above.

10.2 Additional Insurance Requirements. The policies shall include, or be endorsed to include, the following provisions:

10.2.1 The City, its officers, officials, agents, employees and volunteers shall be additional insured to the full limits of liability purchased by CMAR even if those limits of liability are in excess of those required by this Agreement.

10.2.2 CMAR's insurance coverage shall be primary insurance and non-contributory with respect to all other available sources.

10.2.3 Coverage provided by CMAR shall not be limited to the liability assumed under the indemnification provisions of this Agreement.

10.2.4 The policies shall contain a Waiver of Subrogation against the City, its officers, officials, agents, and employees for losses arising from work performed by the CMAR for the City.

10.3 Notice of Cancellation. Each insurance policy required by the insurance provisions of this Agreement shall provide the required coverage and shall not be suspended, voided, canceled, reduced in coverage or endorsed to lower limits except after thirty (30) days prior written notice has been given to the City. Such notice shall be sent directly to the City Purchasing Department, attention Matt Luhman, Purchasing Manager, and shall be sent by certified mail, return receipt requested.

10.4 Acceptability of Insurers. Insurance is to be placed with insurers who are duly licensed companies in the State of Arizona with an "A.M. Best" rating of A-7, or as approved by the City and licensed in the State of Arizona with policies and forms satisfactory to the City. The City in no way warrants that the above-required minimum insurer rating is sufficient to protect

CMAR from potential insurer insolvency.

10.5 Verification Of Coverage

10.5.1 CMAR shall furnish the City with Certificates of Insurance (ACORD form or equivalent approved by the City) as required by this Agreement. The Certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf.

10.5.2 All Certificates of Insurance and endorsements are to be received and approved by the City before work commences. Each insurance policy required by this Agreement shall be in effect at or prior to commencement of Work under this Agreement and remain in effect for the duration of the Project. Failure to maintain the insurance policies as required by this Agreement or to provide evidence of renewal is a material breach of contract.

10.5.3 All Certificates of Insurance required by this Agreement shall be sent directly to City's Purchasing Department, attention Matt Luhman, Purchasing Manager. The City project/contract number and project description shall be noted on the Certificate of Insurance. The City reserves the right to require complete, certified copies of all insurance policies required by this Agreement at any time.

10.5.4 If the Certificate of Insurance reflecting policy coverage and cancellation notice does not conform to the City's requirements, the CMAR must:

- **Submit a current Certificate of Insurance (dated within fifteen (15) days of the payment request submittal) with each payment request form. The payment request shall be rejected if the Certificate of Insurance is not submitted with the payment request.**

10.6 Subcontractors. CMAR's Certificate(s) of Insurance shall include all Subcontractors as additional insureds under its policies. All coverages for Subcontractors shall be subject to the minimum requirements identified above.

10.7 Approval. Any modification or variation from the insurance requirements in this Agreement shall be made by the City Attorney's Office, whose decision shall be final. Such action shall not require a formal contract amendment, but may be made by administrative action.

10.8 Bonds and Other Performance Security.

10.8.1 Prior to execution of this Agreement, CMAR shall provide a performance bond and a labor and materials bond, each in an amount equal to the full amount of the GMP.

10.8.2 Each such bond shall be executed by a surety company, or companies, holding a Certificate of Authority to transact surety business in the State of Arizona, issued by the Director of the Arizona Department of Insurance. A copy of the Certificate of Authority shall accompany the bonds. The Certificate shall have been issued or updated within two (2) years prior to the execution of this Agreement.

10.8.3 The bonds shall be made payable and acceptable to the City of Flagstaff.

10.8.4 The bonds shall be written or countersigned by an authorized representative of the surety who is either a resident of the State of Arizona or whose principal office is maintained in Arizona, as by law required, and the bonds shall have attached thereto a certified copy of Power of Attorney of the signing official.

10.8.4.1 If one Power of Attorney is submitted, it shall be for twice the total GMP amount.

10.8.4.2 If two Powers of Attorney are submitted, each shall be for the total GMP amount. Personal or individual bonds are not acceptable.

10.8.5 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract Documents, CMAR shall promptly furnish a copy of the bonds or shall permit a copy to be made.

10.8.6 All bonds submitted for this project shall be provided by a company which has been rated AM Best rating of "A-,7, or better for the prior four quarters" by the A.M. Best Company.

Article 11 - Indemnification

11.1 CMAR's Liability and Indemnification.

11.1.1 To the fullest extent permitted by law, CMAR shall defend, indemnify and hold harmless the City, its agents, representatives, officers, directors, officials and employees from and against all claims, damages, losses and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or alleged to have resulted from the negligent, reckless, or intentional acts, errors, mistakes, omissions, work or services of CMAR, its employees, agents, or any tier of subcontractors in the performance of this Agreement. CMAR's duty to defend, hold harmless and indemnify the City, its agents, representatives, officers, directors, officials and employees shall arise in connection with the claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting therefrom, caused by any acts, errors, mistakes, omissions, work or services in the performance of this Agreement including any employee of CMAR or any tier of subcontractor or any other person for whose acts, errors, mistakes, omissions, work or services CMAR may be legally liable.

The amount and type of insurance coverage requirements set forth herein shall in no way be construed as limiting the scope of the indemnity in this paragraph.

Article 12 – General Provisions

12.1 Contract Documents

12.1.1 Contract Documents are as defined in Article 1. This Agreement, Plans, Standard Specifications and Details, Special Provisions, Addenda (if any) dated N/A and used as the basis for the Guaranteed Maximum Price Proposal and Guaranteed Maximum Price Proposal, as accepted by the Mayor and Council per Council Minutes 18th day of May, 2021, Performance Bond, Payment Bond, Certificates of Insurance, Construction Documents and Change Orders (if any) are by this reference made a part of this Agreement to the same extent as if set forth herein in full.

12.1.2 The Contract Documents are intended to permit the parties to complete the Work and all obligations required by the Contract Documents within the Contract Times for the Contract Price. The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted in a manner consistent with construction and design industry standards.

12.1.3 In the event of any inconsistency, conflict, or ambiguity between or among the Contract Documents, the Contract Documents shall take precedence in the order in which they are listed in the definition of Contract Documents in Article 1.

12.1.3.1 On the drawings, given dimensions shall take precedence over scaled measurements, and large-scale drawings over small-scale drawings.

12.1.3.2 Specifications take precedence over Plans.

12.1.3.3 In the event of any inconsistency, conflict, or ambiguity between the Contract Documents and the Design Phase Agreement, the Contract Documents take precedence over the Design Phase Agreement

12.1.4 The headings used in this Agreement, or any other Contract Documents, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

12.1.5 The Contract Documents form the entire agreement between City and CMAR and by incorporation herein are as fully binding on the parties as if repeated herein. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.

12.2 Amendments. The Contract Documents may not be changed, altered, or amended in any way except in writing signed by a duly authorized representative of each party.

12.3 Time is of the Essence. City and CMAR mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents.

12.4 Mutual Obligations. City and CMAR commit at all times to cooperate fully with each other, and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents.

12.5 Cooperation and Further Documentation. CMAR agrees to provide the City such other duly executed documents as shall be reasonably requested by the City to implement the intent of the Contract Documents.

12.6 Assignment. CMAR shall not, without the written consent of the City, assign, transfer or sublet any portion of this Agreement or part of the Work or the obligations required by the Contract Documents. Notwithstanding the City's consent to assignment, CMAR as Assignor, and the Assignee shall both remain liable under all rights, obligations, terms, and conditions of this Agreement.

12.7 Successorship. CMAR and City intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

12.8 Third Party Beneficiary. Nothing under the Contract Documents shall be construed to give any rights or benefits in the Contract Documents to anyone other than the City and CMAR, and all duties and responsibilities undertaken pursuant to the Contract Documents shall be for the sole and exclusive benefit of City and CMAR and not for the benefit of any other party.

12.9 Governing Law. This Agreement and all Contract Documents shall be deemed to be made under, and shall be construed, in accordance with and governed by the laws of the State of Arizona without regard to the conflicts or choice of law provisions thereof. Any action to enforce any provision of this Agreement or to obtain any remedy with respect hereto shall be brought in the Superior Court, Coconino County, Arizona, and for this purpose, each party hereby expressly and irrevocably consents to the jurisdiction and venue of such Court.

12.10 Severability. If any provision of the Contract Documents or the application thereof to any person or circumstance shall be invalid, illegal or unenforceable to any extent, the remainder of the Contract Documents and the application thereof shall not be affected and shall be enforceable to the fullest extent permitted by law.

12.11 Compliance with All Laws. CMAR will comply with all applicable Federal, State, County and City laws, regulations and policies. CMAR understands and acknowledges the applicability of

the Americans with Disabilities Act, the Immigration Reform and Control Act of 1986 and the Drug Free Workplace Act of 1989. CMAR agrees to comply with these laws in performing the Contract Documents and to permit the City to verify such compliance.

12.12 Legal Requirements. CMAR shall perform all Work in accordance with all Legal Requirements and shall provide all notices applicable to the Work as required by the Legal Requirements.

12.13 Construction Documents. It is not CMAR's responsibility to ascertain that the Construction Documents are in accordance with applicable laws, statutes, ordinances, building codes, rules and regulations. However, if CMAR recognizes that portions of the Construction Documents are at variance therewith, CMAR shall promptly notify the Design Professional and City in writing, describing the apparent variance or deficiency.

12.14 Independent Contractor. CMAR is and shall be an independent contractor. Any provisions in the Contract Documents that may appear to give the City the right to direct CMAR as to the details of accomplishing the Work or to exercise a measure of control over the Work means that CMAR shall follow the wishes of the City as to the results of the Work only. These results shall comply with all applicable laws and ordinances.

12.15 The City's Right of Cancellation. All parties hereto acknowledge that this Agreement is subject to cancellation by the City pursuant to the provisions of Section 38-511, Arizona Revised Statutes.

12.16 Survival. All warranties, representations and indemnifications by CMAR shall survive the completion or termination of this Agreement.

12.17 Covenant against Contingent Fees. CMAR warrants that no person has been employed or retained to solicit or secure this Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, and that no member of the City Council, or any employee of City has any interest, financially, or otherwise, in the firm. For breach or violation of this warrant, the City shall have the right to annul this Agreement without liability, or at its discretion to deduct from the Contract Price or consideration, the full amount of such commission, percentage, brokerage, or contingent fee.

12.18 No Waiver. The failure of either party to enforce any of the provisions of the Contract Documents or to require performance of the other party of any of the provisions hereof shall not be construed to be a waiver of such provisions, nor shall it affect the validity of the Contract Documents or any part thereof, or the right of either party to thereafter enforce each and every provision.

12.19 Notice.

12.19.1 Many notices or demands required to be given, pursuant to the terms of this Agreement, may be given to the other Party in writing, delivered in person, sent by facsimile transmission, emailed, deposited in the United States mail, postage prepaid, or deposited with any commercial air courier or express service at the addresses set forth below, or to such other address as the Parties may substitute by written notice, given in the manner prescribed in this paragraph. However, notices of termination, notices of default and any notice regarding warranties shall be sent via registered or certified mail, return receipt requested at the address set forth below ***and*** to legal counsel for the party to whom the notice is being given.

to CMAR:

Harvey K. Heckethorn (Corkey), President
C and E Paving & Grading, L.L.C.
P.O. Box 551
Flagstaff, Arizona 86002
candepaving@aol.com

to City:

City of Flagstaff
211 West Aspen Avenue
Flagstaff, Arizona 86001
Attn: Emily Markel, Procurement Specialist
Phone: (928) 213-2276
emarkel@flagstaffaz.gov

With a copy to:

City of Flagstaff
3200 W. Route 66
Flagstaff, Arizona 86001
Attn: Jarrett Nelson, Project Manager
Phone: (928) 213-2112
Jarrett.nelson@flagstaffaz.gov

Design Professional:

Julie Leid
Peak Engineering, Inc.
110 North Agassiz
Flagstaff, Arizona 86001
julie@peakegr.com

or to such other place and with such other copies as either Party may designate as to itself by written notice to the other Party. Rejection, any refusal to accept or the inability to deliver because of changed address of which no notice was given shall be deemed to be receipt of the notice as of the date of such rejection, refusal or inability to deliver.

12.19.2 Notices Related to Payment, Securities-in-lieu, Bonds. Any notice, request, instruction or other document to be given under this Agreement by any party to any other party related to payment, securities-in-lieu, bonds or other instrument securing the performance of this Agreement, including but not limited to, bid bonds, performance bonds, payment bonds or letters of credit, shall be in writing and shall be delivered in person or by courier or facsimile transmission or mailed by certified mail, postage prepaid, return receipt requested and shall be deemed given upon (a) confirmation of receipt of a facsimile transmission, (b) confirmed delivery by hand or standard overnight mail or (c) upon the expiration of three (3) business days after the day mailed by certified mail, as follows:

to Contractor:

Harvey K. Heckethorn (Corkey), President
C and E Paving & Grading, L.L.C.
P.O. Box 551
Flagstaff, Arizona 86002
candepaving@aol.com

to City:

City of Flagstaff
211 West Aspen Avenue
Flagstaff, Arizona 86001
Attn: Emily Markel, Procurement Specialist
Phone: (928) 213-2276
emarkel@flagstaffaz.gov

With copies to:

City of Flagstaff
3200 W. Route 66
Flagstaff, Arizona 86001
Attn: Jarrett Nelson, Project Manager
Phone: (928) 213-2112
Jarrett.nelson@flagstaffaz.gov

or to such other place and with such other copies as either Party may designate as to itself by written notice to the other Party. Rejection, any refusal to accept or the inability to deliver because of changed address of which no notice was given shall be deemed to be receipt of the notice as of the date of such rejection, refusal or inability to deliver.

12.20 Confidentiality of Plans and Specifications

12.20.1 Any plans or specifications regarding this Project shall be for official use only. CMAR shall not share them with others except as required to fulfill the obligations of this Agreement with the City.

12.20.2 All Record Documents, Shop Drawings and other plans or drawings prepared or submitted by CMAR shall include the following language: “These plans are for official use only and may not be shared with others except as required to fulfill the obligations of the Street Maintenance Program 2011 Project Agreement with the City of Flagstaff.”

12.21 CMAR and Subcontractor Employee Security Inquiries. The parties acknowledge that security measures required in this Section are necessary in order to preserve and protect the public health, safety and welfare. In addition to the specific measures set forth below, CMAR shall take such other measures, as it deems reasonable and necessary to further preserve and protect the public health, safety and welfare.

12.21.1 Security Inquiries. CMAR acknowledges that all of the employees that it provides pursuant to this Agreement shall be subject to background and security checks and screening ("Security Inquiries"). CMAR shall perform all such security inquiries and shall make the results available to City for all employees considered for performing work (including supervision and oversight) under this Agreement. City may make further security inquiries. Whether or not further security inquires are made by City, City may, at its sole, absolute and unfettered discretion, accept or reject any or all of the employees proposed by CMAR for performing work under this Agreement. Employees rejected by City for performing services under this Agreement may still be engaged by CMAR for other work not involving the City. An employee rejected for work under this Agreement shall not be proposed to perform work under other City Agreements or engagements without City's prior approval.

12.21.2 Criteria for Evaluating Security Inquiries. Once formally adopted by City, criteria for excluding an individual from performing work under this Agreement shall be communicated by City to CMAR and used by CMAR as a factor in making its decision. Prior to such adoption, CMAR shall use its best judgment in making its decision using, among other criteria, applicable law, administrative regulations of federal, state and local agencies concerned with work performed under this Agreement, specific local concerns that deal with the specific work and work location(s) of the Project, and standards used by City in evaluating its own personnel.

12.21.3 Additional City Rights Regarding Security Inquiries. In addition to the foregoing, City reserves the right to: (1) have an employee/prospective employee of CMAR be required to provide fingerprints and execute such other documentation as may be necessary to obtain criminal justice information pursuant to A.R.S. § 41-1750(G)(4); (2) act on newly acquired information whether or not such information should have been previously discovered; (3) unilaterally change its standards and criteria relative to the acceptability of CMAR 's employees and/or prospective employees; and, (4) object, at any time and for any reason, to an employee of CMAR performing work (including supervision and oversight) under this Agreement.

12.21.4 Background and Security-Contracts and Subcontracts. CMAR shall include the security inquiry terms of this Section for employee background and security checks and screening in all contracts and subcontracts for work performed under this Agreement, including supervision and oversight.

12.21.5 Materiality of Security Inquiry Provisions. The security inquiry provisions of this Agreement, as set forth above, are material to City 's entry into this Agreement and any breach thereof by CMAR may, at City's sole and unfettered discretion, be considered to be a breach of contract of sufficient magnitude to terminate this Agreement. Such termination shall subject CMAR to liability for its breach of this Agreement.

12.22 Hazardous Materials

12.22.1 Unless included in the Work, if CMAR encounters material on the Site which it reasonably believes to contain asbestos, polychlorinated biphenyl (PCB), or other hazardous substances or materials regulated by applicable law, it shall immediately stop work and report the condition to the City.

12.22.2 If the material is found to contain asbestos, PCB or other hazardous substances or materials regulated by applicable law, CMAR shall not resume work in the affected area until the material has been abated or rendered harmless. CMAR and the City may agree, in writing, to continue work in non-affected areas on the Site.

12.22.3 An extension of Contract Time may be granted in accordance with Article 6.

12.22.4 CMAR shall comply with all applicable laws/ordinances and regulations and take all appropriate health and safety precautions upon discovery.

12.23 Computer Systems. CMAR shall warrant fault-free performance in the processing of date and date-related data including, but not limited to calculating, comparing, and sequencing by all equipment and software products, individually and in combination, from the commencement of the Work. Fault-free performance shall include the manipulation of data when dates are in the 20th or 21st centuries and shall be transparent to the user. Failure to comply with "Year 2000" requirements shall be considered a breach of this Agreement.

12.24 Traffic Control. CMAR shall comply with all provisions of the latest version of the Manual on Uniform Traffic Control Devices and any other traffic control provisions as may be provided in the technical specifications.

12.25 No Boycott of Israel

12.25.1 Pursuant to A.R.S. §§ 35-393 and 35-393.01, if a Party has over ten (10) employees and the

Agreement is worth at least one-hundred thousand dollars and no cents ($100,000), the Party shall certify that it is not currently engaged in, and agrees, for the duration of the Agreement, will not engage in a boycott of Israel.

12.26 Forced Labor of Ethnic Uyghurs

12.26.1 If CMAR engages in for-profit activity and has ten (10) or more employees, pursuant to A.R.S. §35-394, CMAR certifies that it does not currently, and agrees for the duration of the contract that it will not, use: 1) the forced labor of ethnic Uyghurs in the People's Republic of China; 2) any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China; and 3) any contractors, subcontractors or suppliers that use the forced labor or any goods or services produced by the forced labor of ethnic Uyghurs in the People's Republic of China. If CMAR becomes aware during the term of the Contract that the company is not in compliance with the written certification, CMAR shall notify the Owner within five business days after becoming aware of the noncompliance. If CMAR does not provide the Owner with a written certification that CMAR has remedied the noncompliance within 180 days after notifying the Owner of the noncompliance, this Contract terminates, except that if the Contract termination date occurs before the end of the remedy period the Contract terminations on the Contract termination date.

THE CITY OF FLAGSTAFF, ARIZONA

Street Maintenance Program 2021, 2022, 2023

Project No. ST33214 & ST30731, Agreement No. 2021-30

IN WITNESS WHEREOF, two (2) identical counterparts of this Agreement each of which shall for all purposes be deemed an original thereof, have been duly executed by the parties herein above named, on the date and year first above written.

CMAR agrees that this Agreement, as awarded, is for the stated Work and understands that payment for the total Work shall be made on the basis of the indicated amount(s), per the terms and conditions of this Agreement.

Guaranteed Maximum Price

(Four million nine hundred two thousand sixty-seven dollars and twenty cents)

$4,902,067.20

THE CITY OF FLAGSTAFF, ARIZONA

By:_____
Greg Clifton, City Manager

C AND E PAVING & GRADING, L.L.C.

By:_____

Title:_____

(Corporate Seal)

ATTEST:

_____
City Clerk

_____
ATTEST: (Signature and Title)

APPROVED AS TO FORM:

_____
City Attorney

EXHIBIT A - PROJECT DESCRIPTION

The general project scope includes the following work:

The Street Maintenance Program includes street overlay, chip seal, micro seal and crack sealing construction to preserve and maintain existing asphalt street and parking lot pavements. The contract work also includes removal and replacement of curb returns and sidewalks at many locations on the streets overlaid to bring these streets into compliance with the Americans with Disabilities Act ("ADA"). Traffic signal detection modifications may be required where the work disturbs existing detection equipment. Utility adjustments and pavement marking are also included in the work.

The overlay streets are selected after evaluation of the street condition using pavement management software owned by the Owner. One half of the City street pavements are evaluated and ranked each year. Each street pavement is assigned an overall condition index ("OCI") based on the type and severity of the distress observed. A pavement that has no distress is given an OCI of 100. Each pavement distress such as cracking or roughness reduces the street's OCI. The street pavements are ranked by OCI and the pavements exhibiting the most severe distress are programmed for resurfacing with asphaltic concrete overlays as budget allows.

The goal of the Street Maintenance Program is to use the available funds in the most efficient manner to lengthen the service life of the City street pavements and avoid costly pavement reconstruction. The ADA improvements provide improved access for disabled citizens and visitors along existing streets and provide compliance with Federal requirements.

The Street Maintenance Program provides surface treatments as required to preserve and maintain pavement condition on the 664 lane miles of City streets. The ADA improvements provide improved access for disabled citizens and visitors along existing streets and provide compliance with Federal requirements.

Contractors will have civil construction challenges typical to Flagstaff. The successful contractor/firm/team selected for this project is expected to have significant demonstrated experience in both the type of work required and constructing facilities in colder, high altitude climates with a limited construction season.

EXHIBIT B – APPROVED GMP PROPOSAL

See attachment to contract (separate file)

EXHIBIT C – TECHNICAL SPECIFICATIONS

See attachment to contract (separate file)

1. Special Provisions
2. 2023 Streets – Mill & Overlay Plans

GMP SUMMARY 2023

Phase 2- Overlay

STREET MAINTENANCE PROGRAM

PROJECT NO: 03-18005

GMP SUMMARY

PROJECT NAME:	City of Flagstaff Street Maintenance Program 2023
PROJECT NUMBER:	03-18005 **(PHASE 2 / OVERLAY)**
LAST UPDATED:	
OWNER(S):	City of Flagstaff
BILLNG ADDRESS:	211 West Aspen Avenue
JOB SITE ADDRESS:	various locations -
OWNER PHONE:	(928) 779-7685

C and E
PAVING & GRADING L.L.C.

GMP SUMMARY					
A	COST OF THE WORK (LABOR, MATERIALS, EQUIPMENT)				$3,874,348.01
B	CM@RISK'S CONTINGENCY				$20,000.00
	INDIRECT COSTS			RATE	$3,894,348.01
C	CONSTRUCTION FEE			4.8%	$234,339.23
D	GENERAL CONDITIONS			9.8%	$478,442.59
	D1	PAYMENT AND PERFORMANCE BOND	$30,659.38	0.628%	
	D2	INSURANCE	$60,537.63	1.24%	
E	SALES TAX		(9.181)	.05631577	$274,937.38
			F. TOTAL GMP		$4,882,067.20
			G. OWNER'S CONTINGENCY		$20,000.00
			H. CONTRACT AMOUNT		$4,902,067.20

CITY OF FLAGSTAFF
GENERAL CONDITIONS ESTIMATE

PROJECT NAME:	City of Flagstaff Street Maintenance Program - 2023
PROJECT NUMBER:	03-18005 **(PHASE 2 / Overlay)**
LAST UPDATED:	
OWNER(S):	City of Flagstaff
BILLNG ADDRESS:	211 West Aspen Avenue
JOB SITE ADDRESS:	various locations
OWNER PHONE:	(928) 779-7685

C and E
PAVING & GRADING L.L.C.

PHASE #		CATEGORY DESCRIPTION	NOTES / SCOPE	BUDGET
General Requirements				
1		VEHICLE / FUEL ALLOWANCE		$63,668.75
1		PROJECT MANAGER		$85,807.70
1		SUPERINTENDENT		$69,703.80
1		OFFICE PERSONNEL		$11,862.59
1		OFFICE SUPPLIES AND EQUIPMENT		$3,449.10
1		SITE MECHANIC & SERVICE TRUCK		$40,315.96
1		TEMP SANITARY FACILITIES		$1,950.00
1		ADDITIONAL PUBLIC NOTICES AND DELIVERY/ LIME / CONCRETE PLASTIC		$5,185.34
		SURVEY		$2,806.50
1		MOBILIZATION		$41,470.00
1		WARRANTY RESERVE	1.25% OF PROJECT	$61,025.84
1		GL INSURANCE	1.24% OF PROJECT	$60,537.63
1		PERFORMANCE BOND	.0062827% OF PROJECT	$30,659.38
TOTAL				$478,442.59

COST SCHEDULE OF VALUES

2023 COF STREETS

PHASE 2 / OVERLAY *Schedule of Values*

NO.	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
1	CRACK SEALING (MILL & OVERLAY)	26.3	T	$5,000.00	**$131,500.00**
2	MILL AND FILL LARGE THERMAL CRACKS	10,200.4	LF	$16.50	**$168,306.60**
3	LOWER MANHOLE FRAME & COVER FOR MILLING OPERATIONS	50.0	EA	$575.00	**$28,750.00**
4	LOWER WATER VALVE BOX FOR MILLING OPERATIONS	67.0	EA	$575.00	**$38,525.00**
5	REMOVE AND REPLACE PAVEMENT (4" AC/6"ABC [C-3/4"]) PATCH	5,091.4	SY	$84.50	**$430,223.30**
6	REMOVE AND REPLACE CONCRETE DRIVEWAY 8"PCC (INCLUDING. 6"ABC)	832.0	SF	$36.14	**$30,068.48**
7	REMOVE AND REPLACE CURB AND GUTTER (VERTICAL- INCLUDING. 3"ABC)	279.0	LF	$55.10	**$15,372.90**
8	REMOVE AND REPLACE SIDEWALK (INCLUDING. 3"ABC)	2,927.7	SF	$14.00	**$40,987.80**
9	REMOVE AND DISPOSE OVER SIZED CONCRETE MANHOLE COLLAR	5.0	EA	$911.00	**$4,555.00**
10	REMOVE AND DISPOSE OVER SIZED CONCRETE VALVE CAN COLLAR	16.0	EA	$902.50	**$14,440.00**
11	REMOVE RAMP & INSTALL DETECTABLE WARNING (RETROFIT DOMES) INCLUDING 3" ABC	18.0	EA	$2,833.00	**$50,994.00**
12	REMOVE RAMP & INSTALL DETECTABLE WARNING (PARALLEL RAMP AND DOMES) INCLUDING 3" ABC	2.3	EA	$3,050.00	**$7,015.00**
13	PAVEMENT MILLING (FULL WIDTH)	80,898.2	SY	$3.75	**$303,368.25**
14	TACK COAT (SS-1H)	17.0	T	$3,436.00	**$58,412.00**
15	MODIFIED ASPHALTIC CONCRETE (1/2" MIX)	4,296.0	T	$153.88	**$661,068.48**
16	MODIFIED ASPHALTIC CONCRETE (3/4" MIX) - DOES NOT INCLUDE REBUILD OR REPAVE STREETS	4,805.1	T	$153.88	**$739,408.79**
17	SUBGRADE STABILIZATION-OVER EX & 12" ABC ON BIAXIAL GEOGRID (ALLOWANCE)	1.0	LS	$125,000.00	**$125,000.00**
18	FULL STREET REBUILD (3"AC [C-3/4"]/6" ABC)-LOWER COCONINO AVENUE	8,037.3	SY	$54.00	**$434,014.20**
19	REMOVE & REPLACE AC (3"AC [C-3/4"]/Compacted Native)-E COYOTE LN	1,082.5	SY	$48.60	**$52,609.50**
20	ADJUST MANHOLE FRAME & COVER (CITY DTL. 9-03-062)	56.0	EA	$668.00	**$37,408.00**
21	ADJUST WATER VALVE FRAME AND COVER TO FINISHED GRADE (REMOVE, REPLACE WITH NEW HARDWARE TO NUT)	7.0	EA	$1,070.00	**$7,490.00**
22	ADJUST SEWER CLEANOUT, BLOWOFFS AND SURVEY HANDHOLES (CITY DTL. 9-03-062)	1.0	EA	$628.00	**$628.00**
23	ADJUST METER BOX IN SIDEWALK	3.0	EA	$650.00	**$1,950.00**
24	REMOVE AND REPLACE SURVEY MONUMENTS	18.0	EA	$344.00	**$6,192.00**
25	TRAFFIC CONTROL	1.0	LS	$397,475.00	**$397,475.00**
26	CONSTRUCTION SURVEY	1.0	LS	$16,300.00	**$16,300.00**
27	STRIPING AND MARKING	1.0	LS	$72,285.71	**$72,285.71**

TOTAL COST: **$3,874,348.01**

BID NO.	BID ITEM	DESCRIPTION	FORECAST QUANTITIES	UNIT	UNIT COST	UNIT COST FORECAST	TOTAL COST FORECAST
1	CRACK SEALING (MILL & OVERLAY)	SUBCONTRACTOR	26.3	T	$5,000.00	$131,500.00	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$0.00	$0.00	
		LABOR			$0.00	$0.00	
			26.3	T	$5,000.00	Total:	$131,500.00
2	MILL AND FILL LARGE THERMAL CRACKS	SUBCONTRACTOR	10,200.4	LF	$0.00	$0.00	
		MATERIALS			$3.13	$31,927.25	
		EQUIPMENT			$10.57	$107,818.23	
		LABOR			$2.80	$28,561.12	
			10200.4	LF	$16.50	Total:	$168,306.60
3	LOWER MANHOLE FRAME & COVER FOR MILLING OPERATIONS	SUBCONTRACTOR	50.0	EA	$525.00	$26,250.00	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$20.00	$1,000.00	
		LABOR			$30.00	$1,500.00	
			50.0	EA	$575.00	Total:	$28,750.00
4	LOWER WATER VALVE BOX FOR MILLING OPERATIONS	SUBCONTRACTOR	67.0	EA	$525.00	$35,175.00	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$20.00	$1,340.00	
		LABOR			$30.00	$2,010.00	
			67.0	EA	$575.00	Total:	$38,525.00
5	REMOVE AND REPLACE PAVEMENT (4" AC/6"ABC [C-3/4"]) PATCH	SUBCONTRACTOR	5,091.4	SY	$0.00	$0.00	
		MATERIALS			$34.05	$173,362.17	
		EQUIPMENT			$33.46	$170,358.24	
		LABOR			$16.99	$86,502.89	
			5091.4	SY	$84.50	Total:	$430,223.30
6	REMOVE AND REPLACE CONCRETE DRIVEWAY 8"PCC (INCLUDING. 6"ABC)	SUBCONTRACTOR	832.0	SF	$14.91	$12,405.12	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$7.23	$6,015.36	
		LABOR			$14.00	$11,648.00	
			832.0	SF	$36.14	Total:	$30,068.48

BID NO.	BID ITEM	DESCRIPTION	FORECAST QUANTITIES	UNIT	UNIT COST	UNIT COST FORECAST	TOTAL COST FORECAST
7	REMOVE AND REPLACE CURB AND GUTTER (VERTICAL-INCLUDING. 3"ABC)	SUBCONTRACTOR	279.0	LF	$28.88	$8,057.52	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$12.22	$3,409.38	
		LABOR			$14.00	$3,906.00	
			279.0	LF	$55.10	Total:	$15,372.90
8	REMOVE AND REPLACE SIDEWALK (INCLUDING. 3"ABC)	SUBCONTRACTOR	2,927.70	SF	$7.88	$23,070.28	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$3.12	$9,134.42	
		LABOR			$3.00	$8,783.10	
			2,927.70	SF	$14.00	Total:	$40,987.80
9	REMOVE AND DISPOSE OVER SIZED CONCRETE MANHOLE COLLAR	SUBCONTRACTOR	5.0	EA	$861.00	$4,305.00	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$0.00	$0.00	
		LABOR			$50.00	$250.00	
			5.0	EA	$911.00	Total:	$4,555.00
10	REMOVE AND DISPOSE OVER SIZED CONCRETE VALVE CAN COLLAR	SUBCONTRACTOR	16.00	EA	$852.50	$13,640.00	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$0.00	$0.00	
		LABOR			$50.00	$800.00	
			16.00	EA	$902.50	Total:	$14,440.00
11	REMOVE RAMP & INSTALL DETECTABLE WARNING (RETROFIT DOMES) INCLUDING 3" ABC	SUBCONTRACTOR	18.00	EA	$1,732.50	$31,185.00	
		MATERIALS			$400.00	$7,200.00	
		EQUIPMENT			$550.00	$9,900.00	
		LABOR			$150.50	$2,709.00	
			18.00	EA	$2,833.00	Total:	$50,994.00
12	REMOVE RAMP & INSTALL DETECTABLE WARNING (PARALLEL RAMP AND DOMES) INCLUDING 3" ABC	SUBCONTRACTOR	2.30	EA	$844.57	$1,942.51	
		MATERIALS			$800.00	$1,840.00	
		EQUIPMENT			$900.00	$2,070.00	
		LABOR			$505.43	$1,162.49	
			2.30	EA	$3,050.00	Total:	$7,015.00

BID NO.	BID ITEM	DESCRIPTION	FORECAST QUANTITIES	UNIT	UNIT COST	UNIT COST FORECAST	TOTAL COST FORECAST
13	PAVEMENT MILLING (FULL WIDTH)	SUBCONTRACTOR	80,898	SY	$0.00	$0.00	
		MATERIALS			$0.01	$808.98	
		EQUIPMENT			$3.41	$275,862.86	
		LABOR			$0.33	$26,696.41	
			80,898	SY	$3.75	Total:	$303,368.25
14	TACK COAT (SS-1H)	SUBCONTRACTOR	17	T	$3,076.00	$52,292.00	
		MATERIALS			$360.00	$6,120.00	
		EQUIPMENT			$0.00	$0.00	
		LABOR			$0.00	$0.00	
			17	T	$3,436.00	Total:	$58,412.00
15	MODIFIED ASPHALTIC CONCRETE (1/2" MIX)	SUBCONTRACTOR	4,296.0	T	$0.00	$0.00	
		MATERIALS			$127.00	$545,592.00	
		EQUIPMENT			$16.00	$68,736.00	
		LABOR			$10.88	$46,740.48	
			4,296.0	T	$153.88	Total:	$661,068.48
16	MODIFIED ASPHALTIC CONCRETE (3/4" MIX) - DOES NOT INCLUDE REBUILD OR REPAVE STREETS	SUBCONTRACTOR	4,805.10	T	$0.00	$0.00	
		MATERIALS			$127.00	$610,247.70	
		EQUIPMENT			$16.00	$76,881.60	
		LABOR			$10.88	$52,279.49	
			4,805.10	T	$153.88	Total:	$739,408.79
17	SUBGRADE STABILIZATION-OVER EX & 12" ABC ON BIAXIAL GEOGRID (ALLOWANCE)	SUBCONTRACTOR	1.0	LS	$0.00	$0.00	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$0.00	$0.00	
		LABOR			$0.00	$0.00	
			1.00	LS	$125,000.00	Total:	$125,000.00
18	FULL STREET REBUILD (3"AC [C-3/4"]/6" ABC)-LOWER COCONINO AVENUE	SUBCONTRACTOR	8,037.30	SY	$0.00	$0.00	
		MATERIALS			$26.29	$211,300.62	
		EQUIPMENT			$19.71	$158,415.18	
		LABOR			$8.00	$64,298.40	
			8,037.30	SY	$54.00	Total:	$434,014.20

BID NO.	BID ITEM	DESCRIPTION	FORECAST QUANTITIES	UNIT	UNIT COST	UNIT COST FORECAST	TOTAL COST FORECAST
19	REMOVE & REPLACE AC (3"AC [C-3/4"]/Compacted Native)-E COYOTE LN	SUBCONTRACTOR	1,082.50	SY	$0.00	$0.00	
		MATERIALS			$19.69	$21,314.43	
		EQUIPMENT			$20.67	$22,375.28	
		LABOR			$8.24	$8,919.80	
			1,082.50	SY	$48.60	Total:	$52,609.50
20	ADJUST MANHOLE FRAME & COVER (CITY DTL. 9-03-062)	SUBCONTRACTOR	56.00	EA	$598.50	$33,516.00	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$0.00	$0.00	
		LABOR			$69.50	$3,892.00	
			56.00	EA	$668.00	Total:	$37,408.00
21	ADJUST WATER VALVE FRAME AND COVER TO FINISHED GRADE (REMOVE, REPLACE WITH NEW HARDWARE TO NUT)	SUBCONTRACTOR	7.00	EA	$703.50	$4,924.50	
		MATERIALS			$300.00	$2,100.00	
		EQUIPMENT			$16.50	$115.50	
		LABOR			$50.00	$350.00	
			7.00	EA	$1,070.00	Total:	$7,490.00
22	ADJUST SEWER CLEANOUT, BLOWOFFS AND SURVEY HANDHOLES (CITY DTL. 9-03-062)	SUBCONTRACTOR	1.00	EA	$578.00	$578.00	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$0.00	$0.00	
		LABOR			$50.00	$50.00	
			1.00	EA	$628.00	Total:	$628.00
23	ADJUST METER BOX IN SIDEWALK	SUBCONTRACTOR	3.0	EA	$650.00	$1,950.00	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$0.00	$0.00	
		LABOR			$0.00	$0.00	
			3.0	EA	$650.00	Total:	$1,950.00
24	REMOVE AND REPLACE SURVEY MONUMENTS	SUBCONTRACTOR	18.0	EA	$294.00	$5,292.00	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$0.00	$0.00	
		LABOR			$50.00	$900.00	
			18.0	EA	$344.00	Total:	$6,192.00

BID NO.	BID ITEM	DESCRIPTION	FORECAST QUANTITIES	UNIT	UNIT COST	UNIT COST FORECAST	TOTAL COST FORECAST
25	TRAFFIC CONTROL	SUBCONTRACTOR	1.00	LS	$334,956.00	$334,956.00	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$0.00	$0.00	
		LABOR			$62,519.00	$62,519.00	
			1.00	LS	$397,475.00	Total:	$397,475.00
26	CONSTRUCTION SURVEY	SUBCONTRACTOR	1.00	LS	$14,300.00	$14,300.00	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$0.00	$0.00	
		LABOR			$2,000.00	$2,000.00	
			1.00	LS	$16,300.00	Total:	$16,300.00
27	STRIPING AND MARKING	SUBCONTRACTOR	1	LS	$72,285.71	$72,285.71	
		MATERIALS			$0.00	$0.00	
		EQUIPMENT			$0.00	$0.00	
		LABOR			$0.00	$0.00	
			1.00	LS	$72,285.71	Total:	$72,285.71

Total: $3,874,348.01

LIST OF PLANS
AND SPECIFICATIONS

Flagstaff Street Maintenance Program - 2023
Peak Engineering, Inc. (928) 774-4046

Project No: 03-18005

PHASE 2 / OVERLAY

Drawing No.	Drawing Title	Release Date
C1.0	Cover Sheet	August 2023
C1.1	Notes & Legend	August 2023
C1.2	Details	August 2023
C2.0	Mill & Overlay	August 2023
C2.1	Mill & Overlay	August 2023
C3.0	Edge Improvements	August 2023
C4.0	Improvement Schedule	August 2023

Maricopa Association of Governments Uniform Standard Specifications and Details for Public Works Construction General Provisions

City of Flagstaff Amendments to Maricopa Association of Governments General Provisions

Peak Engineering, Inc. Special Provisions

C and E
PAVING & GRADING
L.L.C.

LIST

OF

CLARIFICATIONS

AND

ASSUMPTIONS

Project No: 03-18005

Clarifications and Assumptions

City of Flagstaff Street Maintenance Program – 2023

1. It is assumed that City of Flagstaff team members will assist the contractor in identifying and marking the stop and start areas for pavement milling and chip seal.
2. If cross-street approaches are to be overlaid, the Engineer shall outline the location and extent of work on cross-streets prior to beginning the work.
3. We realize that no potable water will be utilized on this project. We will need to obtain a permit (no fee) at the Wildcat Hill Waste Water Treatment Plant and will be responsible for complying with all permit requirements.
4. The June 2023 ADOT Index was used to construct the GMP Asphalt prices for this project. Adjustments may have to be made during construction with variances in the Index.
5. It is assumed that during the term of this contract; 2019 MAG and C.O.F. Specifications will govern.
6. The City of Flagstaff will furnish all necessary quality control testing for this project.
7. GMP was built using engineers estimated quantities for striping. No revisions to striping were discussed. Any future revisions will be negotiated.
8. No obliteration of existing striping is included in this GMP.
9. No Thermo will be used on Chip Seal Streets.

    a) All four-inch Double Solid Yellow will be "Paint"
    b) All 18-inch Preformed Stop Bars will be "Thermo"
    c) All four-inch Broken White will be "Paint"
    d) All four-inch Solid and four-inch Broken Yellow will be "Paint"
    e) Solid White Edge Line will be "Paint"
    f) Six-inch Solid White Bike Lane Line "Paint"
    g) Painted Bike Assembly will be "Thermo"
    h) Preformed Turn Arrows will be "Thermo"
    i) Solid White Lane Lines will be "Paint"
    j) Six-inch Dashed Bike Lane will be "Paint"
    k) Piano Key Crosswalks will be "Thermo"
10. Monuments not found will not be surveyed or reset.
11. City of Flagstaff to provide monument assigned point number and NAVD88 elevation for found monuments.

PROJECT

MASTER

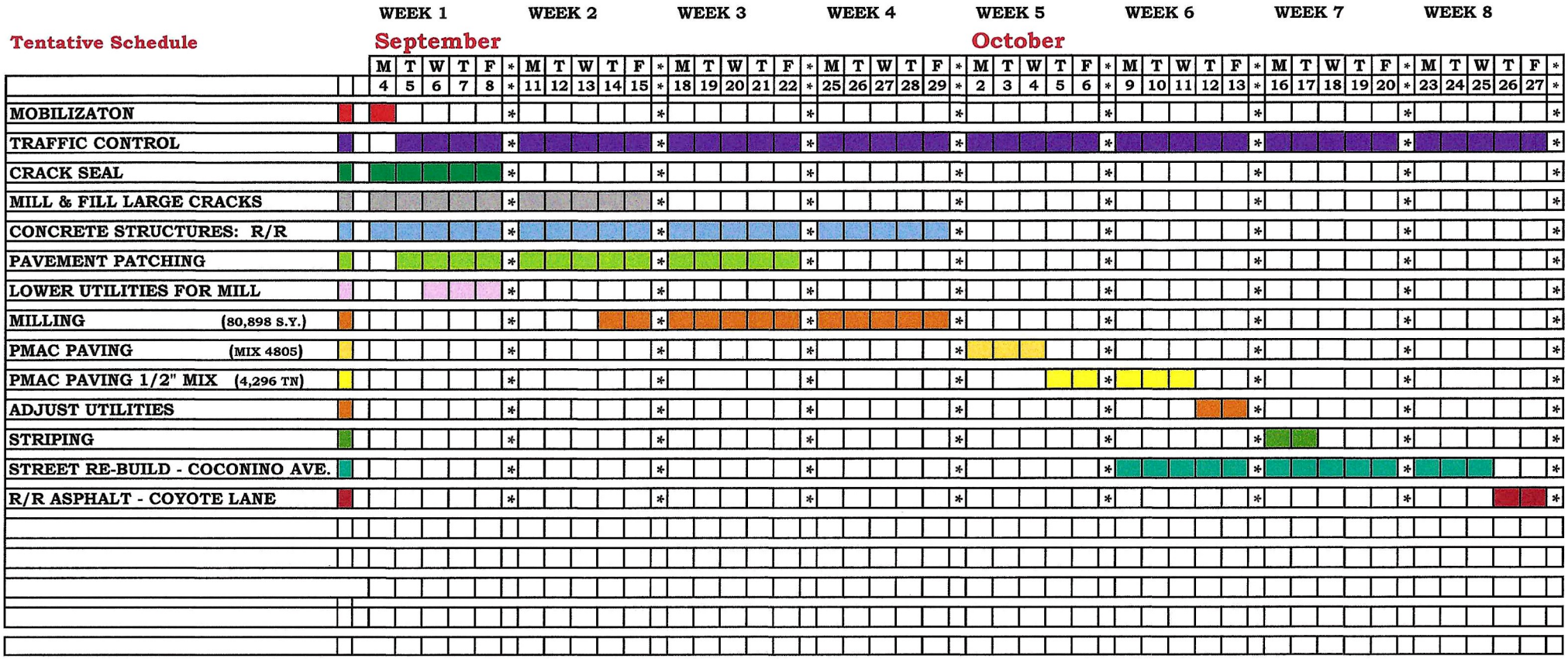
SCHEDULE

C and E Paving & Grading L.L.C.

CITY OF FLAGSTAFF
2023 CMAR MAINTENANCE PROGRAM
03-18005

OVERLAY / PHASE TWO

Tentative Schedule



SPECIAL PROVISIONS

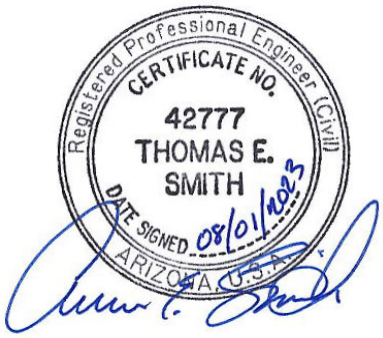
City of Flagstaff, Arizona

2023 Street Maintenance Program

City of Flagstaff Project Number:

03-18005





Prepared by:
Peak Engineering, Inc.
201 E. Birch Ave. Suite 3
Flagstaff, AZ 86001
PH: 928-774-4046
www.peakegr.com
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Peak Project No: 23COF04

August 1, 2023

Final 2 Submittal

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Appendix B	As-built Plans/Record Drawing Checklist

MAG UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION 2023 REVISION TO THE 2020 EDITION, CITY OF FLAGSTAFF GENERAL PROVISIONS, AND CITY OF FLAGSTAFF ENGINEERING STANDARDS ARE HEREBY AMENDED TO INCLUDE THE FOLLOWING:

PART 100 – GENERAL CONDITIONS

SECTION 104 SCOPE OF WORK

104.1.1 GENERAL:

(Revise to include the following)

The Project includes milling and overlay (M&O) of various City of Flagstaff streets in the western half of the City, roadway rebuild of Lower Coconino Ave. and repaving of E. Coyote Lane. In addition, curb, gutter and sidewalk may be repaired or replaced where hazards or drainage conditions exist for streets requiring a mill and overlay.

Refer to the construction plans for locations and extents of project work. The scope of work presented in these Special Provisions and the accompanying construction plans more specifically include the following.

- Paving improvements
    - All streets designated for mill & overlay receive full width milling
    - Isolated full depth pavement replacements at failure areas
    - Cleaning and sealing of noted cracks
    - Modified Asphaltic Concrete (MAC) Overlay
    - Pulverization and reconstruction of isolated roadway segments
    - Full width roadway pavement section replacement
    - Removal of existing asphalt and repaving of E Coyote Lane
- Isolated curb and gutter replacement in areas of drainage impediments
- Isolated sidewalk replacement where concrete panels create a trip hazard or exceed ADA tolerance
- Isolated reconstruction or replacement of sidewalk ramps and landings for inclusion of truncated domes or for meeting geometric requirements of ramp landings
- Street striping
- Adjustment and replacement of concrete collars around utility appurtenances and survey monuments
- Isolated replacement of water valve cans

104.1.2 MAINTENANCE OF TRAFFIC:

(Revise to include the following)

Any full street closures will require the approval of the City and involve adequate re-routing (as approved by the City Traffic Engineer), notification of media, notification of residents and businesses in the project area and along the proposed route, and adequate temporary signage/signals. All street restrictions or closures must be coordinated with emergency responders.

See 107.6 for advance notification of work that may impact traffic.

Traffic Safety:

At the time of the pre-construction conference, the Contractor shall designate an employee who is qualified and experienced in construction traffic control and safety, to be available on the project site during all periods of construction to coordinate and maintain safe barricading whenever construction restricts traffic. This person shall be available during non-construction hours in case of any traffic control and/or safety items that need to be handled in an urgent manner. Traffic control shall include pedestrian, bicycle and vehicular traffic.

Sanitation Pickup:

Regular residential sanitation pickup and Dumpster pick up varies from location to location; coordinate with the City's Environmental Division and the property owner for pick-up days. When construction activity interferes with sanitation pickup, the Contractor shall provide for sanitation vehicle access to the affected properties or relocate the trash containers where access is acceptable. The Solid Waste Division of the Public Works Department contact is (928) 213-2110. The contact number for Waste Management is (928) 779-6050. If trash or recycle pickup is obstructed by the construction activity, the Contractor will be responsible for proper disposal.

Bulk trash pickup occurs approximately every 5 weeks with the specific schedule found on the City of Flagstaff website at: https://www.flagstaff.az.gov/DocumentCenter/View/74553/2023-Bulky-Trash-PC_REV?bidId=.

Emergency Access:

All roadway closures shall be coordinated by the Contractor with Traffic Engineering and the City's Project Manager at least 1 week in advance of the closures. The Contractor shall submit the closure for approval to the Traffic Engineer, copy the information to the City's Project Manager, and forward the street closure information to the Fire Department, Police Department, and Emergency Medical Services after approval.

US Postal Service Access:

The Contractor shall be responsible for maintaining access for postal service within the project area at all times. The Contractor shall coordinate this work to avoid interruption of mail service. Should an existing mailbox be damaged by construction activity, the Contractor shall promptly remove and replace the damaged mailbox in kind, including post and foundation, at no cost to the resident or the City.

The Contractor shall maintain mailboxes, and/or provide temporary mailboxes, so that no disruption of mail service shall occur. If mail disruption is anticipated, the Contractor shall notify the City's Project Manager, Inspector, affected property owner and/or resident(s), and the Post Office at least 48 hours in advance.

Bus Route:

The Contractor is responsible for coordinating with Mountain Line for road closures, restrictions and possible delays as a result of construction. Contact Anne Dunno, (928) 779-6624.

The Contractor is responsible for coordinating with Flagstaff Unified School District's Transportation Department for road closures, restrictions and possible delays as a result of construction that could

impact school bus routes in the work areas. Contact Justin DiNardi, Director of Operations, (928) 527-6010.

104.1.3 WATER SUPPLY:

(revise to include)

The Contractor is advised that except for public water main flushing and testing, the City will not authorize the use of potable water for construction purposes. The Contractor shall determine the availability of reclaimed water for construction purposes by contacting the City of Flagstaff Utilities Department.

Prior to loading, hauling, and applying reclaimed water, the Contractor shall be required to obtain the necessary permit (no fee) at the Wildcat Hill Wastewater Treatment Plant and will be responsible for complying with all permit requirements.

SECTION 105 CONTROL OF WORK

105.2 PLANS AND SHOP DRAWINGS:

(Revise as follows)

The Contractor shall submit electronic copies of product data and mix design(s) to the City for review. Only materials to be used on this specific construction project shall be submitted.

The General Contractor shall review and stamp all product data for conformance with the construction documents prior to submission.

Any engineering design performed by others and submitted for review shall bear a seal of an engineer registered in the appropriate jurisdiction and discipline. The adequacy of designs and layouts performed by others rests with the designing or submitting party.

(Revise to include the following)

105.2.1 RECORD DRAWING PREPARATION AND COORDINATION:

See the City of Flagstaff Engineering Standards Division 13-03-006 and Appendix B for the City of Flagstaff Record Drawings Checklist.

105.5 COOPERATION OF CONTRACTOR:

(revise to include)

The Contractor's Project Manager and Project Superintendent shall attend weekly construction progress meetings. The Contractor shall be prepared to discuss construction schedule, construction activities planned for the upcoming two (2) weeks (submit proposed two (2) week schedule), problems, issues, any information required by the City's Project Representative, construction staking, business/residence/citizen complaints, safety, traffic control and pedestrian access requirements, weather delays experienced during the previous week, disposal of materials, access/construction coordination with businesses/residences, inspection/testing, overtime worked during the previous week, payments, water/sewer service disruption, submittals, field orders/field changes and any other business

as necessary. The Contractor shall prepare meeting agendas and meeting minutes. Minutes shall be distributed within four (4) working days after the meeting.

Public Involvement: At the time of the Pre-construction Conference, the Contractor shall designate an employee that is fully responsible for coordination with the public, including but not limited to; the property owners, renters, leasers, Public media, the City of Flagstaff Public Information Officer and Mayor/Council. This person shall be qualified and experienced in public coordination and shall be available during all periods of construction to coordinate any issues.

Protection of Work: The Contractor is required to protect work during inclement weather. The Contractor shall grade areas to drain and utilize pumps to remove ponding water immediately during all stages of construction during both working and non-working hours.

105.8 CONSTRUCTION STAKES, LINES AND GRADES:

(revise to include the following)

Unless noted otherwise in the contract documents, the Contractor shall lay out the work from the lines, grades and dimensions shown on the drawings. The Contractor shall be responsible for all such work for the duration of the project. Any dimension or grade errors shall be immediately transmitted in writing to the City's Project Manager for clarification, before proceeding with the work.

SECTION 106 CONTROL OF MATERIALS

106.2 SAMPLES AND TESTS OF MATERIALS:

(revise second sentence of the third paragraph to read as follows)

Unless otherwise specified, samples and tests will be made in accordance with either: the Materials Testing Manual of the Contracting Agency; the standard methods of AASHTO, ASTM, or ADOT, which were in effect and published at the time of advertising for bids.

SECTION 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

107.2 PERMITS:

(revise to include the following)

Erosion Protection and Site Restoration

Erosion control shall be in accordance with Section 431 of the City of Flagstaff Amendments to MAG Standard Specifications for Public Works Construction. BMP's are shown on the construction documents for the Contractor's use, however the Contractor shall modify BMP's as needed to control erosion. The SWPPP shall be kept and maintained on site during construction.

Measurement and Payment

Measurement shall include all items required to comply with the requirements of the AZPDES permit program and City of Flagstaff requirements. The cost for obtaining and complying with the AZPDES permit, inspection documentation, erosion control devices and all work associated with stormwater protection shall be included in the pay item for SWPPP. If no pay item is included, work shall be paid out of project contingency.

107.6 PUBLIC CONVENIENCE AND SAFETY:

(revise to include the following)

REMOVAL OF PARKED VEHICLES

Whereas on-street parking currently exists within the project limits, the Contractor shall give written notice, describing the proposed work and parking restrictions, to each adjacent business or residence. Written notice (with specific dates of anticipated construction work) shall be given at least **24-hours** in advance of the work.

A special, separate notice is required for the crack seal portion of the work warning the adjacent residents of the dust and other problems associated with that work. In the event that the work requires removal of parked vehicles, the Contractor shall coordinate removal to the nearest convenient side street at the Contractor's expense.

107.7 BARRICADES AND WARNING SIGNS:

The Traffic Barricade Manual referred to under this section and thereafter in the Standard Specifications shall be part VI of the Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD).

107.9 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE:

See the City of Flagstaff Amendments to MAG Standard Specifications for Public Works Construction.

(revise to include the following)

The Contractor shall take special care to control construction-related dust and noise and to keep the project site cleaned up to the greatest extent possible.

Prior to construction commencing, the Contractor shall prepare a video recording of the project area that adequately shows each private property within the project corridor to document existing conditions. A copy of this video shall be provided to the City in a viewable format.

As part of the work, the Contractor is responsible for replacing and/or restoring landscaping (including but not limited to fences, gates, brick pavers, retaining walls, landscape rock walls or rock barriers, parking bumpers, driveway materials, private signage, etc.), and any other owner improvements impacted by construction of the project (e.g. water meter and PRV installation, removal of the existing water meter and box, sewer service/clean outs, storm drain/catch basins, fire hydrants, driveway match backs, slope match backs, and gate adjustments) not otherwise called out on the construction plans.

SECTION 108 COMMENCEMENT, PROSECUTION AND PROGRESS

108.4 CONTRACTOR'S CONSTRUCTION SCHEDULE:

(Revise to include)

It is the intention of the City of Flagstaff that the streets be re-striped prior to opening to traffic.

If the scheduling of the work does not permit re-striping of these streets prior to opening to traffic, lighted vertical panels shall be installed and maintained on 40' spacing, separating the opposing lanes of traffic and delineating designated turn lanes., until the required re-striping is completed.

In all cases, restriping shall be completed within 48 hours of completion of the surface treatment and opening to traffic. All preformed plastic markings shall be placed within one week of completion of surface treatment and opening to traffic.

SECTION 109 MEASUREMENTS AND PAYMENTS

109.4 COMPENSATION FOR ALTERATION OF WORK:

(Revise to include)

Allowance and Contingency items will only be paid if explicitly authorized in a City of Flagstaff Construction Field Order from the City's Project Manager.

PART 200 – EARTHWORK

SECTION 211 FILL CONSTRUCTION

211.2 PLACING:

(Fourth paragraph, revise last sentence to read as follows)

However, such material shall not be placed within 3 feet of the finished subgrade of the fill.

211.3 COMPACTING:

(Fifth paragraph; revise last sentence to read as follows)

Each layer shall be compacted to a uniform density of not less than 95 percent, or as directed by the Engineer.

(Sixth paragraph; revise first sentence to read as follows)

When fill material contains by volume over 25 percent of rock larger than 6 inches in the greatest dimension, the fill (up to 4 feet below finished subgrade) may be constructed in layers of a loose thickness not exceeding the maximum size of rock in the material. In no case shall such layers exceed 3 feet in thickness.

PART 300 – STREETS AND RELATED WORK

SECTION 301 SUBGRADE PREPARATION

(revise to include)

301.2.2 UNSTABLE SUBGRADE:

If it is determined by the owner's representative that the subgrade is unstable for compaction and placement of aggregate base, the contractor shall use one of the following methods to make subgrade stable. This work shall be authorized from the contractor's contingency.

Remove subgrade and replace with additional subbase (minimum of 2 feet of stockpiled asphalt millings), cement treating per MAG Section 311, or the use of geogrid such as Tensar BX1200 with an additional 12 inches of aggregate base per MAG Section 306.

Contractor should consult with Engineer prior to performing work.

Once the suspect areas are stabilized to the satisfaction of the engineer, the normal ABC sub-base should then be installed. The contractor shall take all reasonable efforts to eliminate or reduce construction traffic on the repaired areas.

301.3 RELATIVE COMPACTION:

The work under this section shall be in accordance with the COF Revisions to MAG Uniform Standard Specifications Section 13-21-001-0301.3 as follows:

Revise section to read:

The subgrade shall be scarified and loosened to a depth of 9 inches. When fill material is required, a layer of approximately 3 inches may be spread and compacted with the subgrade material to provide a better bond. The subgrade cut and fill areas shall be constructed to achieve a uniform soil structure having the following density when tested in accordance with AASHTO T-99, Method A; T-191 or ASTM D-2922; and D-3017 with the percent of density adjusted in accordance with the rock correction procedures for maximum density determinationto compensate for the rock content larger than that which will pass a No. 4 sieve:

a. Major streets - 95 percent

b. Other streets and traffic ways - 95 percent

c. Curbs, gutter and sidewalks - 95 percent

Modify to add:

Moisture content shall be within two percent of optimum.

301.4 SUBGRADE TOLERANCES:

(revise to read as follows)

Subgrade upon which pavement, sidewalk, curb and gutter, driveways, or other structures are to be directly placed shall not vary more than ¼ inch from the specified grade and cross-section. Subgrade upon which sub-base or base material is to be placed shall not vary more than ½ inch from the specified

grade and cross-section. Variations within the above specified tolerances shall be compensating so that the average grade and cross-section specified are met.

301.8 PAYMENT:

(revise as follows)

No separate payment will be made for Subgrade Preparation, it is incidental to roadway construction.

SECTION 305 STREET REBUILDING (NEW SECTION)

305.1 DESCRIPTION:

Certain small areas of the streets to be overlaid are to be rebuilt before overlay. These areas will be marked in the field by the Engineer. This work shall consist of removal and disposal of existing materials, subgrade preparation, and furnishing and placing asphaltic concrete.

305.2 CONSTRUCTION:

The areas may vary in size. The existing pavement, base, and subgrade will be removed to an elevation that will facilitate minimum City of Flagstaff asphalt structural sections in detail 10-09-010. The subgrade will be compacted to 95%. The existing pavements shall be wheel or saw cut back to a neat straight line. The asphaltic concrete (3/4”) will be placed and compacted so that it meets the following requirements:

1. The density of the asphaltic concrete is as specified under Section 321.
2. The finished grade of new asphalt can be up to 1/4" above but no lower than the adjacent existing pavement or as directed by owner’s representative.
3. The maximum thickness of the new asphaltic concrete is 6" placed in 2 lifts or as necessary to match existing pavement grade.

305.3 MEASUREMENT AND PAYMENT:

Measurement and payment will be made at the contract unit price for each square yard of pavement removed and replaced as directed by the Engineer. Payment will be accepted as full compensation for all equipment, labor and materials used under this item.

SECTION 310 PLACEMENT AND CONSTRUCTION OF AGGREGATE BASE COURSE

310.2 PLACEMENT AND CONSTRUCTION:

The work under this section shall be in accordance with COF Revisions to MAG Uniform Standard Specifications and MAG Uniform Standard Details, Section 13-21-001-0310.2.

(revise 3rd paragraph to read)

After placement, the aggregate base course surface shall be true, even and uniform conforming to the grade and cross-section specified. In no case shall the aggregate base course vary by more than 1/4 inch above or below required grade.

310.3 COMPACTION:

(revise 6th paragraph to read)

Unless otherwise noted in the project plans or project specifications, the moisture content of the aggregate base course at the time of compaction shall be the optimum moisture contact +/- 2%.

(revise 7th paragraph to read)

The following percent compaction is required:

(A) Below asphalt concrete pavement	100%
(B) Below Portland cement concrete pavement, driveways, curb & gutter, sidewalks, alley entrances, handicap ramps, and catch basins.	95%

(modify to add)

Should suspension of operations take place between time of initial base placement and commencement of paving operations, contractor shall place additional aggregate base as required, and reestablish the specified grade, cross sections and compaction prior to paving.

Finish grading of aggregate base may be checked and verified by the Engineer. In areas of new paving, paving cannot commence until the grades have been checked and verified by the Engineer. The Engineer shall be notified once finish grading is ready for verification. The Engineer shall complete his or her checking and verification within 24 hours of notification. If the grades in these areas are found to be unacceptable by the Engineer, the Contractor shall regrade the areas to the satisfaction of the Engineer, at no additional expense to the Owner.

If, during the paving operations “soft spots” in the ABC are noted, they shall be excavated to a sufficient depth and backfilled with compacted ABC material (8” lifts) so that they are eliminated. No additional payments will be made for soft spot repairs, the cost is to be included in the bid price.

310.5 PAYMENT:

(revise as follows)

Payment for aggregate base course shall be included in the contract unit prices for items of work that include aggregate base course.

SECTION 311 PLACEMENT AND CONSTRUCTION OF CEMENT TREATED SUBGRADE

311.2 MATERIALS:

(Second sentence, revise to read)

The soil for the mixture shall consist of the material in the area to be paved or approved selected material.

(Last sentence, revise to read)

The cement content shall be determined by the procedures set forth in AASHTO T136-50 or ASTM D560-67. The selection of a cement content based on compressive strength requirements without regard to freeze-thaw durability will not be allowed.

311.4 CONSTRUCTION METHODS:

(Second paragraph, revise to include the following)

Soil cement base course shall not be mixed with or placed on any frozen material; at the time of mixing and placing, the air temperature shall be 40ºF (5ºC) and rising, and the surface temperature shall be 45ºF (10ºC). The soil cement base course shall be protected from freezing for a minimum period of seven (7) days.

SECTION 317 ASPHALT MILLING

317.2 CONSTRUCTION REQUIREMENTS:

(revise to include the following after the second paragraph)

The Contractor is responsible for the removal of pavement as per the typical sections and plans. It is anticipated that the work would be performed with a CMI Roto-mill or similar machine.

The pavement shall be removed with minimum disturbance to the remaining pavement, curb and other improvements. All paving material removed by milling shall remain the property of the City. Portions of the millings shall be used for shoulder build up as directed and determined by owners' representative. All remaining millings shall be delivered to City property, location to be determined at the pre-construction meeting. All loose material shall be removed from the pavement surface immediately following the milling operation. A pickup broom or other suitable means shall be provided by the Contractor to perform this work. Any cleanup work, by hand brooming or shoveling, needed to pick up loose material shall also be provided by the Contractor.

Where the pavement is milled across a street, causing a significant bump for the traffic, the Engineer may order the milled area patched with temporary pavement. The Contractor shall immediately place milled asphaltic concrete in the rough area and remove this material no more than two hours before that street is overlaid.

The Contractor shall locate and lower, as necessary, any water valve boxes, manhole covers, survey monument boxes or other objects that may interfere with the pavement milling operation. The plans indicate "potential conflicts" which the contractor is responsible for generating quantities and estimating accordingly. Payment will be made for lowering these facilities on a per-unit basis.

The Contractor shall schedule the pavement milling so that no street shall be milled more than ten calendar days prior to its scheduled date for overlay.

SECTION 321 PLACEMENT AND CONSTRUCTION OF ASPHALT CONCRETE PAVEMENT

321.2 MATERIALS AND MANUFACTURE:

(Modify to add)

For patching and remove and replacements, asphalt concrete shall be a Type 3/4" dense surface course PG 58-28 for all asphalt paving, unless modified by the Engineer. For this project, a MAG Type C-3/4 surface course shall be taken as equivalent to Type 3/4" surface course.

In addition to the requirements of MAG Specification Section 710, the aggregates and mix to be incorporated into the work must also meet the following requirements:

Test	Test Results
Index of Retained Strength	60 Min.

Compaction of asphalt concrete shall be a minimum of 95% of ASTM D1559-75 Blow Method.

Minimum temperature as measured at lay down machine to be 275 degrees F.

321.4 APPLICATION OF TACK COAT:

(Modify to add)

Tack coat applied to vertical surfaces shall be sprayed (pressurized sprayer) or brushed on to ensure total (100%) coverage of the surface. Dribbling, spray bottle or pouring on will not be approved.

321.8 PLACEMENT:

(modify to add)

Asphalt concrete shall only be placed upon a surface of at least 70ºF. The temperature of the asphalt concrete of any course, just prior to the dumping of the material from the hauling vehicle, shall be at least 275ºF; a lower temperature is allowed if written approval is given by the Engineer. Compaction and finishing shall be completed before the mix has cooled to 180ºF. The Engineer may authorize placement of asphalt concrete upon surfaces having a temperature of 70°F or above, providing those mentioned above and the following conditions are met.

a. The underlying surface is dry.

b. The weather is dry and without threat of precipitation.

c. The temperature of the asphalt concrete mixture is such that the sum of the air temperature plus the temperature of the mixture when placed is between 320ºF – 345ºF pending on above surface temperatures.

Self-propelled lay down machines shall be used for all paving. This shall include patches larger than $\pm$40 S.Y. (depending on patch shape) and as directed by the Engineer. Smaller patches may be placed by hand methods if the Contractor can demonstrate adequate placement and finishing control to the satisfaction of the Engineer. The size of the paver shall be approved by the Engineer prior to beginning paving.

321.8.2 JOINTS:

(modify to add)

Cold transverse and longitudinal joints shall be either trimmed back and tacked, or heated with a joint heater. A cold joint shall be defined as any joint which has been placed for 6 hours or longer before adjoining asphalt is placed, unless approved by the Engineer.

The Contractor shall provide sufficient rollers (size and number) to compact the asphalt to the specified density. If the rollers being used do not appear capable of reaching the minimum density (as shown by field test results) paving operations shall be suspended until proper equipment is available.

Coarse aggregate from any and all raking operations shall be removed from the fresh asphalt surface prior to rolling.

321.8.3 ASPHALT LEVELING COURSE:

(modify to add)

An acceptable surface shall not vary more than 1/4 inch from the lower edge of a 10 foot straightedge when placed parallel to the centerline of the roadway.

Asphalt shall not be placed on grade that is frozen.

321.8.4 BASE PREPARATION:

(Modify to add)

If, during the paving operations “soft spots” in the ABC are noted, they shall be excavated to a sufficient depth and backfilled with compacted ABC material (8” lifts) so that they are eliminated. No additional payments will be made for soft spot repairs, the cost is to be included in the lump sum bid price.

321.8.5 SMOOTHNESS:

(modify to add)

The contractor is to supply the 12 foot straight edge and meet the approval of the owner / engineer prior to testing.

321.10.2 GRADATION, BINDER CONTENT AND AIR VOIDS:

(modify first two sentences of the fourth paragraph)

The asphalt cement content shall be considered acceptable if it is within -0.30% to +0.40% of the mix design target value. If the asphalt binder content deviates more than the above amounts from the mix design target value…

(modify next-to-last sentence of the fourth paragraph)

If the resulting average of the asphalt binder content deviates by more than -0.30% to +0.40% from the mix design target value…

321.10.4 ASPHALT PAVEMENT THICKNESS:

(Modify to add #3)

(3) When the deficiency of the pavement thickness exceeds 1/4 inch, the pavement shall be overlaid on the area affected. In no case shall this overlay be less than one City block or 660 feet in length, whichever is less. This overlay shall be placed over the full width of pavement with a new mat of material specified by the Engineer; equal in thickness to the deficiency, but not less than 1 inch in any instance.

321.13 PAYMENT:

Modify to add:

The cost for asphalt concrete pavement and tack coat shall be paid for as part of the appropriate unit bid price for the thickness and type of asphalt concrete specified.

SECTION 326 PLACEMENT AND CONSTRUCTION OF POLYMER MODIFIED ASPHALTIC CONCRETE (MAC)

326.1 DESCRIPTION:

(revise the first sentence to read as follows)

Asphalt concrete overlay consists of milling existing pavements in accordance with the approved plans and placing and compaction of modified asphaltic concrete (MAC) and ADOT 409 Terminal Blend mix over existing asphaltic concrete paving.

Modified Asphalt Concrete (MAC) overlay shall conform to the requirements of SECTION 325 – PLACEMENT AND CONSTRUCTION OF ASPHALT-RUBBER ASPHALT CONCRETE, except as modified herein.

All references to ARAC in Section 325 shall be construed as applying to MAC overlay in section 326.

MAC concrete overlay consists of milling and overlay over existing asphaltic concrete pavement using MAC materials.

326.2 MATERIALS AND MANUFACTURE:

(revise the section to read as follows)

The tack coat, asphaltic concrete mix, modified asphaltic concrete and transportation of the mix shall be as specified in Sections 321, 710, 719 and ADOT Section 409 as amended by the General Provisions and these Special Provisions.

Asphalt cement shall be PG64-28TR+ (MAC) or ADOT 409 Overlay PMRCA PG 64-28TR (ADOT 409 mix – 2” lift or less gradation). The mix designs shall include an antistripping agent when tests on aggregate indicate that the proposed aggregate is subject to stripping. The Contractor shall submit a mix design certified by a registered Professional Engineer for approval not less than fourteen (14) days prior to scheduled paving date. Engineer shall review the mix design in accordance with submittal procedures.

The aggregate gradation and percentage of binder for modified asphaltic concrete shall be in accordance with section 710, 719, M.A.G. 701 or ADOT Section 409 as amended by the General Provisions and Special Provisions.

326.8.6 POLYMER MODIFIED ASPHALT CONCRETE OVERLAY:

(revise to include)

Before placing asphalt concrete overlay, severely raveled areas or cracked areas that are depressed more than ¾ inch from the adjoining pavements shall be cut out and patched at least 48 hours prior to the resurfacing operation. Over-asphalted areas or rough high spots shall be removed by burning or blading. Small shrinkage cracks (between ¼ inch to 1 ¾ inch) shall be filled in with asphalt sealing compound per Section 337. Large shrinkage cracks (in excess of 1 ¾ inch) shall be filled with 3/8" hot mix asphalt per Section 337 and acceptable to the City / engineer.

(new section)

326.8.6.1 PLACING AND CONSTRUCTION METHODS:

Although the great majority of the work is straight-run overlay, the Contractor is cautioned that certain areas require careful treatment. So that the Contractor may review these areas and may account for them fully in his proposal, the City of Flagstaff points out that:

1. In some cases, cross-streets shall be overlaid on the approach. The location and extent of work on cross-streets shall be as outlined by the Engineer prior to beginning the work. However, for estimating purposes, no more than ten (10) cross-street approaches are to be overlaid and included under items of work shown in the Bid Proposal.

2. In areas of odd configuration, care will be taken to tack and overlay, to smooth lines that match adjacent existing pavement, curb, gutter and other controls. Handwork may be necessary.

3. Special care and additional grade control may be required at intersections, at cross-gutters, around returns, along curbs without concrete gutters, at conforms to railroad tracks and cross street and drives, etc. The object is to provide a smooth, attractive surface and to maintain positive surface drainage.

4. Two (2) "screed" men may be required while the lay-down machine conforms at gutter, dips or other places of difficult conform.

5. It shall be the contractors' responsibility to immediately clean up any spillage. Failure to limit spillage and keep the job site cleaned up from such spillage shall be justification to shut the work down until adequate procedures and resources are provided to resolve the problem. Modified Asphalt Concrete shall be delivered and placed at a temperature no higher than necessary for placing, finishing, spreading and compacting, but shall be high enough to accomplish this work. The minimum temperature of the PMA, RAC, HMA, or MAC shall be 275°F. These temperatures will be taken at a point 1 inch below the surface at the point of delivery and may need to be higher if material is found unworkable by the Engineer. Asphalt concrete found deficient in temperature shall be rejected and removed from the job site at no cost to the contracting agency. No free treating fluid shall be present in the truck bodies at the time of asphalt concrete loading. Diesel fuel shall not be used as a treating fluid.

Section 321.6, Corrective Requirements for Deficiencies, shall apply to asphaltic concrete overlay in this contract.

(new section)

326.8.6.2 ADJUSTMENTS:

After installation of an overlay course all necessary frame and cover adjustments for manholes, valve boxes, survey monuments, sewer clean-outs, etc. shall be completed by the contractor within the given segments being surfaced and shall be per City of Flagstaff typical details 9-03-060 and 9-03-62.

326.13 PAYMENT

(revise the section to read as follows)

Payment for tack coat, asphaltic concrete and modified asphaltic concrete shall be in accordance with Section 321.

Payment for crack sealing shall be made in accordance with Section 337.

Payment for pavement milling shall be on a square yard basis in accordance with Section 317 and is to include trucking, disposal, pick up broom, and all work associated with pavement milling. Measurement for pavement milling will be made based on the length of pavement surface actually milled and the width specified or milled, whichever is less.

SECTION 336 PAVEMENT MATCHING AND SURFACING REPLACEMENT

336.2.2 PAVEMENT TO BE REMOVED:

(Modify to add)

The owner or his representative will field mark (in white or pink paint) approximate areas for removal and replacement. The contractor is to call Arizona 811 (Dial 811 or Arizona811.com) at least two full working days PRIOR to digging or removing pavement.

336.2.3 TEMPORARY PAVEMENT REPLACEMENT:

(Modify to add)

Temporary pavement replacement, as required in Section 601, shall be with UPMTM or an approved equal with a minimum thickness of 2 inches and shall conform to the following requirements:

DESCRIPTION:

1. The paving material shall be composed of an aggregate, as specified herewith, and plant mixed with Unique Paving Material (U.P.M.tm) liquid asphalt blend from the Sylvax Corporation or approved equal. The bituminous material shall be capable of coating wet aggregates without stripping, shall be available in various grades, and permit any one grade to be stockpiled and remain pliable and workable at a temperature of -15ºF for a minimum period of 12 months.

2. The paving material shall be capable of maintaining adhesive qualities in an uncovered stockpile or in paved areas which were damp or wet at the time of application for a minimum period of 12 months.

MATERIALS:

1. The aggregate gradation shall meet the following requirements:

Sieve Size	% Passing
3/8 inch	100
No. 4	85-100
No. 8	10-40
No. 16	10
No. 50	0-5
No. 200	2 maximum

2. The aggregate shall also meet the following criteria:

Sand equivalent	45 min.
Crushed faces	70% min.
Flakiness index	25 max.
Absorption	1.0 – 2.5%
Specific gravity	2.55 – 2.75%

3. Bituminous material:

The bituminous material shall be UPMTM liquid asphalt blend from the Sylvax Corporation or approved equal. When prepared from a base asphalt stock of either AC-10 or AC-20 and blended, it shall meet the following requirements:

Flash point (TOC)	200ºF (94ºC) min.
Kinematic Viscosity @140ºF (60ºC)	1000 – 4000 cSt
Water	0.2% max.

Distillate Test

(volume of original sample)

To 437ºF	0%

To 500ºF	0 – 55%
To 600ºF	0 – 20%
Residue from Distillate @ 680ºF	78 – 95%

Residue Test:

Absolute Viscosity @ 140ºF	125 poises
Penetration	200 min.
Ductility @ 39ºF	100 min.
Solubility in Trichloroethylene	99% min.

4. Composition of Mixture:

The mixture shall consist of an aggregate as specified and a bituminous material as specified mixed in such a manner as to contain approximately 6% of bituminous material per finished ton.

5. Preparation of Mixture:

The asphalt shall be heated to a temperature between 150ºF and 300ºF and mixed with the heated aggregate until all aggregates are uniformly coated. The mixed temperature shall not exceed 170ºF.

6. Plant and Equipment:

A batch-type mixer of approved design and capacity shall be used in mixing the ingredient materials.

(new section)

336.2.5.1 EXCESSIVE CRACKS / VOID FILLER:

Prior to any overlay construction the contractor is to fill in all pavements cracks per section 337.

(new section)

336.2.5.2 EXCESSIVE RUTTING AND SHOVING FILLER:

Prior to any overlay construction the contractor is to fill (microsurface) in all pavements rutting / shoving in excess of ½" (depth) with the appropriate size (gradation) Hot Mix Asphalt.

336.5 PAYMENT:

(Modify to add)

Payment for pavement matching (patch) will be made on the basis of square yards under the Remove and Replace Pavement (4"AC/6" ABC [C-3/4"]) Patch line item. Payment for crack / void excessive rutting and shoving filling will be made on the basis of tons.

SECTION 337 ASPHALT PAVEMENT CRACK SEALING AND CRACK FILLING

(revise as follows)

337.1 DESCRIPTION:

Crack sealing shall consist of blowing out loose material and sealing all cracks wider than 1/4 inch and narrower than 1 3/4" with an approved crack sealant.

For edge mill streets: crack sealing shall take place prior to milling.

For full-width mill areas: crack sealing shall take place after any specified milling and prior to placement of overlay.

337.2 MATERIALS:

The crack sealant shall be composed of asphalt, reclaimed and or virgin synthetic rubber, and polymer modifiers. The material shall be approved by the Engineer prior to notice to proceed and shall meet the following requirements:

TEST	METHOD	REQUIREMENT
Softening point	ASTM D-36	200º F. Min.
Cone penetration @77ºF	ASTM D-3407	30 Min.
Resilience @77º F	ASTM D-3407	40% Min.
Flow	ASTM D-3407	3 mm Max.
Safe heating Temperature		410º F. Min.

Crack sealant shall be applied in accordance with manufacturer's recommendation.

337.4 APPLICATION OF CRACK SEALANTS AND CRACK FILLERS:

(Modify to add)

Cracks in existing pavements 1/4 inch wide or wider shall be sealed. Cracks that are wider than 1 3/4" shall not be filled with crack sealant, but shall be filled with 3/8” hot mix asphalt. Crack sealing shall not be done after the street edges have been milled if applicable. **Those cracks that are filled with dirt shall be blown out to a depth of no more than 1 1/2".**

Crack sealant shall be placed to an elevation approximately 1/4" below the pavement surface. Sealant on the pavement surface shall be minimized. Should traffic pick up the crack seal material, the contractor shall provide and apply sand or a **very light** application of fine graded sand to protect the sealant. If the contractor opens the roadway to traffic before the sealant is set, sand application will be done at the contractor’s expense.

337.6 MEASUREMENT:

Crack sealant shall be measured by the ton complete in place. The method of accounting for the material shall be discussed at the preconstruction conference and shall be acceptable to the Engineer. No separate measurement will be made for any sand necessary to prevent pickup by traffic.

337.7 PAYMENT:

Payment will be full compensation for furnishing and placing all materials specified and used and shall include all labor, traffic control, equipment, tools and incidentals necessary to complete the work as prescribed and directed by the Engineer. All costs for sand or Portland cement will be included in the unit price for crack sealant.

SECTION 340 CONCRETE CURB, GUTTER, SIDEWALK, SIDEWALK RAMPS, DRIVEWAY AND ALLEY ENTRANCE

340.1 DESCRIPTION:

(revise to include the following)

Appendix A is included to describe the location and approximate quantities of removals and replacements. Actual limits of removal and replacement will be as directed by the Engineer. Concrete valley gutter shall be constructed in accordance with City of Flagstaff Detail 8-06-010.

340.2 MATERIALS:

(revise to read)

Concrete shall be Class A, containing 5 to 7% air entrainment, and conforming to applicable requirements of Section 725.

Curb & gutters, sidewalks, driveway aprons and handicapped sidewalk ramps shall be constructed on three (3) inches of aggregate base course. Valley gutters shall be constructed on eight (8) inches of aggregate base course. No direct payment will be made for aggregate base course. All costs associated with this work are to be included in the amount bid for the items of work to which it is incidental or appurtenant. The contractor is to field verify number of dome panels needed for each ramp and bid accordingly. No additional payment will be made for “wider” ramps.

340.2.1 DETECTABLE WARNINGS:

(revise to include the following)

Detectable warnings shall consist of raised truncated domes aligned in a square grid pattern in conformity to the Americans with Disabilities Accessibility Guidelines. Truncated domes shall have the following nominal dimensions: base diameter of 0.9 inches, top diameter to 0.4 inches, height of 0.2 inches, and dome spacing center-to-center spacing of 2.35 inches, measured between the most adjacent domes on the square grid. Detectable warnings shall contrast visually with adjoining surfaces. The material is to be durable with non-slip surface not subject to spalling, chipping, or separation. Uncoated

Cast iron per East Jordan Iron Works or approved equal is to be used. The owner is to specify the color of the panels.

The following is a table of the approved suppliers. Contractor is to use one of the following suppliers or an approved equal.

DURALAST® Cast Iron: Coated or Uncoated	East Jordan Iron Works	(800-874-4100) http://www.ejiw.com
Cast Iron: Coated or Uncoated	Neenah Foundry Co	(800-252-5801) http://www.nfco.com
IRON PED Cast Iron: Coated or Uncoated	Manufactured by Neenah Foundry Co	(763-478-8128) http://www.ironped.com
CAST-DWD™ or CAST CORP Cast Iron: Coated or Uncoated	Cast Corporation	(218-263-8510) http://www.castcorporation.com
CAST-DWD™: Coated or Uncoated	Pioneer Detectable, LLC	(262-370-5355) (877-270-3663) http://www.metadome.com

340.3 CONSTRUCTION METHODS:

(revise to include the following)

The longitudinal extent of any curb and gutter removal, replacement necessary because of nonconformity with the plans or specification, and replacement due to damage prior to acceptance shall not be less than the appropriate contraction joint spacing.

340.3.1 SUBGRADE PREPARATION:

The subgrade shall be compacted to a relative density of 95% max density.

340.3.7 FORM REMOVAL AND FINISHING:

The Contractor shall take extra precaution to protect all freshly poured concrete from vandalism. The Contractor shall coordinate placement of all new concrete with businesses and residences a minimum of forty-eight (48) hours in advance of the work. Night work, admixtures to accelerate hydration and setting of concrete and protective coverings should be considered by the Contractor to ensure that the finished concrete is free from any defects. Refer to MAG Specifications 107.10.

Concrete finishes shall be as called-out on the plans, details and in these Special Provisions. Any concrete finish that does not meet these requirements shall be removed and replaced at the Contractor's expense.

340.5 MEASUREMENT:

(revise to include the following)

No separate measurement or payment will be made for saw cutting necessary for removal of pavement, curb, valley gutter or aprons. No separate measurement or payment will be made for 3" ABC under sidewalk or sidewalk ramps. The cost of saw cutting and ABC is to be measured and paid in the associated work items.

Measurement or payment for Remove Sidewalk & Install Sidewalk Ramp shall include all costs associated with special forming and handwork to construct the MAG 236-5 or 238-2 curb ramps including the curb at the back of the ramps. Measurement and payment will also be made of the necessary curb and gutter removal and replacement for the curb ramp. Measurement and payment will also be made of the necessary sidewalk removal and replacement through the curb ramp.

Measurement or payment for ramp retrofit shall include all costs associated with special forming and handwork to construct the curb ramps (as detailed on the plan sheets) including the curb at the back of the ramps if applicable. Measurement and payment is per each and includes truncated domes and formwork. The curb and gutter and concrete is measured separately in their respective pay items.

SECTION 345 ADJUSTING FRAMES, COVERS AND VALVE BOXES

345.1 DESCRIPTION:

(revise to include the following)

The adjustment of manhole frames and covers and water valve boxes shall be done in accordance with City Standard Drawing 9-03-060 and 9-03-062. The contractor is cautioned that only straight, centered (relative to adjustment pavement or concrete) valve boxes that conform to City Detail 9-03-060 will be acceptable. The Engineer will provide the contractor necessary direction for the appropriate adjustment or replacement of each valve box and cover.

In mill and overlay areas, all existing valve boxes, meter boxes, manhole covers, survey monument boxes, or similar items designated to remain in service shall be temporarily lowered prior to milling, so as to not impede milling operations.

The contractor is to supply a new valve box and cover, as directed by the Engineer, to replace existing tops that are broken, non-standard or defective. Payment for furnishing of new valve boxes and covers supplied shall be at the bid unit price for Remove water valve box and cover, Supply and adjust new valve box & cover to finished grade bid item.

In all mill & overlay areas, the entire valve box and cover shall be excavated, removed and replaced under the Remove water valve box and cover, Supply and adjust new valve box & cover to finished grade bid item. This item includes excavation to the valve nut, removal of the old box and cover, a new complete valve box and cover as well as the adjustment to grade.

Any usable valve box and covers removed under this contract shall remain the property of the City. The water valve box and covers that require removal and replacement shall be excavated and installed prior to the overlay. Final adjustments shall be made after repair and resurface of existing pavement.

On the proposed streets where the existing manhole collars are bigger than current City of Flagstaff standards additional labor and materials will be needed. When the contactor lowers the existing manholes, they are to remove the existing collars and fill the void with HMA per section 321 and place a

new collar around the manhole frame per the City of Flagstaff Standard Detail 9-03-062. Payment for the HMA for collar patching only will be per unit cost for manhole lowering on each street.

The Contractor will be required to keep a record of locations of each frame or box as per the following:

1. For those boxes and frames readily visible, the Contractor will make reference points which will allow him to accurately locate frames and boxes after they are covered. It will be the Contractor's responsibility to preserve these reference points.

2. For those boxes and frames not visible before surface treatment, utilities representatives will locate frames and boxes, making a mark at each location. It will be the Contractor's responsibility to preserve these marks and all reference marks as required and identified in item 1 above.

PART 400 – RIGHT-OF-WAY AND TRAFFIC CONTROL

SECTION 401 TRAFFIC CONTROL

401.1 DESCRIPTION:

(revise to include the following)

The work under this section shall be in accordance with Section 401 of the MAG Standard Specifications and the City of Flagstaff Amendments to MAG Standard Specifications for Public Works Construction.

401.4 TRAFFIC CONTROL MEASURES:

(revise to include the following)

The streets shall remain open to through traffic at all times. One lane of traffic shall be open at all times on Woodlands Village Blvd, Switzer Canyon Drive, Columbus Avenue, Lucky Lane, and Lower Coconino Avenue. Other streets not listed but included in the program may be managed with local closures at the discretion of the City's Project Manager.

Prior to any construction, the contractor is to submit a traffic and pedestrian (if applicable) control plan for revisions and approval.

The Contractor is to supply and install, at 40-foot spacing, temporary raised pavement markers along the existing pavement stripes on the streets identified on the plans. Temporary raised pavement markers shall be as supplied by Davison Plastics Company or approved equal. The furnishing and installation of temporary raised pavement markers shall be considered incidental and included in the price bid for Traffic Control.

401.5 GENERAL TRAFFIC REGULATIONS:

(Revise to be added)

The contractor will reinstall all permanent traffic control devices as required by the approved construction plans and specifications.

Existing traffic signs, including stop, yield and street name signs shall be maintained by the contractor until such time as construction renders them obsolete. The contractor shall be responsible for furnishing and installing all permanent traffic signs as required by the construction plans and specifications.

401.6 MEASUREMENT:

(revise to read)

Traffic control shall be measured as a single lump sum over the duration of the project.

401.7 PAYMENT:

(modify to add)

Payment for traffic controls shall be a single lump sum.

SECTION 405 SURVEY MONUMENTS

405.1 DESCRIPTION:

(revise to include the following)

All right-of-way centerline monuments shall be set as part of this project. Existing right-of-way monuments shall be reset in accordance with Section 13-03-005-0004 of the City Engineering Standards. In locations where right-of-way centerline monuments are missing, monument locations shall be calculated by a registered land surveyor in the State of Arizona and new monuments shall be set by the same.

405.2 MATERIALS:

(revise second paragraph to read)

All concrete shall be Class A with 5 to 7% air entrainment

405.3 CONSTRUCTION:

(revise to read)

Survey monuments shall be set by a licensed land surveyor registered in the State of Arizona. Survey monuments shall be installed accurately per City of Flagstaff Engineering Detail 3-02-070

Monument information shall be documented in accordance with section 13-03-002-0007 of the City Engineering Standards. Information on the as-built plans shall be furnished by a registered land surveyor and include all the information listed in the City engineering standards, Section 13-03-002-0007(I). including, but not limited to: City assigned point number, street location, monument type, and NAVD88 elevation. The surveyor shall prepare and record a Record of Survey map showing the monuments found and set. This map shall include the City's unique identifying number for each point. The Result of Survey shall be reviewed and accepted by the City prior to recordation.

Any survey monuments with boxes and covers shall be adjusted to grade by the Contractor without disturbing the survey monument.

405.4 MEASUREMENT:

(revise as follows)

Survey monuments shall be measured by lump sum for all monuments constructed and accepted.

PART 700 – MATERIALS

SECTION 702 BASE MATERIALS

702.1 GENERAL:

(Revise to include the following)

The aggregate base course will be clean, free of organic matter, and be of such a nature to be compacted to a dense, firm layer capable of supporting loaded trucks and self-propelled pavers without rutting. Volcanic cinders shall not be used for base materials.

702.2 PHYSICAL PROPERTIES:

(Table 702, revised to read as follows)

For aggregate base, the percentage by weight passing the No. 200 sieve shall be limited to no more than 10 percent.

SECTION 710 ASPHALTIC CONCRETE

710.2.1 ASPHALT BINDER:

(revise the section to read)

The asphalt to be mixed with the mineral aggregate shall be paving grade asphalt conforming to AASHTO Designation MP1, *Standard Specification for Performance Grade Asphalt Binder* and shall be 58-28 for the patching, 68-28TB+ for the MAC unless otherwise specified in the special provisions or approved by owner.

710.3.2.1 MARSHALL MIX DESIGN:

(revise to include the following)

Marshall mix design criteria will be used for both 3/4" and MAC. The aggregates and mix to be incorporated into the work shall also meet the following additional requirements:

Test	Acceptable	Test Results
AC TYPE Test	3/4"	½" MAC
Absorbed Asphalt Range (ASTM 1559)	0 - 1%	0 - 1%
Combined Water Absorption (AASHTO T-84)	0 - 2.25%	0 - 2.25%

Marshall Stability (ASTM D1559)	1800 min	1,000 min
Flow (ASTM D1559) Units of .01 inches	8 to 18	15 min
Air Voids Content (mix)	3% to 5%	3% to 5%
Tensile Strength Ratio (TSR) (AASHTO T 283, with optional freeze cycle)	0.75 min	0.75 min
Sodium Sulfate Soundness (AASHTO T-104)	12 % max	12 % max
Percent Carbonates (Arizona test Method 238)	30 % max	30 % max
Binder Content	5.3% to 6.0%	5.5% to 7%

All asphaltic concrete and modified asphaltic concrete shall contain a minimum of 1% Portland cement or dry hydrated lime by weight of total aggregate added to the aggregate in a pug mill prior to addition of the binder. The moisture content of the aggregate immediately prior to the addition of the admixture shall be a minimum of 3.0 %.

The contractor shall furnish the engineer with a job-mix formula for asphalt concrete not less than ten (10) days in advance of actual placement of the material. The job-mix formula, upon approval of the Engineer, shall be used to establish the standards to which field test results will be compared and to determine compliance of the materials furnished with all physical properties of the composite mix and its individual components as shown on the approved job-mix formula. The job-mix formula, with the allowable tolerances for a single test shall be used for monitoring compliance with the specifications.

The maximum permissible variation in the daily Marshall Plug unit weight from the unit weight shown in the approved job-mix shall be +/- 3%. If the unit weight of the Marshall Plug deviates from the permissible variation by more than 1%, production shall be halted until such time as the excess variation is corrected; payment will be reduced in accordance with Table 321-2.

The aggregate and mix to be incorporated into the work shall also meet the following requirements:

TEST	ACCEPTABLE TEST RESULTS
Loss on Abrasion (ASTM C0131 and/or ASSHTO 96) after 500 revolutions	40 Max.
Absorbed Asphalt Range (ASSHTO T-245	0 – 1%
Combine Water Absorption (ASSHTO T-84)	0 – 2.25%

All asphaltic concrete shall contain a minimum of 1% Portland Cement or dry hydrated lime by weight of total mixture.

Revise the percent of asphalt range for B-1 and 3/4 inch asphaltic concrete from 5.0 to 6.0% to 5.3 to 6.0%.

The asphalt cement content shall be considered acceptable if it is within -0.30% or +0.40% of the mix design target value.

See Section 719 for additional modified asphaltic concrete specifications.

SECTION 713 EMULSIFIED ASPHALTS MATERIALS

713.1 GENERAL:

(Revise to include the following)

REQUIREMENTS FOR ANIONIC/CATIONIC EMULSIFIED ASPHALT

CATIONIC RAPID-SETTING POLYMER-MODIFIED ASPHALTIC EMULSION, CRS-2P

Test Description	Test Method	Min	Max
TEST OF EMULSION			
Viscosity, SFS @ 122 F	D244	125	400
Settlement, 5 days, %	D244		5
Storage Stability 1 Day, %	A244		1
Class, Un-coated Par	A502	60	
Particle Charge Test	D244		+
Sieve Test, %	D244		0.30
Oil Distillate, % V of Emulsion	D244		3
Residue by Distillation, %	D244	66	
Tests on Residue by VACUUM RECOVERY A512			
Viscosity, ABS, Poise @ 140 F	D2171	1800	2800
Pen @ 77F, 100g/5 sec, Dmm	D5	40	90
Ductility, 77F, 5 cm/min, Cm	D113	40	
Solubility in TCE, %	D2042	97.5	

Toughness, inch-pounds	(1)	150	
Elastic Recovery by means of Ductilometer, %	T301	58	
Tenacity, inch-pounds	(1)	110	
Polymer Content (by wt. Of solids) %	CAL-401	2.5	
TEST ON RTFO RESIDUE			
Aging Ratio, ABS viscosities	D2171		2.5
POLYMER REQUIREMENTS			
Melt flow rate, dg/min 190 C	D1238		45

1) Benson method of toughness and tenacity: Scott tester, inch-pounds @ 77ºF, 20 inches per minute pull. Tension head 7/8" diameter.

2) Upon standing undisturbed for a period of 24 hours, the emulsion shall show no white milky film upon the surface.

3) The base asphalt shall be modified prior to emulsification.

4) The emulsion shall be precertified prior to use. A one-quart sample each of the base asphalt and polymer shall be supplied to the agency 10 days in advance to the project start.

SECTION 716 COVER MATERIAL

716.1 GENERAL:

(First paragraph, revise to include the following)

No volcanic cinders will be acceptable for cover material.

716.2.3 GRADATION:

(Tables 716-1 and 716-2, revise to read as follows)

GRADATION CM-11

Sieve Size	% Passing
3/8 inch	100
No. 4	0-40

No. 8	0-5
No. 200	0-2.0

SECTION 719 POLYMER MODIFIED ASPHALT CONCRETE

719.1 DESCRIPTION:

(revise to include a new section as follows)

Modified Asphalt Concrete (MAC) shall consist of a mixture of paving asphalt, modifiers and mineral aggregate which, with the addition of mineral filler and blending sand as may be required, shall be mixed at a central mixing plant in the proportions hereinafter specified to provide a homogeneous and workable mixture.

Modified Asphaltic Concrete (MAC) shall consist of furnishing asphaltic concrete with binder meeting the requirements of either:

- Rubberized Asphaltic Concrete (RAC)
- Polymer Modified Asphalt Concrete (PMA)
- Polymer Modified Rubberized Asphalt Concrete – Dry Process (PMRAC)
- SHRP graded PG64-28TR = (TR+)

Paving asphalt at the locations shown on the plans in accordance with the following specifications.

Within 10 calendar days of notice of award, the contractor shall submit in letterform, the name of the supplier and a type of MAC to be supplied.

Two weeks prior to construction the Contractor shall submit three (3) gallons of the modified asphalt binder for testing. Application and testing will be in accordance with MAG 321 as amended by the General Provisions and Special Provisions.

719.2 MATERIALS:

719.2.1 BINDER:

The asphalt rubber binder in the mix shall comply with MAG Section 717 and 335 except the rubber shall be type II and the minimum rubber content for RAC shall be 17% as a percentage of total binder. Asphalt cement for all MAC shall meet the requirements of PG 64-28TR+ as per AASHTO MP-1 Table I. Polymer shall be Type SBS and shall be 5.5% to 7% of the total binder for PMA. Twenty percent of the modifier for PMA shall be ground tire rubber. The PMA shall be such that the materials conform to the specification requirements. Ground rubber shall be Type II with the following gradation:

Gradation - Ground Rubber (Type II)

Sieve Size	% Passing

No. 10	100
No. 16	70-100
No. 30	25-60
No. 50	0-20
No. 200	0-5

Binder for Rubberized Asphaltic Concrete (RAC) shall conform to the following specifications:

Parameter	Requirement
Apparent viscosity, centipoise, 350ºF, Spindle 3, 20 RPM (ASTM D2196)	1500-6000 Centipoise
Penetration, 77ºF, dmm, 100g, 5 sec (ASTM D-5)	25 minimum 90 maximum
Penetration, 39.2ºF, dmm, 200 g, 60 sec (ASTM D-5)	15 minimum
Cone Penetration, 77ºF, dmm,150g, 5 sec (ASTM D-5)	25 minimum
Resilience, 77ºF, % (ASTM D-3407)	20 minimum
Softening Point, ºF (ASTM D-36)	135 minimum
TFOT Residue (ASTM D1754) Penetration Retention, 39.2ºF, %"	75 minimum

Haake type viscosity may be substituted for field control

Binder for Polymer Modified Asphaltic Concrete shall conform to the following specifications:

Specification:	ASTM	SPEC. LIMITS	
ORIGINAL ASPHALT	METHOD	MIN.	MAX.
Penetration, 39.2 F (200g/60 sec), dmm	D5	25	
Penetration, 77 F (100g/5 sec), dmm	D5	40	90
Softening point, F	D36	180	

Flash point, F	D92	450	
Ductility, 39.2, F (5 cm/min), cm	D113	30	
Ductility, 77 F (5 cm/min), cm	D113	100	
Viscosity, 275 F, cst	D2170	1000	
Recovery, 39.2 F, %	D113 MOD	60	
Solubility in Tricholrethylyene %	D2042	99	

AGED ASPHALT (RTFO)	METHOD	MIN.	MAX.
Retained Penetration, 77 F, %	D5	60	
Viscosity Ratio, 275 F, %	D2170		1.5
Softening Point, F	D36	175	
Ductility, 39.2 F (5 cm/min), cm	D113	20	

The asphalt binder modifier for the PMA shall contain a minimum of 20% recycled material.

The Polymer Modified Rubberized Asphalt Concrete – Dry Process (PMRAC-DP) and SHRP graded PG64-28TR+ shall conform to requirements of Superpave Grade PG64-28 (AASHTO MP-1 and MAG Section 335) except as follows:

		PMRAC-DP	PG64-28TR+
Test Properties	Test Method	Specification	Specification
Scrap whole tire rubber (Type II) content, %, Minimum		17.0	8.0
Trans-polyoctenamer rubber polymer (TOR), %, Based on the weight of the tire rubber		4.5	
SBS Polymer content %, Minimum			2.0
Original Testing	ASTM D92	232	232

COC Flash Point, °C, Minimum			
Softening Point, °C, Minimum	ASTM D36	50	50
Elastic Recovery, 10°C, 10cm, % recovery/1hr, Minimum	ASTM D6084	55	55
Solubility in Trichloroethylene, Minimum, %	ASTM D2042	97.5	97.5
Dynamic Shear, 64°C, 10 rad/sec,	AASHTO TP5	1.00	1.00
Dynamic Shear, 25°C, 10 rad/sec, G∗/sin delta, kPa, Maximum		75	75
RTFO Residue Testing	AASHTO TP5		
Dynamic Shear, 64°C, 10 rad/sec, G∗/sin delta, kPa, Minimum		2.20	2.20
PAV Aging Residue Testing	AASHTO TP5		
Dynamic Shear, 25°C, 10 rad/sec, G∗/sin delta, kPa, Maximum		5000	5000
Bending Beam Rheometer	AASHTO TP5		
Creep stiffness, -18°C, MPa/60 sec, Maximum		300	300
M-Value, -18°C, 60 sec, Minimum		0.300	0.300

719.2.2 AGGREGATE

Aggregate shall conform to Section 710.2.2 as amended by the Special Provisions.

The aggregate gradation will be as follows:

Sieve Size	% Passing
5/8 inch	100
½ inch	96-100
3/8 inch	78-92

No. 4	28-42
No. 8	12-25
No. 30	10 +/- 5
No. 200	5 +/- 2

(new section)

719.2.2.1 AGGREGATES CHARACTERISTICS

Combined aggregates shall conform to 710.2.2 except the minimum sand equivalent shall be 65 and at least 85% by weight of the aggregate retained on the #8 sieve shall consist of particles with at least one rough, angular surface produced by crushing.

719.2.3 MINERAL ADMIXTURE:

(revise to include)

Mineral filler and anti-stripping agent shall be as per Section 710.2.3.

719.3 MIX DESIGN REQUIREMENT:

The provisions of 710.3 MIX DESIGN REQUIREMENTS shall apply to MAC except that:

References to asphalt, liquid asphalt, bituminous cement shall be changed to "binder conforming to 714.2.1."

For estimating purposes, the percentage of binder in the MAC shall be 7% for PMA and RAC. For estimating purposes, the percentage of binder in the MAC shall be 7% for TR+ and for PMRAC-DP. The exact amount of binder in the MAC shall be subject to the Engineer's approval after review of the contractor's job mix formula and materials submittals. Marshal mix design criteria will be used for MAC.

(new section)

719.4 TRANSPORTATION AND DELIVERY REQUIREMENTS:

The provisions of 710.6 shall apply for MAC.

SECTION 725 PORTLAND CEMENT CONCRETE

725.1 GENERAL:

(Revise to read as follows)

As tested in accordance with ASTM C-39, the maximum slump shall be 4 inches, or as specified in the special provisions, when tested in accordance with ASTM C-143.

Class AA concrete, with 5 to 7% entrained air, shall be used for all valley gutters and as specified.

Class A concrete shall be used for concrete structures, either reinforced or non-reinforced. Additionally, Class A concrete with 5 to 7% entrained air shall be used for all curbs, gutters, sidewalks, and exposed structures except as may be specified otherwise.

Class B concrete shall be used as specified, except 5 to 7% entrained air shall be included for all exposed structures.

Class C concrete may be used for thrust blocks, encasements, fill or over excavation, and/or other purposes as approved by engineer.

725.3 AGGREGATES:

(First paragraph, after the second sentence, revise to include the following)

Aggregates must be subjected to five cycles of the sodium sulfate soundness test in accordance with the requirements of AASHTO T-104. The total loss shall not exceed ten percent by weight of the aggregate as a result of the test.

725.4 WATER:

(Last paragraph, revise to include the following)

Water shall be sampled and tested in accordance with AASHTO T-26.

SECTION 797 PAVEMENT MARKINGS (NEW SECTION)

797.1 GENERAL:

This work shall consist of cleaning and preparing the pavement surface, and applying longitudinal and transverse pavement markings as indicated on the plans or as specified herein.

Reference and incorporate appropriate portions of the Arizona Department of Transportation *Standard Specifications for Road and Bridge Construction – 2008* (herinafter ADOT SS) as indicated below.

797.2 MATERIALS AND INSTALLATION:

797.2.1 LONGITUDINAL PAVEMENT MARKINGS

This item of work shall apply to all longitudinal pavement markings, as well as any other markings not specified to be pre-formed plastic.

Permanent Markings: All permanent pavement markings shall be furnished and installed in accordance with ADOT SS 708.

Temporary Markings: Temporary longitudinal pavement markings, when approved, shall be furnished and installed in accordance with ADOT SS 701-3-05.

797.2.2 TRANSVERSE MARKINGS, SYMBOLS AND LEGENDS:

This item of work shall apply to all lane use arrows, all transverse pavement markings such as crosswalks and stop bar markings, and all pavment legend markings, except for bicycle lanes Permanent transverse pavement markings shall be either:

Applied thermoplastic, vurnished and installed in accordance with ADOT SS 704, with a minimum 70 mil applied thickness, or

Preformed markings, furnished and installed in accordance with ADOT SS 705.

Temporary Markings: Temporary transverse pavement markings, when approved, shall be furnished and installed in accordance with ADOT SS 701-3-05

797.3 CONSTRUCTION PROVISIONS:

The Contractor shall as-built and reference the existing lane striping and markings prior to construction. Unless noted otherwise on the plans or in these Special Provisions, the configuration of new lane striping and marking shall match that of the existing.

The contractor is responsible for layout of the revised striping. The striping quantities do not include the revised striping for these revisions. The contractor shall estimate the cost of the pavement markings necessary to make the revisions indicated and include those costs in the amount bid.

All new painted pavement markings placed under this contract shall receive a double application of traffic paint. The second application shall be applied no sooner than 3 hours after the first application.

All existing bike lane stripes are to be replaced as 6” wide solid white stripes. (Existing bike lane stripes may now be 4” wide) The existing bike lane symbols and cross walks are to be replaced in accordance with bike lane assembly details and piano key cross walk details shown on the plans.

Bike lane diamonds are no longer required.

Double yellow centerline is to be replaced with a 6” space between the two 4” stripes.

All crosswalks and stop bars shall be replaced with thermoplastic paint. Crosswalks shall be striped in a “piano key” configuration. All lengths of crosswalks are given in the lengths of the crossing at the intersection, not the length of thermoplastic needed for the crosswalk. It is the contractor’s responsibility to determine how much thermal plastic paint is needed to install the piano key crosswalk at the given lengths of the crosswalks.

All turn lane symbols, and bike assembly markers must be replaced with thermoplastic or preformed tape. If the striping is not a typical longitudinal lane marker stripe, it must be thermoplastic or preformed.

797.4 MEASUREMENT AND PAYMENT:

Pavement markings shall be measured and paid for as a single lump sum, to include the cost of all preparation, materials, layout and application, including the cost of those changes shown on the plans or included in the Special Provisions.

END OF SPECIAL PROVISIONS

APPENDIX A

	Street	Improvement Location	R&R SIDEWALK SF	Infill Sidewalk w/ clear & grub	R&R DRIVEWAY RAMP/WING SF	RETROFIT ADA Add domes EA	NEW ADA RAMP radial EA	NEW ADA RAMP MISC EA	R&R VALLEY GUTTER SF	R&R INTEGRAL CURB FOR VG LF	R&R VERTICAL CURB & GUTTER LF	R&R ROLL CURB & LF	R&R SCUPPER & SPILLWAY EA	R&R CATCHBASIN LID SF	Full depth ACP rebuild (PATCH) SF	NOTES
		ABBREVIATIONS: PC - POINT OF CURVATURE (IN RELATION TO STREET CORNERS) START: ROUTE 66 AND WOODLANDS VILLAGE (EAST SIDE)														
1 From to	WOODLANDS VILLAGE	17' SOUTH OF ROUTE 66 PC	20.0													
		180' SOUTH OF ROUTE 66 PC	128.0													
		276' SOUTH OF ROUTE 66 PC	96.0													
		373' SOUTH OF ROUTE 66 PC	112.0													
		536' SOUTH OF ROUTE 66 PC	80.0													
		570' S OF ROUTE 66 PC	40.0													
		NE CORNER OF WOODLANDS VILLAGE & PLAZA	32.0													
		100' SOUTH OF PLAZA PC	144.0													
		250' SOUTH OF PLAZA PC	56.0													
		375' SOUTH OF PLAZA PC			64.0											1864 WOODLANDS VILLAGE - UNIVERSITY AUTO REPAIR
		NE CORNER OF UNIVERSITY AND WOODLANDS VILLAGE									12.0					
		1125' SOUTH OF UNIVERSITY PC	56.0													(800 FOREST MEADOWS - WOODCREST APARTMENTS)
		1385' SOUTH OF UNIVERSITY PC	40.0													(800 FOREST MEADOWS - WOODCREST APARTMENTS)
		30' SOUTH OF FOREST MEADOWS PC	64.0													
		575' SOUTH OF MCCONNEL PC	20.0													(BASHAS DRIVEWAY)
		1076' SOUTH OF MCCONNEL PC	48.0													(JIFFY LUBE DRIVEWAY)
		1180' SOUTH OF MCCONNEL PC	64.0													(BETWEEN JIFFY LUBE & WALMART DRIVEWAY)
		1370' SOUTH OF MCCONNEL PC (WALMART DRIVEWAY)	80.0													(WALMART DRIVEWAY)
		PATCHING AT WOODLANDS & BEULAH INTERSECTION (WESTBOUND)													3,936.0	
		PATCHING AT WOODLANDS & BEULAH INTERSECTION (EASTBOUND)													1,469.0	
		632' NORTH OF BEULAH PC	32.5													
		1330' NORTH OF BEULAH PC	36.0													(STAPLES PLAZA SIDEWALK)
		1593' NORTH OF BEULAH PC	48.0													(FIREHOUSE SUBS SIDEWALK)
		497' NORTH OF FOREST MEADOWS	15.0													
		729' NORTH OF FOREST MEADOWS	36.0													
		1045' NORTH OF FOREST MEADOWS	36.0													
		304' NORTH OF UNIVERSITY PC	25.0													
		INTERSECTION OF PLAZA AND WOODLANDS VILLAGE				2.0										WEST SIDE OF INTERSECTION
		Total	1,309.00	0.00	64.00	2.00	0.00	0.00	0.00	0.00	12.00	0.00	0.00	0.00	5,405.00	
2 From to	FREMONT	INTERSECTION OF FREMONT & FORT VALLEY - NORTH WEST CORNER				2									501.5	
		INTERSECTION OF FREMONT & FORT VALLEY - SOUTH WEST CORNER	99.75			2										
		3200 MOUNTAIN DR	20													
		3200 MOUNTAIN DR	17.6													
		INTERSECTION OF FREMONT & MOUNTAIN DR - NORTH WEST CORNER				1										
		INTERSECTION OF FREMONT & MOUNTAIN DR - SOUTH WEST CORNER				1										
		Total	137.35	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	501.50	
3 From to	SWITZER CYN	INTERSECTION OF ROUTE 66 AND SWITZER					1.0				25.0				1,875.0	
		1302 ROUTE 66	30.0													(DOG HAUS WHERE SIDEWALK ENDS IN PARKING LOT)
		1416 E ROUTE 66 (BIG LOTS DRIVEWAY SOUTH)			50.0											(DRIVEWAY AT FRONTAGE OF STORE)
		1417 E ROUTE 66 (BIG LOTS DRIVEWAY NORTH)	45.0		50.0						20.0					
		350 N SWITZER CANYON	25.0													
		452 N SWITZER CANYON													1,212.0	
		480 N SWITZER CANYON	30.0													
		520 N SWITZER CANYON	55.0		200.0						40.0					
		600 N SWITZER CANYON	77.5												2,984.0	
		INTERSECTION OF SWITZER AND FOREST VIEW - NW CORNER				1										
		INTERSECTION OF SWITZER AND FOREST VIEW - SW CORNER				1										
		50' SOUTH OF FOREST VIEW PC	16.7													
		50' NORTH OF FLAGSTAFF BONE & JOINT NORTH DRIVEWAY	26.7													ADJACENT TO SCUPPER ON SWITZER CANYON
		525 N SWITZER CANYON - FLAGSTAFF BONE & JOINT	81.0													
		361 N SWITZER CANYON (OXENDALE)			35.0										3,836.0	
		201 N SWITZER CANYON (FRYS)	41.5		190.0						26.0					(REAR DRIVEWAY - TRUCK ENTRANCE)
		INTERSECTION OF ROUTE 66 AND SWITZER - NW CORNER				2										
		Total	428.30	0.00	525.00	4.00	1.00	0.00	0.00	0.00	111.00	0.00	0.00	0.00	9,907.00	
4 From to	COLUMBUS AVE	823 N SAN FRANCISCO ST	35.4													
		823 N LEROUX ST									55.0					
		823 N BEAVER ST	89.5													
		823N BEAVER & 823 N HUMPHREYS	46.65													
		INTERSECTION OF HUMPHREYS & COLUMBUS SE CORNER	22.5			1										
		INTERSECTION OF HUMPHREYS & COLUMBUS NE CORNER	66.25			1										
		120 W COLUMBUS	60		51.2											
		114 W COLUMBUS	31.25													
		901 N BEAVER ST	53.75													
		INTERSECTION OF BEAVER & COLUMBUS NW CORNER					1									
		INTERSECTION OF BEAVER & COLUMBUS NE CORNER					0.3									PANEL

	Street	Improvement Location	R&R SIDEWALK SF	Infill Sidewalk w/ clear & grub	R&R DRIVEWAY RAMP/WING SF	RETROFIT ADA Add domes EA	NEW ADA RAMP radial EA	NEW ADA RAMP MISC EA	R&R VALLEY GUTTER SF	R&R INTEGRAL CURB FOR VG LF	R&R VERTICAL CURB & GUTTER LF	R&R ROLL CURB & LF	R&R SCUPPER & SPILLWAY EA	R&R CATCHBASIN LID SF	Full depth ACP rebuild (PATCH) SF	NOTES
		902 N BEAVER	42													
		8 W COLUMBUS	25													
		901 N SAN FRANCISCO ST	30													
		901 N SAN FRANCISCO ST	26.25													
		901 N SAN FRANCISCO ST	47.97													
		Total	577.00	0.00	52.00	2.00	1.25	0.00	0.00	0.00	55.00	0.00	0.00	0.00	0.00	
8 From to	LOWER COCONINO AVE	813/821 COCONINO AVE									14.0					
		821 COCONINO AVE									20.0					
		OLD TOWN SPRINGS PARK									8.0					
		1030 LOWER COCONINO AVE									10.0					
		1166 LOWER COCONINO AVE									10.0					
		1200 LOWER COCONINO AVE									25.0					
		CULDESAC AT FLAG MESA (END OF LOWER COCONINO)			50.8						14.0					
		1032 LOWER COCONINO AVE														CLEAR DRIVEWAY SEDIMENT
		1052 LOWER COCONINO AVE														CLEAR DRIVEWAY SEDIMENT
		Total	0.00	0.00	51.00	0.00	0.00	0.00	0.00	0.00	101.00	0.00	0.00	0.00	0.00	
5 From to	BABBITT	**RIO** DE FLAG RECLAMATION	8.5*38													
		ADA SW DRIVEWAT WRAP AROUND	60.0												3,024.0	
		320 BABBIT (SUNSTATE RENTALS)	120.0													
		SAM'S CLUB				2									564.0	
		SAM'S CLUB CAR WAS	40.0												2,232.0	
		TACO BELL	176.0												1,800.0	
		BUTTLER & BABBIT				2									108.0	
		HOME CO													1,100.0	
		Total	396.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8,828.00	
6 From to	MARS HILL														507.0	
															567.0	
															2,145.0	
															637.0	
															130.0	
															336.0	
															144.0	
															144.0	
															144.0	
															280.0	
															196.0	
															252.0	
															308.0	
															96.0	
															128.0	
															506.0	
															378.0	
															240.0	
															312.0	
															2,236.0	

	Street	Improvement Location	R&R SIDEWALK SF	Infill Sidewalk w/ clear & grub	R&R DRIVEWAY RAMP/WING SF	RETROFIT ADA Add domes EA	NEW ADA RAMP radial EA	NEW ADA RAMP MISC EA	R&R VALLEY GUTTER SF	R&R INTEGRAL CURB FOR VG LF	R&R VERTICAL CURB & GUTTER LF	R&R ROLL CURB & LF	R&R SCUPPER & SPILLWAY EA	R&R CATCHBASIN LID SF	Full depth ACP rebuild (PATCH) SF	NOTES
															216.0	
															360.0	
															165.0	
															351.0	
															504.0	
															144.0	
															120.0	
															70.0	
															576.0	
															264.0	
															198.0	
		Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12,654.00	
7	COYOTE	3905 COYOTE			56.0											
From		3901 COYOTE	64.0													
to		3910 COYOTE	16.0													
		3909 COYOTE			84.0											

APPENDIX B

AS-BUILT PLANS/RECORD DRAWINGS CHECKLIST

for

City of Flagstaff Public Improvements

December 12, 2019

General (applies to entire plan set)

_____ As-Builts/Record Drawings plan set shall contain all sheets from the approved design/construction plan set (cover sheet to last sheet including details). This includes Landscape Plan, Retaining Wall sheets and Resource Protection Plan (if applicable)

_____ As-Built survey data shall tie into the same horizontal and vertical control as that used for the approved construction plans

_____ All plan sheets shall have an Engineer seal per B.T.R. rules.

_____ Certification. All as-built plans shall contain a statement by a licensed professional engineer who is currently registered in the State of Arizona certifying the drawings to be as-built. All plans must also contain the seal and signature of said registered professional.

_____ All survey data given by the as-built plans shall be performed by a registered land surveyor who is currently registered in the State. Plans must show seal and signature of registrant

_____ Any easements or ROW recorded must include the instrument number

_____ If the As-Built Engineer is different from the Design Engineer, provide the As-Built Engineer contact info on cover sheet.

_____ Place "As-Built" or "Record Drawing" lettering and date in lower right hand corner of all sheets.

_____ Improvements deleted in the field shall be crossed out with an "x" and labeled "not built".

_____ Improvements changed from the approved design plans shall be reflected and clearly called out by "clouding".

_____ Plan sheets that represent improvements that were not changed from the approved design plans shall have "Per Plan" placed in the lower right hand corner.

Sanitary Sewer Plans

_____ Improvements built exactly per design plan shall have the elevations/stations noted within parenthesis and marked "AB".

_____ Stations for all manholes, cleanouts, services and lateral stub-outs.

____ Manhole pipe invert elevations (in and out) and manhole rim elevations shall be determined by field surveying.

_____ Pipe lengths indicated on both plan and profile.

_____ Recalculate longitudinal pipe slopes for all pipe segments. (All measurements to MH Centers)

_____ Stations and length of pipe encasements/extra protection.

_____ Anode locations, valves and tracer wire connection stations and cross ties to two permanent structures at least 30" high

Water Plans

_____ Stations of all water services including landscape and fire lines. At least two (2) horizontal cross-ties

_____ Stations of all fire hydrants.

_____ Stations of all valve boxes, blow-offs, and air release valves.

_____ Stations of all bends, tees, and bell restraints.

_____ Profile view of all pipeline vertical alignments, including stations of all fittings, depth to finish grade, and pipe separation dimensions.

_____ Stations and length of pipe encasements/extra protection.

_____ Horizontal cross ties to two permanent structures (fire hydrants, light poles & ID #, power poles & ID #, etc.) for all valve boxes.

_____ Anode locations, valves and tracer wire connection stations and cross ties to two permanent structures at least 30" high

Drainage Plans

_____ Inverts for storm sewer pipes at inlets and manholes shall be determined by field surveying.

_____ Recalculate longitudinal pipe slopes for all pipe segments.

Street/Trail Plans

_____ Stations of all survey monuments – existing and new

_____ Sleeve/conduit/casing types, sizes, locations and stations.

_____ Provide spot elevations at intersections as well as pavement and curb every 500 ft.

Street Lights and Traffic Signal Plans

_____ Stations for all street illumination lights.

_____ Locations of all traffic signal poles, cabinets, J-boxes and related conduits.

_____ Abandonment of existing conduits and facilities.

_____ Location of signage related to traffic signal.

Miscellaneous

_____ Major unexpected dry utility crossings of water and sewer mains

_____ Unforeseen underground structures exposed during water and sewer main construction such as vaults

_____ Major constructed dry utilities

____ ADA compliance within the ROW, spot elevations, cross and longitudinal slopes

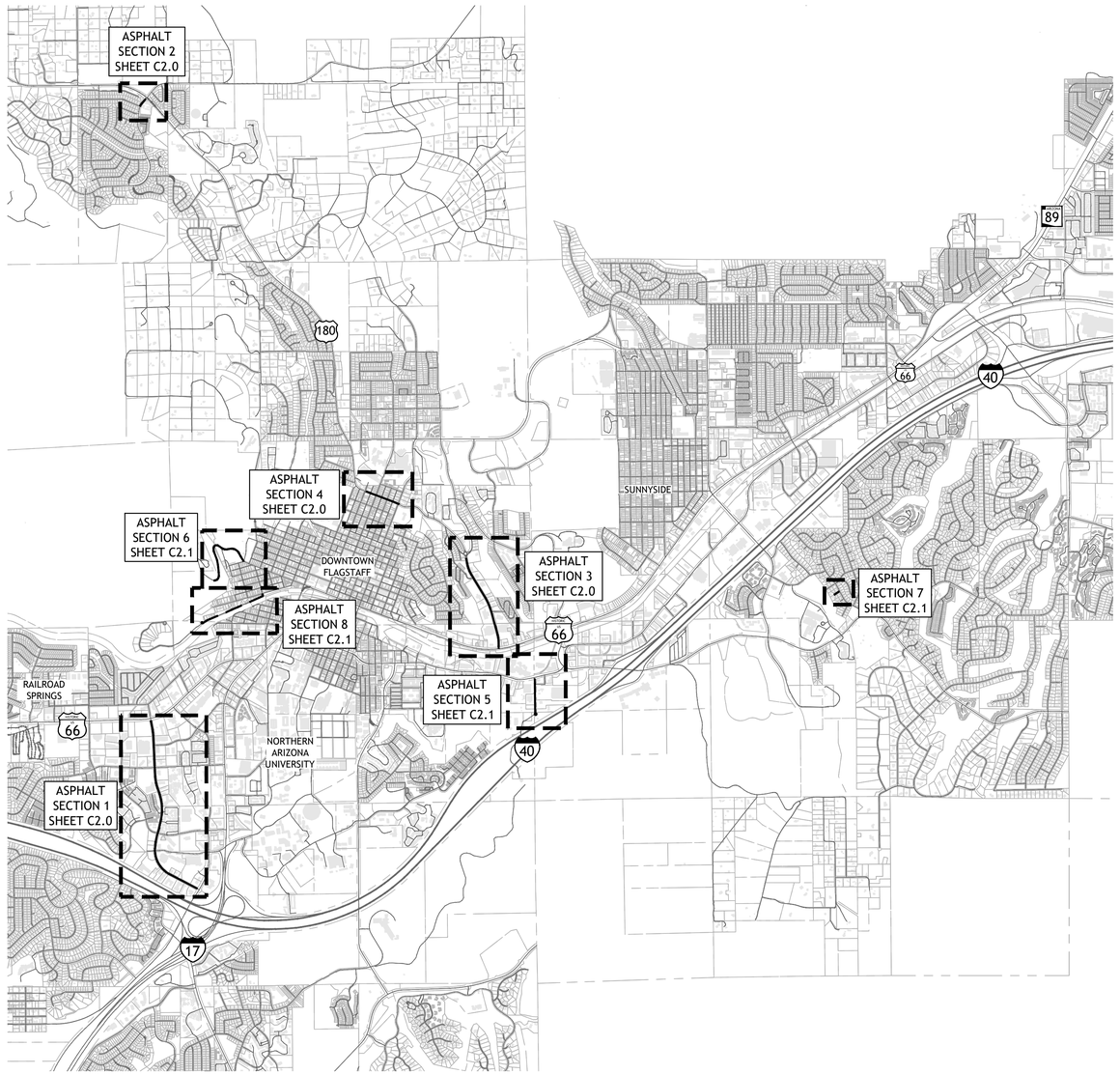
CITY OF FLAGSTAFF
2023 STREET MAINTENANCE PROGRAM

COF PROJECT NUMBER 03-18005

CIVIL IMPROVEMENTS SHEET INDEX

C1.0	COVER
C1.1	NOTES AND LEGEND
C1.2	DETAILS
C2.0	MILL & OVERLAY
C2.1	MILL & OVERLAY
C3.0	EDGE IMPROVEMENTS
C4.0	IMPROVEMENT SCHEDULE

VICINITY MAP
NOT TO SCALE



AREA MAP
NOT TO SCALE

OWNER
City of Flagstaff
Public Works Dept.
211 W Aspen Ave.
Flagstaff, AZ 86001
Contact: Adam Miele, P.E.
Phone: 928-213-2108

CIVIL ENGINEER
Peak Engineering,Inc.
201 E Birch Ave, Suite 3
Flagstaff, AZ 86001
Contact: Thomas E. Smith, P.E.
Phone: (928) 774-4046

CITY OF FLAGSTAFF APPROVALS

City Engineer DATE

City Public Works Director DATE

UTILITY ACKNOWLEDGEMENTS

LETTER ON FILE 6/22/2023
LUMEN DATE

LETTER ON FILE 6/27/2023
UniSource Energy DATE
UNS Gas, Inc. has two valves that will be impacted by the proposed mill and overlay project. The first valve is at the south eastern corner of Route 66 and Woodland Village Blvd., and the second is just north of Butler Ave. on Lucky Lane. Both will need to have the collar replaced, and possibly the lid adjusted for height. If assistance is needed, please contact Travis Puklavetz, Construction Supervisor at (928) 853-0320.

LETTER ON FILE 6/14/2023
APS DATE

LETTER ON FILE 6/28/2023
ALTICE DATE

FINAL 2 PLANS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

DATE | DESCRIPTION | REVISION

201 E. Birch Ave.
Flagstaff, AZ 86001
(928) 774-4046
Peak ENGINEERING, INC.
Connecting Place to People

REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO. 42777 THOMAS E. SMITH Date Signed 07/31/2023

CITY OF FLAGSTAFF
2023 STREET MAINTENANCE PROGRAM
COVER

COF PROJECT NO. 03-18005

JOB NO:23COF04 | BY:MRB/CBW
DATE: AUGUST 2023 | CHECKED:TES

C1.0

ENGINEER'S GENERAL NOTES

The work shall be done in accordance with the most current edition(s) of the following specifications and these plans.

- City of Flagstaff (COF) Engineering Design & Construction Standards
- Maricopa Association of Governments (MAG): Uniform Standard Specifications & Standard Details for Public Works Construction
- Manual on Uniform Traffic Control Devices (MUTCD)
- Arizona Department of Transportation Standard Specifications for Road and Bridge Construction

It is the Contractor's responsibility to obtain copies of the above Standards, Specifications and Details as well as all other standards and specifications referenced by or necessary for interpreting these plans. The Contractor is not relieved of responsibility for making complete and accurate on-site determinations of the locations of all utilities, structures and field conditions, which may affect the progress of the work.

PERMITS. The Contractor is responsible for determining what permits are required for the work and obtaining, at his own expense, the permits required unless otherwise noted in the Special Provisions. Permitting includes compliance with the Arizona Department of Environmental Quality (ADEQ) Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permit. The Contractor is responsible for filing a Notice of Intent (NOI) and Notice of Termination (NOT) in accordance with AZPDES requirements.

UTILITIES. Underground utilities shown are approximate and were determined from field measurements, construction plans, record plans, or utility maps furnished by others. The Contractor is responsible for determining the actual locations of all underground lines that may affect the work. The Contractor is responsible for notifying appropriate utility companies prior to construction commencing. The number to call is 811 or online at www.arizona811.com. The Contractor shall allow 2 working days after Arizona811 is notified before starting any excavation work in the proximity of buried utilities.
Where the plans call for connecting new structures to existing underground pipes or structures, the Contractor is responsible for determining the exact sizes, types and locations of existing underground improvements and furnishing the materials necessary for making the required connections.
At least 48 hours prior notice is required before disrupting utility service to make connections. The notice must include the exact time of disruption and the expected duration of loss of service.

QUANTITIES. The quantities shown are approximate and do not necessarily reflect bid schedule items. The Contractor is responsible for independently estimating work quantities prior to bidding. Payment will be based on bid schedule items.

TRAFFIC CONTROL. The Contractor is responsible for providing any necessary traffic control devices for vehicle, bicycle and pedestrian traffic affected by the construction.

STORMWATER MANAGEMENT. Adequate drainage, erosion and sediment control measures, best management practices (BMPs), and/or other stormwater management facilities shall be provided and maintained at all times during construction. The Contractor is responsible for damages to adjacent property and/or the construction site caused by his or her failure to provide and maintain adequate drainage and erosion/sediment control for the construction area.

Refer to the AZPDES Construction General Permit and ADEQ website for guidance, BMPs and reporting requirements: http://www.azdeq.gov/node/524

CITY OF FLAGSTAFF GENERAL NOTES

1. Approval of these plans by the City Engineer is for a one year period, subsequent to the date of approval. If construction work is not started within the one (1) year period, or has been discontinued for any reason for longer than one (1) year, the plans shall be resubmitted for review and re-approval.
2. Plan review by the City does not extend to material quantities shown on the plans.
3. A public works permit, issued by the City, is required for all work in City rights-of-way or easements and for construction of any improvements intended to become public property.
4. The City shall be notified twenty-four (24) hours prior to beginning different phases of construction so that City Inspectors may be scheduled.
5. All materials and workmanship shall comply with Title 13, Engineering Design Standards and Specifications for New Infrastructure, current "MAG Uniform Standard Specifications and Details for Public Works Construction,"the City of Flagstaff Stormwater Design Manual, and with generally accepted engineering design and construction practice. All work and materials, which do not conform to the standards and specifications, are subject to removal and replacement at the contractor's expense. The contractor is responsible for reviewing Chapter 13-21, which makes minor modifications to certain MAG Specifications and details.
6. Any work performed without the knowledge and approval of the City Engineer or his authorized representative is subject to removal and replacement at the contractor's expense.
7. The City Engineer or his authorized representative may suspend the work by written notice when, in his judgment, progress is unsatisfactory, work being done is unauthorized or defective, weather conditions are unsuitable, or there is danger to the public health or safety.
8. The City Engineer may order any or all materials used in the work to be tested according to the American Association of State Highway and Transportation Officials (AASHTO) and the American Society for Testing and Materials (ASTM) Standards. The Contractor shall, at his expense, supply all samples required for testing.
9. Access that meets Section 13-13-004-0001, Fire Access, shall be in place and approved before and at all times during onsite combustible construction and/or prior to issuance of building permits in new subdivisions. Fire Department and Engineering Section approval is required for obstruction of access or water system shutdown.
10. The contractor shall be responsible for maintenance of the streets and of partially completed portions of the work until final acceptance of the work. The contractor shall submit to the City Engineer for approval a construction schedule for any streets required to be closed or partially closed for the construction activity. The contractor shall reopen the streets no later than the opening date shown on the construction schedule or upon order of the City Engineer. The regulation and control of construction traffic shall be as directed by the City Engineer or his authorized representative.
11. Approval of a portion of the work in progress does not guarantee its final acceptance. Testing and evaluation may continue until written final acceptance of a complete workable unit. Any defects which appear in the work within one (1) year from the date of acceptance and which are due to improper workmanship or inferior materials supplied shall be corrected by or at the expense of the owner/developer or the contractor.
12. Acceptance of completed public improvements will not be given until defective or unauthorized work is removed, and final clean-up is complete.
13. Location of underground utilities before work is begun is to be accomplished in accordance with A.R.S. Section 40-360.22.
14. If work is done on private property in relation to a project constructed under these standards, the contractor will provide the City with written authorization from the property owner to do so.
15. The establishment and use of temporary construction yards shall conform to the current City zoning code standards for temporary uses.
16. All excavated material shall be disposed of in accordance with applicable City codes and regulations. The contractor shall obtain all required City approvals and permits as deemed necessary by the City to dispose of excavated material.
17. All construction staking shall be the responsibility of the contractor/developer and performed under the direct supervision of a registered land surveyor or civil engineer.
18. All traffic sign sheeting shall be Type VIII as designed by ASTM D4956-07e1 Standard Specifications for Retroreflective Sheeting for Traffic Control, unless specified otherwise on the construction plans.
19. When the construction plans specify graffiti control on bridges or other structures, the contractor shall seal the structure first using Monochem Aquaseal ME 12 and then apply Monochem Permashield, Sacrificial Graffiti Control System (or approved equal).
20. All areas disturbed during construction shall be stabilized and reseeded in accordance with Chapter 13-17. In the event that the construction activity disturbs more than one (1) acre, a stormwater pollution prevention plan (SWPPP) shall be prepared in order to obtain a construction general permit from ADEQ. (Ord. 2017-22, Rep&ReEn, 07/05/2017)

CITY OF FLAGSTAFF PAVING NOTES

A. Exact point of matching termination and overlay, if necessary, shall be determined in the field by the City Engineer or his authorized representative. When a longitudinal joint associated with a trench path, pavement matchup or other occurs on a street that includes a bike lane, the joint shall be located outside the bike lane.
B. No job will be considered complete until:
   1. All curbs, pavements, sidewalks, catch basins, storm drains, and manholes have been cleaned of all dirt and debris;
   2. Survey monuments are installed and stamped; and
   3. All frames, covers, and valve boxes are adjusted to grade.
C. No paving construction shall be started until all utility lines are completed and approved under proposed paved areas.
D. Base course will not be placed until subgrade has been approved by the City Engineer or his authorized representative.
E. The location of all water valves, fire hydrants, and manholes must at all times during construction be referenced and made accessible to the City.
F. Utility facilities in conflict with this work will be relocated by the permittee or the utility owner. This activity shall be coordinated with the owner of the utility to prevent any unnecessary interruption of service to existing customers.
G. Existing street name signs, traffic signs and devices associated with the project shall be maintained during construction and relocated by the contractor as shown on the approved plans.
H. Any changes or additions to pavement markings caused by pavement overlay, chip seal, or installation of underground facilities shall be shown on the approved plans.
I. On projects where the contractor causes excessive damage to an existing paved street or there are multiple street cuts (maximum of four (4) in five hundred (500) feet) an asphalt overlay shall be required.
J. A prime coat is not required unless so specified in the soils and pavement report and/or shown on the plans.
K. All curb and gutter, sidewalk, driveways, and sidewalk ramps shall be constructed on a minimum three (3) inches of aggregate base course (ABC). The ABC shall be constructed in accordance with MAG Section 310, and shall be compacted to ninety-five percent (95%) relative density. All precast structures such as manhole bases, catch basins, and box culverts shall be constructed on a minimum of three (3) inches of ABC.
L. Permanent Pavement Markings.
   1. Longitudinal pavement markings shall be installed in accordance with Section 13-16-006-0001.
   2. Transverse pavement markings such as stop bars, crosswalks, arrows, and legends shall be installed in accordance with Section 13-16-006-0002.
M. Temporary Pavement Markings.
   1. Temporary pavement markings, when approved, shall be installed in accordance with Sections 13-16-006-0001 and 13-16-006-0002.

NOTES:
   1. The use of temporary markings is strongly discouraged and may only be used with prior approval. When it is used, the contractor must be available to restripe as needed until the permanent markings can be installed.
   2. When it is impracticable for the contractor to provide permanent markings, the City Public Works Department may install the markings on behalf of the contract provided the fee for the work is agreed upon and paid for in advance.

N. The maximum thickness of a single lift of pavement shall be four (4) inches. (Ord. 2017-22, Rep&ReEn, 07/05/2017)

ABBREVIATIONS

AC	ASPHALTIC CONCRETE PAVEMENT
ACP	ASBESTOS CEMENT PIPE
ADOT	ARIZONA DEPARTMENT OF TRANSPORTATION
APN	ASSESSORS PARCEL NUMBER
BC	TOP BACK OF CURB
BO	BLOW-OFF
BP	BEGIN POINT ALIGNMENT
BR	BOTTOM OF RAMP
BS	BOTTOM OF STAIR
BW	BOTTOM OF WALL
C&G	CURB & GUTTER
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
COF	CITY OF FLAGSTAFF
COMM	COMMERCIAL
D/W	DRIVEWAY
E	EASTING
EG	EXISTING GRADE
EL - ELEV	ELEVATION
EP	END POINT ALIGNMENT
EX	EXISTING
FC	FACE OF CURB
FFE	FINISHED FLOOR ELEVATION
FG	FINISHED GRADE
GB	GRADE BREAK
HDPE	HIGH DENSITY POLYETHYLENE
INV	INVERT
LEN	LENGTH
LPS	LOW PRESSURE SODIUM
LT - L	LEFT
MAC	MODIFIED ASPHALTIC CONCRETE
MAG	MARICOPA ASSOCIATION OF GOVERNMENTS
MAX	MAXIMUM
MB	MAIL BOX
ME	MATCH EXISTING
MIN	MINIMUM
MP	MID POINT (CURVE)
N	NORTHING
NA	NOT APPLICABLE
OFS	OFFSET
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PCCP	PORTLAND CEMENT CONCRETE PAVEMENT
PRC	POINT OF REVERSE CURVATURE
PRV	PRESSURE RELIEF VALVE
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
RAD - R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RES	RESIDENTIAL
ROW - R/W	RIGHT OF WAY
RS	RESTRIPE
RT - R	RIGHT
S	SIGN
SD	STORM DRAIN
SRP	SPIRAL RIBBED PIPE
SS	SANITARY SEWER
STA	STATION
SW	SIDEWALK
TC	TOP OF CURB
TR	TOP OF RAMP
TS	TOP OF STAIR
TW	TOP OF WALL
VG	VALLEY GUTTER
WL	WATER LINE
WM	WATER METER
WV	WATER VALVE

FINAL 2 PLANS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

REVISION	DESCRIPTION	DATE

201 E. Birch Ave.
Flagstaff, AZ 86001
(928) 774-4046

Peak ENGINEERING, INC.
Connecting Place to People

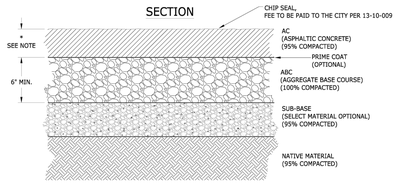
Professional Engineer Seal
CERTIFICATE NO. 42777
THOMAS E. SMITH
DATE SIGNED 08/15/2023

CITY OF FLAGSTAFF
2023 STREET MAINTENANCE PROGRAM
NOTES & LEGEND

COF PROJECT NO. 03-18005

JOB NO:23COF04 | BY:MRB/CBW
DATE: AUGUST 2023 | CHECKED:TES

C1.1



* THE MINIMUM DEPTH OF THE AC VARIES, DEPENDING ON THE TYPE OF ROADWAY. THE TYPICAL MINIMUM PAVEMENT DEPTHS ARE AS FOLLOWS, OR MATCH EXISTING, WHICHEVER IS GREATER.

ARTERIALS = 5"
COLLECTORS = 4"
LOCALS & ALLEYS = 3"

OFF-STREET PARKING MINIMUM DEPTH OF AC IS 2 1/2"
PARKING LOTS MAY BE PAVED WITH 4" PORTLAND CEMENT CONCRETE UPON COMPACTED SUBGRADE.

ALTERNATIVE SECTIONS:

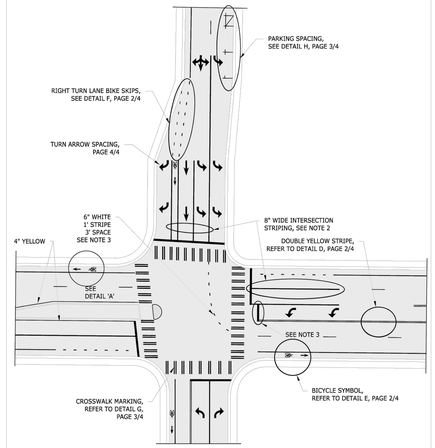
1. FOR PARKING LOTS, ALTERNATIVE SECTIONS OF PAVEMENT WILL BE CONSIDERED (i.e. PAVERS, POROUS ASPHALT AND CONCRETE, GRASS CRETE, GRAVEL PAVE, ETC.)

NOTES:

1. ALTERNATIVE SECTIONS SHALL BE LIMITED TO THE PARKING AREAS AND DRIVE AISLES THAT DO NOT SERVE AS FIRE ACCESS AISLES.
2. THE PROFESSIONAL ENGINEER MAY RECOMMEND PAVEMENT STRUCTURAL SECTION THAT ARE EQUIVALENT TO THE MINIMUM SECTIONS ABOVE.

NTS

City of Flagstaff	PAVEMENT STRUCTURAL SECTIONS for STREETS & OFF-STREET PARKING LOTS			
ENGINEERING DETAIL	DETAIL NO. 10-09-010	REVISION DATE: 12/30/2017	1	1

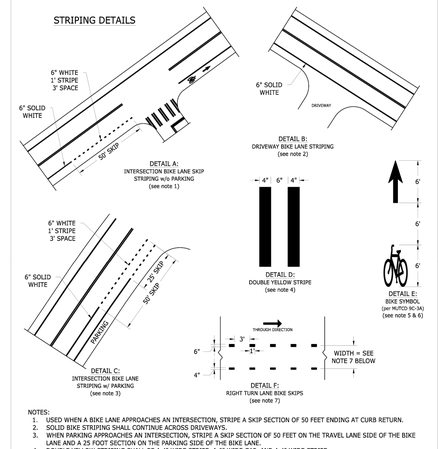


NOTES:

1. FOR PAVEMENT MARKING MATERIAL TYPES, SEE CHAPTER 13-16-006.
2. 8" WIDE STRIPING IS TO BE A MINIMUM LENGTH OF 100 FEET, OR MATCH EXISTING TURN LANE.
3. LAYOUT OF MINI SKIPS THROUGH INTERSECTION AND SETBACK OF LEFT TURN LANE STOP BAR SHALL BE APPROVED BY TRANSPORTATION ENGINEERING STAFF.

NTS

City of Flagstaff	INTERSECTION STRIPING			
ENGINEERING DETAIL	DETAIL NO. 16-06-010	REVISION DATE: 12/30/2017	1	4

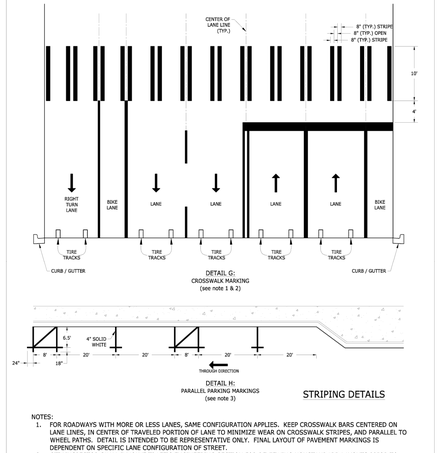


NOTES:

1. USED WHEN A BIKE LANE APPROACHES AN INTERSECTION, STRIPE A SKIP SECTION OF 50 FEET ENDING AT CURB RETURN.
2. SOLID BIKE STRIPING SHALL CONTINUE ACROSS DRIVEWAYS.
3. WHEN PARKING APPROACHES AN INTERSECTION, STRIPE A SKIP SECTION OF 50 FEET ON THE TRAVEL LANE SIDE OF THE BIKE LANE AND A 25 FOOT SECTION ON THE PARKING SIDE OF THE BIKE LANE.
4. DOUBLE YELLOW STRIPING SHALL BE A 4" WIDE STRIPE, A 6" WIDE GAP, AND A 4" WIDE STRIPE.
5. BIKE LANE SYMBOLS SHALL BE 15 FEET FROM THE CURB RETURN ON THE DOWNSTREAM LEG OF ALL INTERSECTIONS.
6. THE GAPS BETWEEN BIKE SYMBOLS SHALL BE RELATIVELY STANDARD SPACING OF NO MORE THAN 1 MILE LONG.
7. TYPICAL BIKE LANE WIDTH = 4.5', EXCEPT WHEN ADJACENT TO ON-STREET PARKING AND/OR WHEN BIKE LANE TRAVERSES BETWEEN TURN LANES, THEN WIDTH = 5'.

NTS

City of Flagstaff	INTERSECTION STRIPING			
ENGINEERING DETAIL	DETAIL NO. 16-06-010	REVISION DATE: 12/30/2017	2	4



NOTES:

1. FOR ROADWAYS WITH MORE OR LESS LANES, SAME CONFIGURATION APPLIES. KEEP CROSSWALK BARS CENTERED ON LANE LINES, IN CENTER OF TRAVELED PORTION OF LANE TO MINIMIZE WEAR ON CROSSWALK STRIPES, AND PARALLEL TO WHEEL PATHS. DETAIL IS INTENDED TO BE REPRESENTATIVE ONLY. FINAL LAYOUT OF PAVEMENT MARKINGS IS DEPENDENT ON SPECIFIC LANE CONFIGURATION OF STREET.
2. CITY INSPECTOR SHALL INVOLVE TRAFFIC ENGINEERING SECTION FOR REVIEWING NONSTANDARD LAYOUTS PRIOR TO INSTALLING MARKINGS, FOR WHICH AT LEAST 24-HOURS NOTICE IS REQUIRED.
3. FOR MORE THAN TWO (2) 20 FOOT PARALLEL PARKING STALLS, ONE (1) PARKING MANEUVERING BOX IS REQUIRED BETWEEN THE SECOND AND THIRD STALL.

NTS

City of Flagstaff	INTERSECTION STRIPING			
ENGINEERING DETAIL	DETAIL NO. 16-06-010	REVISION DATE: 12/30/2017	3	4

NOTES:

1. FOR STORAGE LENGTHS OF 400' OR GREATER, ADD A 4TH ARROW EQUALLY SPACED.
2. ARROWS SHALL BE EVEN WITH ADJACENT TURN LANE ARROWS WHEN APPLICABLE.

TURN LANE PAVEMENT MARKINGS

NTS

City of Flagstaff	INTERSECTION STRIPING			
ENGINEERING DETAIL	DETAIL NO. 16-06-010	REVISION DATE: 12/30/2017	4	4

DETAIL NO. 236-5	MARICOPA ASSOCIATION of GOVERNMENTS	STANDARD DETAIL ENGLISH	25' - 35' R - RADIAL PARALLEL CURB RAMP	REVISED 01-01-2018	DETAIL NO. 236-5

DETAIL NO. 238-2	MARICOPA ASSOCIATION of GOVERNMENTS	STANDARD DETAIL ENGLISH	COMBINATION CURB RAMP	REVISED 01-01-2018	DETAIL NO. 238-2

NOTES:

1. NEW ASPHALT CONCRETE PER MAG AND PROJECT SPECIFICATIONS
2. 8" ABC PER MAG AND PROJECT SPECIFICATIONS
3. APPLY BITUMINOUS TACK COAT TO ALL ADJOINING SURFACES OF THE EXISTING ASPHALT CONCRETE
4. EXCAVATE PATCH AREA TO A MINIMUM DEPTH OF 12" BELOW PAVEMENT GRADE. COMPACT SUBGRADE PER MAG AND PROJECT SPECIFICATIONS.
5. FREE EDGES OF PAVEMENT PATCHES TO HAVE THICKENED ASPHALT SECTION PER MAG SD 201, TYPE B.
6. SEE SPECIAL PROVISIONS, SECTION 301, 305, AND 336 FOR ADDITIONAL INFORMATION.

A / C1.4 *STANDARD PATCH DETAIL*
NOT TO SCALE

* ALL DEPRESSIONS/RUTS IN EXCESS OF ¾" SHALL BE FILLED WITH HOT MIX ASPHALT (¾" MIX). SS-1H TACK COAT SHALL BE PLACED PRIOR TO HMA.

B / C1.4 *EDGE MILL DETAIL* - **NOT APPLICABLE THIS PLAN SET**
NOT TO SCALE

* ALL DEPRESSIONS/RUTS IN EXCESS OF ¾" SHALL BE FILLED WITH HOT MIX ASPHALT (¾" MIX). SS-1H TACK COAT SHALL BE PLACED PRIOR TO HMA.

C / C1.4 *OVERLAY MATCHING DETAIL*
NOT TO SCALE

* CURB AND GUTTER PER MAG SD 220 TYPE A OR ROLL CURB PER MAG SD 22 TYPE C

D / C1.4 *TYPICAL PAVEMENT R&R AT CURB AND GUTTER*
NOT TO SCALE

FINAL 2 PLANS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

REVISION	DESCRIPTION	DATE

201 E. Birch Ave.
Flagstaff, AZ 86001
(928) 774-4046
Peak ENGINEERING, INC.
Connecting Place to People

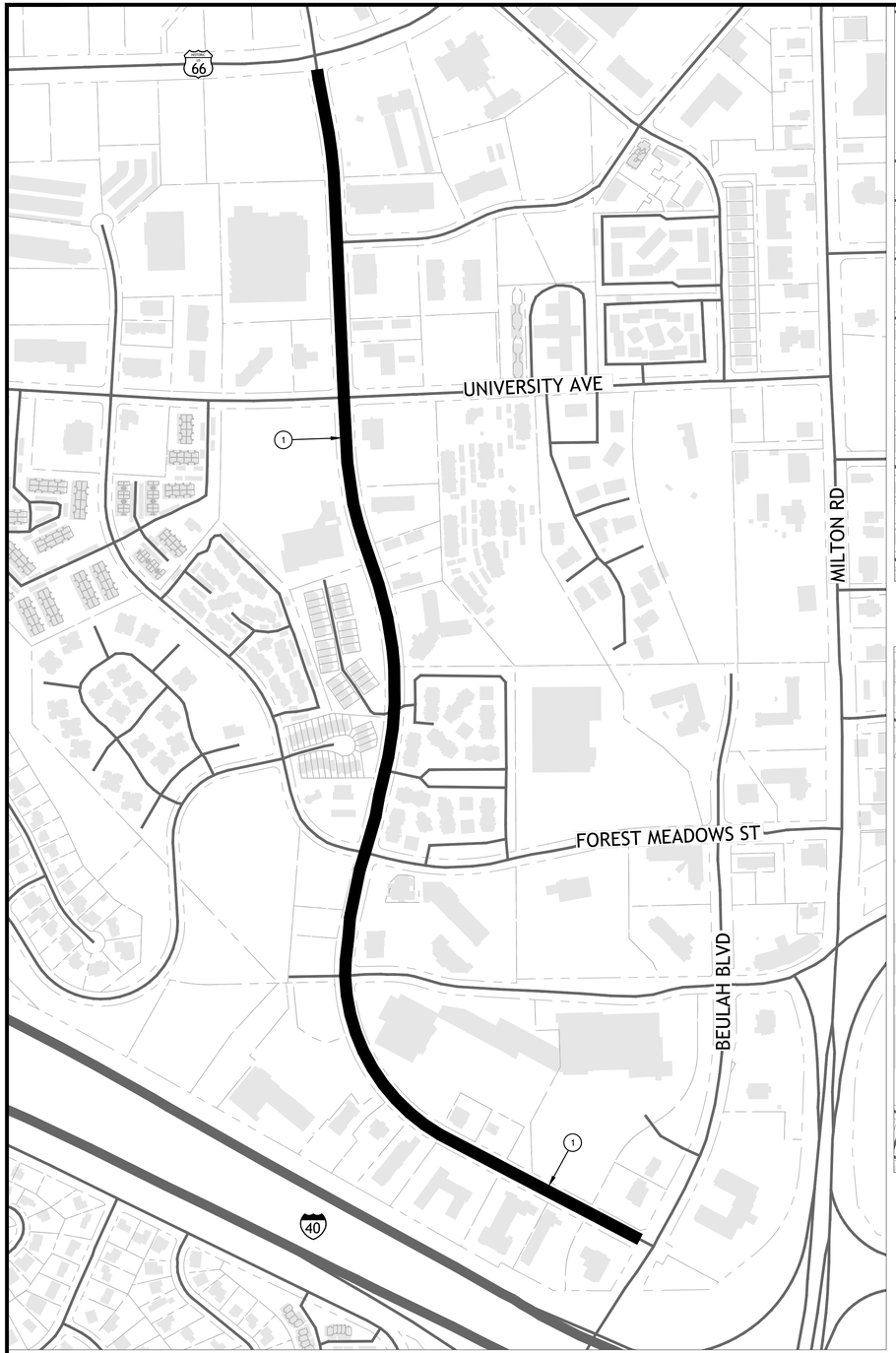
REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO. 42777
THOMAS E. SMITH
DATE SIGNED 12/31/23

CITY OF FLAGSTAFF
2023 STREET MAINTENANCE PROGRAM
DETAILS

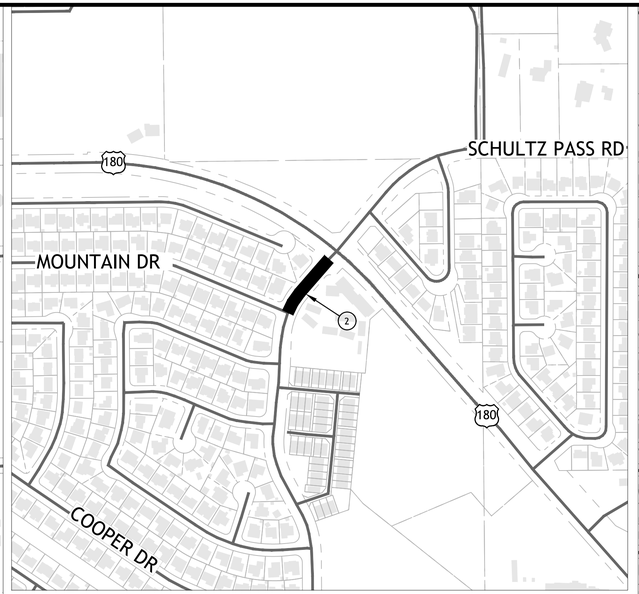
COF PROJECT NO. 03-18005

JOB NO:23COF04 | BY:MRB/CBW | CHECKED:TES
DATE: AUGUST 2023

C1.2



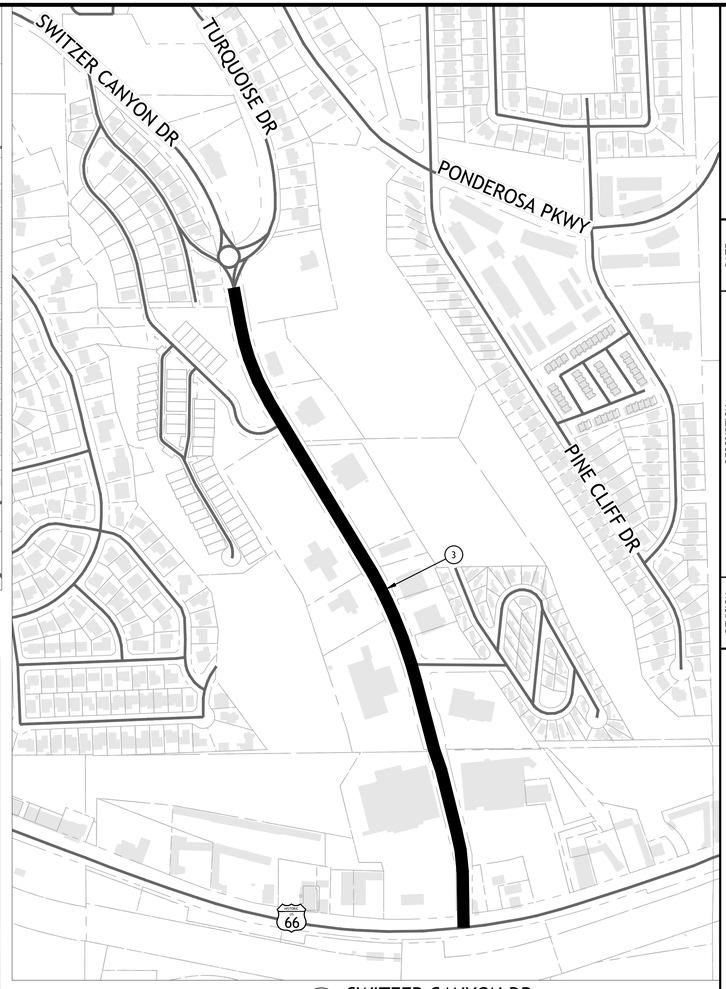
1 *WOODLANDS VILLAGE BLVD*
NOT TO SCALE



2 *FREMONT BLVD*
NOT TO SCALE



4 *COLUMBUS AVE*
NOT TO SCALE



3 *SWITZER CANYON DR*
NOT TO SCALE

MAP ID	Street Name	Start	End	Length (APPROX)	Avg. Width (APPROX)	AREA (MEASURED)	MAC Thickness	Treatment
				FT	FT	SY	IN.	
1	WOODLANDS VILLAGE	ROUTE 66	BEULAH BLVD	5,773	62	42,712	2.00	LTC,MAC& RS
2	FREMONT BLVD	FT VALLEY RD	MOUNTAIN DR	344	61	2,717	2.00	LTC,MAC & RS
3	SWITZER CYN DR	ROUTE 66	TURQUOISE DR	2,797	47	15,257	2.00	LTC,MAC & RS
4	COLUMBUS AVE	SAN FRANCISCO ST	HUMPHREYS ST	882	39	5,694	2.00	LTC,MAC & RS
5	BABBITT DR	BUTLER AVE	CULDESAC	1,100	37	5,476	2.00	LTC,MAC & RS
6	MARS HILL RD	THORPE RD	CITY OVERLOOK	2,260	30	9,042	2.00	LTC,MAC & RS
7	E COYOTE LN	FOXGLENN ST	END	158	33	902	3.00	REPAVE
8	LOWER COCONINO AVE	COCONINO AVE	END	1,982	24	6,698	3.00	REBUILD

N

GRAPHIC SCALE 1" = 300'

300 0 300 600 900

LEGEND

MILL AND OVERLAY (X)

REMOVE & REBUILD (X)

FINAL 2 PLANS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

REVISION	DESCRIPTION	DATE

201 E. Birch Ave.
Flagstaff, AZ 86001
(928) 774-4046

Peak ENGINEERING, INC.
Connecting Place to People

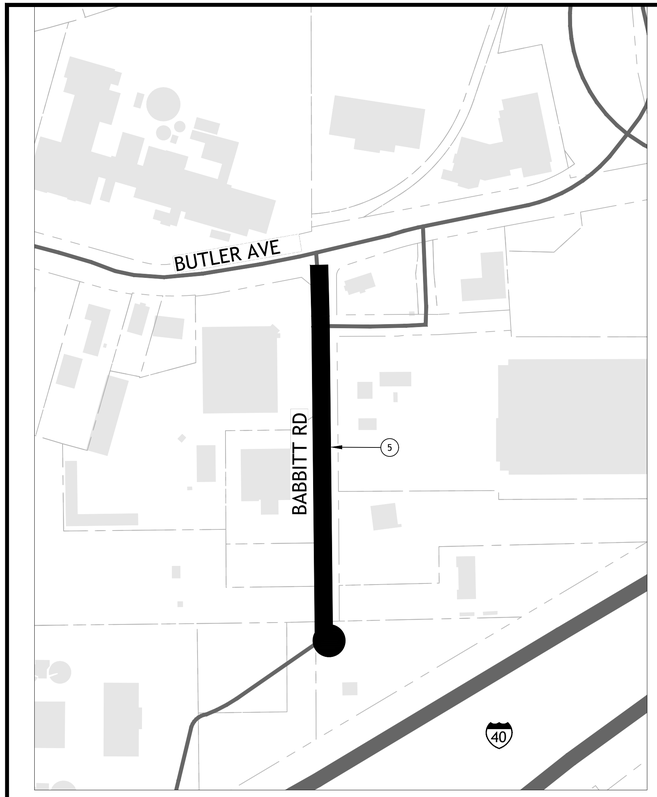
CERTIFICATE NO. 42777 THOMAS E. SMITH

CITY OF FLAGSTAFF
2023 STREET MAINTENANCE PROGRAM
MILL & OVERLAY

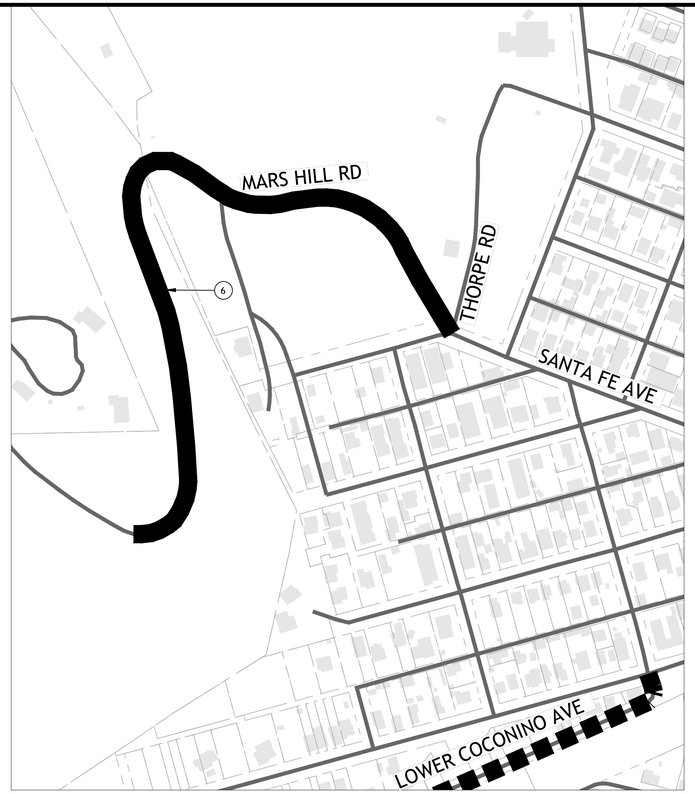
COF PROJECT NO. 03-18005

JOB NO:23COF04 | BY:MRB/CBW | CHECKED:TES | DATE: AUGUST 2023

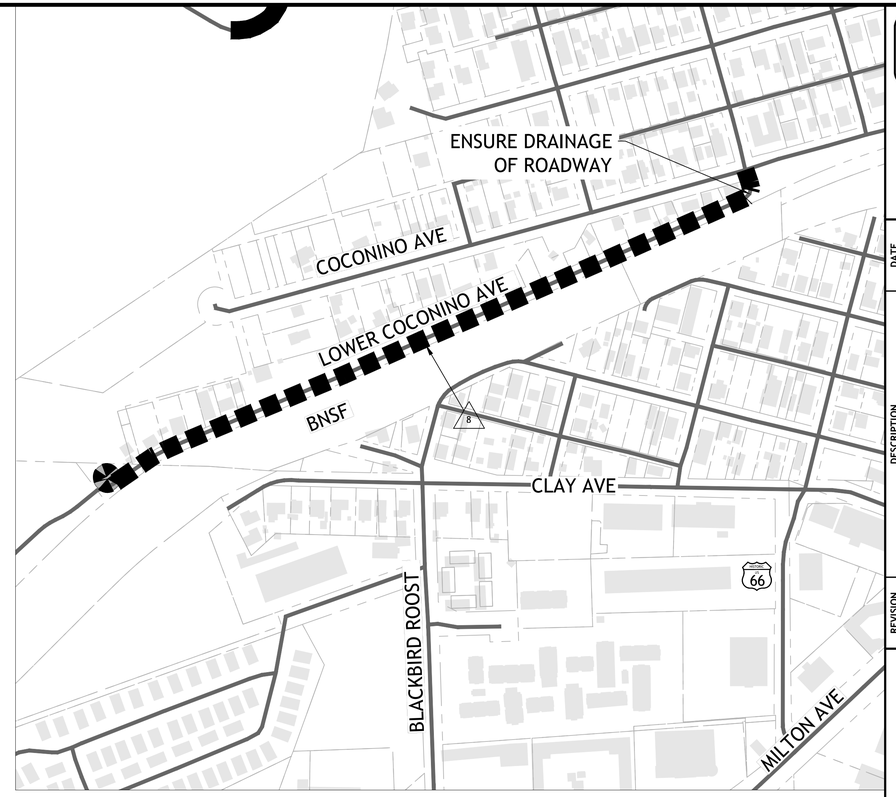
C2.0



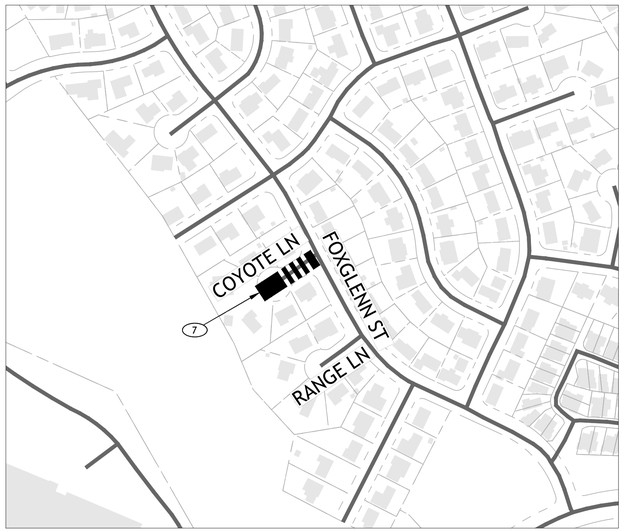
5 **BABBITT RD**
NOT TO SCALE



6 **MARS HILL RD**
NOT TO SCALE



8 **LOWER COCONINO AVE**
NOT TO SCALE



7 **COYOTE LN**
NOT TO SCALE

MAP ID	Street Name	Start	End	Length (APPROX)	Avg. Width (APPROX)	AREA (MEASURED)	MAC Thickness	Treatment
				FT	FT	SY	IN.	
1	WOODLANDS VILLAGE	ROUTE 66	BEULAH BLVD	5,773	62	42,712	2.00	LTC,MAC& RS
2	FREMONT BLVD	FT VALLEY RD	MOUNTAIN DR	344	61	2,717	2.00	LTC,MAC & RS
3	SWITZER CYN DR	ROUTE 66	TURQUOISE DR	2,797	47	15,257	2.00	LTC,MAC & RS
4	COLUMBUS AVE	SAN FRANCISCO ST	HUMPHREYS ST	882	39	5,694	2.00	LTC,MAC & RS
5	BABBITT DR	BUTLER AVE	CULDESAC	1,100	37	5,476	2.00	LTC,MAC & RS
6	MARS HILL RD	THORPE RD	CITY OVERLOOK	2,260	30	9,042	2.00	LTC,MAC & RS
7	E COYOTE LN	FOXGLENN ST	END	158	33	902	3.00	REPAVE
8	LOWER COCONINO AVE	COCONINO AVE	END	1,982	24	6,698	3.00	REBUILD

N

GRAPHIC SCALE 1" = 200'
200 0 200 400 600

LEGEND

MILL AND OVERLAY (X)
REMOVE & REBUILD (X)
REPAVE (X)

FINAL 2 PLANS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

DATE	DESCRIPTION	REVISION

201 E. Birch Ave.
Flagstaff, AZ 86001
(928) 774-4046

Peak ENGINEERING, INC.
Connecting Place to People

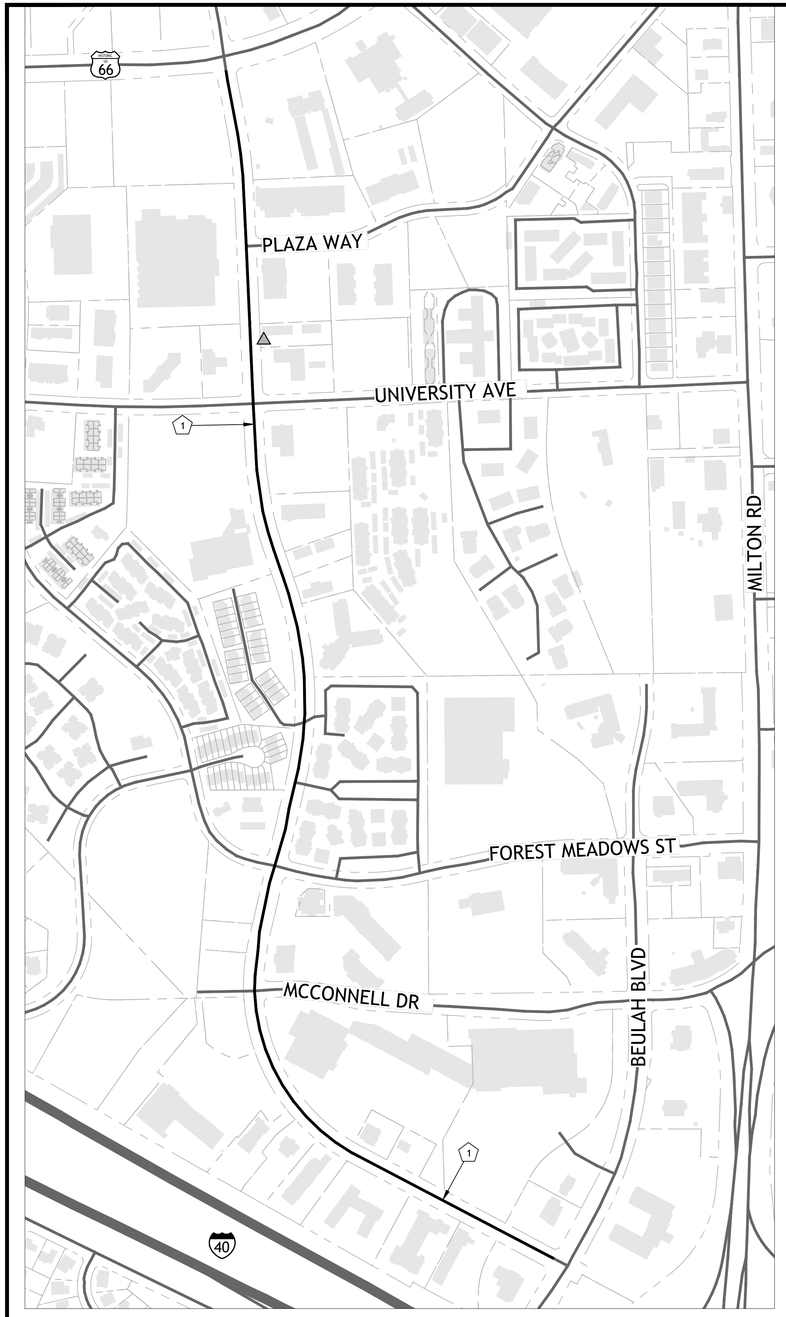
CERTIFICATE NO. 42777 THOMAS E. SMITH Date 8/16/23 REGISTERED PROFESSIONAL ENGINEER (Civil) STATE OF ARIZONA

CITY OF FLAGSTAFF
2023 STREET MAINTENANCE PROGRAM
MILL & OVERLAY

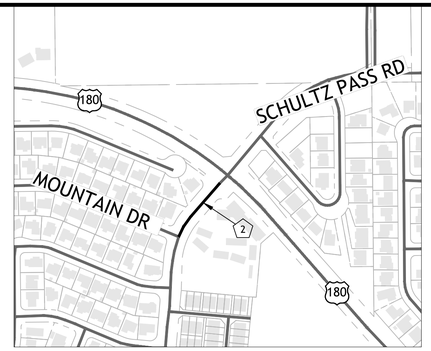
COF PROJECT NO. 03-18005

JOB NO:23COF04 | BY:MRB/CBW
DATE: AUGUST 2023 | CHECKED:TES

C2.1



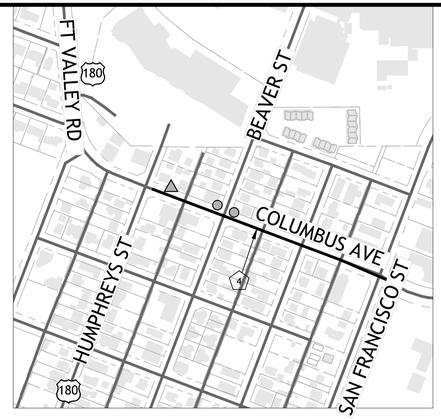
1 WOODLANDS VILLAGE BLVD
NOT TO SCALE



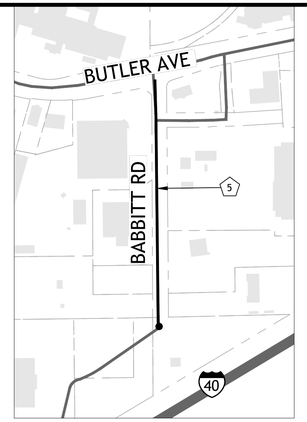
2 FREMONT BLVD
NOT TO SCALE



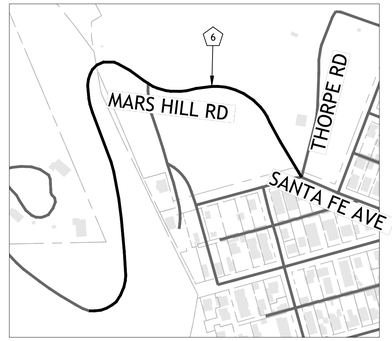
3 SWITZER CANYON DR
NOT TO SCALE



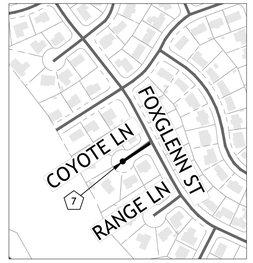
4 COLUMBUS AVE
NOT TO SCALE



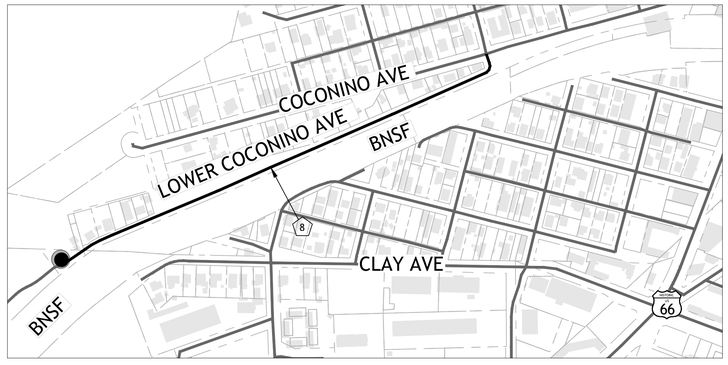
5 BABBITT RD
NOT TO SCALE



6 MARS HILL RD
NOT TO SCALE



7 COYOTE LN
NOT TO SCALE



8 LOWER COCONINO AVE
NOT TO SCALE

MISC EDGE IMPROVEMENTS

KEYNOTE	STREET NAME	SIDEWALK (SF)	VERTICAL CURB (LF)	ROLL CURB (LF)	CURB RAMP (EA)	DRIVEWAYS (SF)	RETROFIT ADA DOMES (EA)
1	WOODLANDS VILLAGE	1,309.00	12.00	0.00	0.00	64.00	2.00
2	FREMONT BLVD	137.35	0.00	0.00	0.00	0.00	6.00
3	SWITZER CYN DR	428.30	111.00	0.00	1.00	525.00	4.00
4	COLUMBUS AVE	577.00	55.00	0.00	1.25	52.00	2.00
5	BABBITT DR	396.00	0.00	0.00	0.00	0.00	4.00
6	MARS HILL RD	0.00	0.00	0.00	0.00	0.00	0.00
7	E COYOTE LN	80.00	0.00	0.00	0.00	140.00	0.00
8	LOWER COCONINO AVE	0.00	101.00	0.00	0.00	51.00	0.00

LEGEND

- CURB RAMP
- DRIVEWAY
- (X) LIMITED EDGE IMPROVEMENTS (MARKED IN FIELD)

N

GRAPHIC SCALE 1" = 300'
300 0 300

FINAL 2 PLANS

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ARIZONA811
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REVISION	DESCRIPTION	DATE

201 E. Birch Ave.
Flagstaff, AZ 86001
(928) 774-4046

Peak ENGINEERING, INC.
Connecting Place to People

CERTIFICATE NO. 42777 THOMAS E. SMITH Date Signed 6/30/23

CITY OF FLAGSTAFF
2023 STREET MAINTENANCE PROGRAM
EDGE IMPROVEMENTS

COF PROJECT NO. 03-18005

BY: MRB/CBW | CHECKED: TES
JOB NO: 23COF04 | DATE: AUGUST 2023

C3.0

ABBREVIATIONS:
MAC- MODIFIED ASPHALTIC CONCRETE OVERLAY
RS - RE-STRIPE
REBUILD- REMOVE EXISTING PAVEMENT AND REPAVE
LTC- MILL AND FILL LARGE THERMAL CRACKS
EDGE IMP.- INSTALL MISC. EDGE IMPROVEMENTS

IMPROVEMENT SCHEDULE - OVERLAY

MAP ID	Street Name	Start	End	Length (APPROX)	Avg. Width (APPROX)	AREA (MEASURED)	MAC Thickness	MAC (OVERLAY) 1/2"	MAC (OVERLAY) 3/4"	(REBUILD/REPAVE) 3/4"	Treatment
				FT	FT	SY	IN.	TONS	TONS	TONS	
1	WOODLANDS VILLAGE	ROUTE 66	BEULAH BLVD	5,773	62	42,712	2.00	0.00	4,805.09		LTC,MAC& RS
2	FREMONT BLVD	FT VALLEY RD	MOUNTAIN DR	344	61	2,717	2.00	305.66	0.00		LTC,MAC & RS
3	SWITZER CYN DR	ROUTE 66	TURQUOISE DR	2,797	48	15,257	2.00	1,716.41	0.00		LTC,MAC & RS
4	COLUMBUS AVE	SAN FRANCISCO ST	HUMPHREYS ST	882	39	5,694	2.00	640.56	0.00		LTC,MAC & RS
5	BABBITT DR	BUTLER AVE	CULDESAC	1,100	37	5,476	2.00	616.10	0.00		LTC,MAC & RS
6	MARS HILL RD	THORPE RD	CITY OVERLOOK	2,260	30	9,042	2.00	1,017.23	0.00		LTC,MAC & RS
7	E COYOTE LN	FOXGLENN ST	END	158	33	902	3.00			152.22	REPAVE
8	LOWER COCONINO AVE	COCONINO AVE	END	1,982	24	6,698	3.00			1,130.25	REBUILD
							TOTAL	4,295.96	4,805.09	1,282.47	

AGGREGATE BASE VOLUMES

KEYNOTE	STREET NAME	SIDEWALK - 3" AB (SF)	VERTICAL CURB - 3" AB (SF)	ROLL CURB - 3" AB (SF)	CURB RAMP - 3" AB (SF) - ASSUMED 30' RADIUS & 5' WIDTH	DRIVEWAYS - 3" AB (SF)	ACP PATCH - 6"AB (SF)	AB TOTAL (CF)
1	WOODLANDS VILLAGE	1,309.00	24.00	0.00	0.00	64.00	5,405.00	3,051.75
2	FREMONT BLVD	137.35	0.00	0.00	0.00	0.00	501.50	285.09
3	SWITZER CYN DR	428.30	222.00	0.00	150.00	525.00	9,907.00	5,284.83
4	COLUMBUS AVE	577.00	110.00	0.00	300.00	52.00	0.00	259.75
5	BABBITT DR	396.00	0.00	0.00	0.00	0.00	8,828.00	4,513.00
6	MARS HILL RD	0.00	0.00	0.00	0.00	0.00	12,654.00	6,327.00
7	E COYOTE LN	80.00	0.00	0.00	0.00	140.00	0.00	55.00
8	LOWER COCONINO AVE	0.00	202.00	0.00	0.00	51.00	0.00	63.25
							TOTAL AB - EDGE IMPROVEMENTS (CF)	19,839.66

MAP ID	STREET NAME	START	END	APPROX. LENGTH	APPROX. AVERAGE WIDTH	FIELD MEASURED ACP AREA X SAFETY	MAC THICKNESS	AB THICKNESS	AB TOTAL (CF)
				FT	FT	SF	IN.		
8	LOWER COCONINO AVE	COCONINO AVE	END	1981.8	24.1	60280	3	6	30140
								TOTAL AB - REBUILD (CF)	30,140

STRIPING AND MARKING QUANTITIES - MAC OVERLAY

MILL AND OVERLAY STRIPING SUBTOTAL

NO.	Description	Quantity	Unit
1	4" DOUBLE SOLID YELLOW	4,957	LF
2	12" PREFORMED SOLID WHITE CROSSWALK	213	LF
3	4" YELLOW HATCHING	0	LF
4	18" PREFORMED STOP BAR	515	LF
5	SHARED LANE BIKE MARKING	0	EA
6	4" BROKEN WHITE	10,135	LF
7	4" SOLID / 4" BROKEN YELLOW	4,587	LF
8	4" SOLID WHITE EDGE LINE	4,504	LF
9	4" PARKING STALL WHITE	0	LF
10	6" SOLID WHITE BIKE LANE LINE	6,319	LF
11	PAINTED BIKE ASSEMBLY	9	EA
12	PREFORMED TURN ARROWS (RT., LT., STRAIGHT, COMBO, RAILROAD CROSSING)	67	EA
13	SOLID WHITE LANE LINES	4,010	LF
14	6" WHITE LANE HATCHING	0	LF
15	6" DASHED BIKE LANE	762	LF
16	COF PIANO KEY CROSSWALK	1,219	LF

CONTRACT QUANTITIES

NO.	DESCRIPTION	QUANTITY	UNIT
1	CRACK SEALING (MILL & OVERLAY)	26.0	T
2	MILL AND FILL LARGE THERMAL CRACKS	10,200.4	LF
3	LOWER MANHOLE FRAME & COVER FOR MILLING OPERATIONS	50.0	EA
4	LOWER WATER VALVE BOX FOR MILLING OPERATIONS	67.0	EA
5	REMOVE AND REPLACE PAVEMENT (4" AC/6"ABC [C-3/4"]) PATCH	5,091.4	SY
6	REMOVE AND REPLACE CONCRETE DRIVEWAY 8"PCC (INCLUDING. 6"ABC)	832.0	SF
7	REMOVE AND REPLACE CURB AND GUTTER (VERTICAL- INCLUDING. 3"ABC)	279.0	LF
8	REMOVE AND REPLACE SIDEWALK (INCLUDING. 3"ABC)	2,927.7	SF
9	REMOVE AND DISPOSE OVER SIZED CONCRETE MANHOLE COLLAR	5.0	EA
10	REMOVE AND DISPOSE OVER SIZED CONCRETE VALVE CAN COLLAR	16.0	EA
11	REMOVE RAMP & INSTALL DETECTABLE WARNING (RETROFIT DOMES) INCLUDING 3" ABC	18.0	EA
12	REMOVE RAMP & INSTALL DETECTABLE WARNING (PARALLEL RAMP AND DOMES) INCLUDING 3" ABC	2.3	EA
13	PAVEMENT MILLING (FULL WIDTH)	80,898.2	SY
14	TACK COAT (SS-1H)	17.0	T
15	MODIFIED ASPHALTIC CONCRETE (1/2" MIX)	4,296.0	T
16	MODIFIED ASPHALTIC CONCRETE (3/4" MIX) - DOES NOT INCLUDE REBUILD OR REPAVE STREETS	4,805.1	T
17	SUBGRADE STABILIZATION-OVER EX & 12" ABC ON BIAXIAL GEOGRID (ALLOWANCE)	1.0	LS
18	FULL STREET REBUILD (3"AC [C-3/4"]/6" ABC)-LOWER COCONINO AVENUE	8,037.3	SY
19	REMOVE & REPLACE AC (3"AC [C-3/4"]/Compacted Native)-E COYOTE LN	1,082.5	SY
20	ADJUST MANHOLE FRAME & COVER (CITY DTL. 9-03-062)	56.0	EA
21	ADJUST WATER VALVE FRAME AND COVER TO FINISHED GRADE (REMOVE, REPLACE WITH NEW HARDWARE TO NUT)	7.0	EA
22	ADJUST SEWER CLEANOUT, BLOWOFFS AND SURVEY HANDHOLES (CITY DTL. 9-03-062)	1.0	EA
23	ADJUST METER BOX IN SIDEWALK	3.0	EA
24	REMOVE AND REPLACE SURVEY MONUMENTS	18.0	EA
25	TRAFFIC CONTROL	1.0	LS
26	CONSTRUCTION SURVEY	1.0	LS
27	STRIPING AND MARKING	1.0	LS

FINAL 2 PLANS

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

DATE
DESCRIPTION
REVISION

201 E. Birch Ave.
Flagstaff, AZ 86001
(928) 774-4046
Peak ENGINEERING, INC.
Connecting Place to People

REGISTERED PROFESSIONAL ENGINEER (Civil) CERTIFICATE NO. 42777 THOMAS E. SMITH Date Signed 08/31/2023

CITY OF FLAGSTAFF
2023 STREET MAINTENANCE PROGRAM
IMPROVEMENT SCHEDULE

COF PROJECT NO. 03-18005

JOB NO:23COF04 | BY:MRB/CBW
DATE: AUGUST 2023 | CHECKED:TES

C4.0

7. E.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Kristine Pavlik, Housing and Grants Administrator
Date:	08/31/2023
Meeting Date:	09/05/2023

TITLE:

Consideration of Ratification of Funding Agreement: City Council Ratification of Funding Agreement No. 801-23 between the City of Flagstaff and Arizona Department of Housing

STAFF RECOMMENDED ACTION:

Ratify the Funding Agreement No. 801-23, between the City of Flagstaff and Arizona Department of Housing for the City of Flagstaff Emergency Unsheltered Homeless Services program, utilizing $840,000.00 in FY23 S.B. 1720 Homeless Shelter and Services Funds

Executive Summary:

City Council is being requested to ratify the City Manager's Approval of a Funding Agreement in the amount of $840,000.00 between the City of Flagstaff (City) and Arizona Department of Housing (ADOH) to provide supportive services, overnight shelter and move in assistance to individuals and households experiencing homelessness.

On June 5, 2023, Housing Section staff received notice from the Arizona Department of Housing of their intent to award $840,000.00 of Homeless Shelter and Services Funding (HSSF) to the City of Flagstaff for the Emergency Unsheltered Homeless Services program. The City will partner with local homeless and housing service providers to facilitate supportive services, overnight shelter, transitional housing and move-in assistance for households experiencing homelessness. The funding offer was accepted in July by the City of Flagstaff in order to abide ADOH requirements for the State of Arizona FY23 Budget Appropriations and a period of performance beginning July 1, 2023.

Financial Impact:

The City of Flagstaff will receive $840,000.00 in funding from the Arizona Department of Housing. The City will utilize $140,000.00 for administrative and indirect costs and $700,000.00 will be allocated to community partners through a Notice of Funding Availability (NOFA) and proposal process.

This grant and program is not budgeted in the FY24 budget due to the timing of this funding opportunity. The budget and appropriation for this grant will be covered within account numbers 021-05-107-6103-4 & 021-05-107-6104-4 and 021-05-108-6111-4.

Policy Impact:

The City of Flagstaff 10-Year Housing Plan provides policy initiatives and strategies that the City will implement to address the City's Housing Emergency including reducing homelessness. With funding from the Arizona Department of Housing, the City of Flagstaff will provide supportive services for 600 unsheltered individuals experiencing homelessness including case management, overnight shelter, and move-in assistance.

Connection to PBB Priorities/Objectives, Carbon Neutrality Plan & Regional Plan:

Priority Based Budget Key Community Priorities and Objectives

- **Safe & Healthy Community**
  - Support social services, community partners & housing opportunities
  - Provide alternative responses, resources & programs, inclusive of mental health & other services

- **Inclusive & Engaged Community**
  - Foster community pride & civic engagement by increasing opportunities for public involvement, in line with best practices & legal requirements
  - Advance social equity & social justice in Flagstaff by supporting social services
  - Facilitate & foster diversity & inclusivity, including support of anti-racist policies & practices
  - Enhance community involvement, education & regional partnerships to strengthen the level of public trust
  - Ensure city facilities, services, & programs are accessible for all residents & representative of Flagstaff's diverse community

- **Sustainable, Innovative Infrastructure**
  - Support the community's social infrastructure needs; assist those partner organizations that provide services the City does not

- **Robust Resilient Economy**
  - Support & strengthen a more robust, diverse, & sustainable economy in ways that reflect community values & provides for affordable housing opportunities
  - Enhance understanding between the development community, the City & Flagstaff residents
  - Enhance the community's workforce development programs & improve partnerships with higher education institutions & the private & public sectors

- **Livable Community**
  - Support regional partners which provide equitable & inclusive educational opportunities for Flagstaff residents of all ages
  - Actively support attainable & affordable housing through City projects & opportunities with developers

- **Environmental Stewardship**
  - Implement, maintain & further the Climate Action & Adaptation Plan (CAAP) with awareness of social inequities

Regional Plan

- **Goal NH.1. Foster and maintain healthy and diverse urban, suburban, and rural neighborhoods in the Flagstaff region.**
  - Policy NH.1.1. Preserve and enhance existing neighborhoods.

- **Goal NH.3. Make available a variety of housing types at different price points, to provide housing opportunities for all economic sectors.**
  - Policy NH.3.1. Provide a variety of housing types throughout the City and region, including

purchase and rental options, to expand the choices available to meet the financial and lifestyle needs of our diverse population.
- Policy NH.3.3. Increase the availability of affordable housing for very low-income persons, through innovative and effective funding mechanisms

- **Goal NH.4. All housing is safe and sanitary.**
  - Policy NH.4.1. Expand the availability of affordable housing throughout the region by preserving existing housing, including housing for very low-income persons. Policy NH.4.2. Reduce substandard housing units by conserving and rehabilitating existing housing stock to minimize impacts on existing residents.
  - Policy NH.4.3. Address accessibility issues and other housing barriers to persons with disabilities or special needs.
  - Policy NH.4.4. Encourage green practices in housing construction and rehabilitation that support durable, healthy, and energy efficient homes.
  - Policy NH.4.5. Renovate the existing housing stock to conserve energy and reduce utility and maintenance costs for owners and occupants.
  - Policy NH.4.6. Consider and integrate public transportation, when possible, in planning housing developments, to help reduce a household's transportation costs and minimize impact on the community's roads and transportation system.
  - Policy NH.4.7. Enforce compliance with fair housing laws.

- **Goal NH.5. Eliminate homelessness.**
  - Policy NH.5.1. Provide adequate resources for families with children experiencing homelessness.
  - Policy NH.5.2. Provide adequate resources for individuals experiencing homelessness.
  - Policy NH.5.3. Support and expand programs that prevent homelessness.
  - Policy NH.5.4. Make transitional housing resources available to populations experiencing homelessness

Carbon Neutrality Plan

- **Community resilience**
  - CR-1: Ensure all mitigation actions improve Flagstaff's ability to adapt to the future.
  - CR-2: Strengthen existing community systems to create resilience to both short-term shocks and long-term change.

- **Equitable systems**
  - ES-2: Proactively engage community members on an ongoing basis
  - ES-4: Actively seek to recognize past harms, repair trust, and build deeper relationships with community members.

10 Year Housing Plan

- **Connect people to equitable housing solutions.**
  - Connect 1: Reduce homelessness in the Flagstaff community and seek creative solutions to foster housing permanency for all.
    - Connect 1.3 Continue to support and develop Coordinated Entry as a meaningful process that provides linkages to healthcare, behavioral health, and housing
  - Connect 2: Implement a framework for centering equity in proposed and existing housing practices, policies, and programs.
    - Connect 2.1 Evaluate housing policies and strategies in City of Flagstaff planning documents through an equity lens.
    - Connect 2.2 Encourage community organizations such as local Continuum of Care to continue to integrate equity into programs and policies.
  - Connect 3: Integrate healthcare into housing programs, and housing into healthcare

programs, as appropriate.
    - Connect 3.3 Work in partnership with the community to develop and promote community health measurement data collection into housing services when viable
    - Connect 3.2 Encourage neighborhoods, housing types and building practices that increase health.
    - Connect 3.1 Raise awareness of housing security as a social determinate of health

- **Preserve affordable housing**
    - Preserve 1: Encourage the adaptive reuse of buildings.
        - Preserve 2.2 Acquire and rehabilitate already built properties for affordable housing projects when financially feasible.

- **Protect people from housing discrimination and remove housing barriers.**
    - Protect 1: Continue Flagstaff's commitment to further Federal and Arizona Fair Housing laws in all housing-related services and programs, valuing the efforts of those who seek to reduce barriers to equitable housing opportunities, and providing Fair Housing education and resources to the community.

Has There Been Previous Council Decision on This:

There has not been a previous council decision on this specific grant. City Council adopted the 10 Year Housing Plan in February 2022.

Options and Alternatives:

1. Ratify the Funding Agreement No. 801-23, between the City of Flagstaff and Arizona Department of Housing for the City of Flagstaff Emergency Unsheltered Homeless Services program, utilizing $840,000.00 in FY23 S.B. 1720 Homeless Shelter and Services Funds
2. Do not ratify the Funding Agreement No. 801-23

Background/History:

On May 19, 2023, the Arizona Department of Housing (ADOH) released a Notice of Funding Availability (NOFA) for $20,000,000 in Homeless Shelter and Services Funds (HSSF). Funding must be used for programs that will provide shelter and services to unsheltered persons who are experiencing homelessness. Allowable activities include but are not limited to: operating support, motel and hotel vouchers, the acquisition and conversion of temporary accommodations like hotels and motels, and other quick occupancy housing solutions.

Housing Section staff submitted a proposal on May 26, 2023 with a request for $840,000.00 for the City of Flagstaff Emergency Unsheltered Homeless services program to provide supportive and housing services to 600 unsheltered individuals experiencing homelessness.

On June 5, 2023, Housing Section staff received notice from ADOH of their intent to award $840,000.00 in HSSF to the City of Flagstaff for the Emergency Unsheltered Homeless Services program. The funding offer was accepted in July by the City of Flagstaff in order to abide ADOH requirements for the State of Arizona FY23 Budget Appropriations and a period of performance beginning July 1, 2023.

The City will partner with local homeless and housing service providers to facilitate supportive services, overnight shelter, transitional housing and move-in assistance for households experiencing homelessness. A Notice of Funding Availability will be released in October 2023.

Community Benefits and Considerations:

The City of Flagstaff Emergency Unsheltered Homeless Services program will provide supportive services, overnight shelter and move in assistance to individuals and households experiencing homelessness. Supportive services and overnight shelter will include hotel/motel bed nights as emergency shelter for victims of crime who are unhoused due to their victimization, and temporary emergency shelter and transportation to people impacted by the closure of the “sober living” / residential facilities as part of Rainbow Bridge. The City will partner with local homeless and housing service providers to facilitate emergency and overnight shelter, transitional housing and move-in assistance for households experiencing homelessness – providing a Housing First model and fostering permanency.

With Homeless Shelter and Services Funds from the Arizona Department of Housing, the City of Flagstaff will provide supportive services for 600 unsheltered individuals experiencing homelessness. This will include a minimum of 20 homeless households receiving move-in assistance to cover security deposits and application fees for quick housing occupancy; motel/hotel vouchers will be provided to 200 individuals and supportive services, overnight shelter, transportation, coordinated entry and transitional housing for an additional 380 individuals.

Attachments: Executed Agreement

FUNDING AGREEMENT
with
ARIZONA DEPARTMENT OF HOUSING

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ARIZONA DEPARTMENT OF HOUSING

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ARIZONA DEPARTMENT OF HOUSING

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AGREEMENT NO. **801-23**
TERMINATION DATE June 30, 2024

FUNDING AGREEMENT
BETWEEN THE ARIZONA DEPARTMENT OF HOUSING
AND
CITY OF FLAGTAFF
FOR
HOMELESS SHELTER AND SERVICES

This Funding Agreement is made by and between:

The **Arizona Department of Housing ("ADOH"),** located at, 1110 West Washington Street, Suite 280, Phoenix, Arizona 85007, acting pursuant to A.R.S. § 41-3953 and (please select applicable funding source):

☐ Title I of the Housing and Community Development Act of 1974, as amended (Community Development Block Grant) ("**CDBG**").

☐ Title II of the National Affordable Housing Act of 1990, as amended (HOME Investments Partnerships Program) ("**HOME**").

☐ A.R.S. § 41-3955 (State Housing Trust Fund) ("**HTF**").

☐ A.R.S. § 41-3957 (State Housing Program Fund) ("**HPF**").

☒ S.B. 1720 Homeless Shelter and Services Fund ("**HSSF**").

☐ The AIDS Housing Opportunity Act of 1992, as amended, 42 U.S.C. Section 12902 (Housing Opportunities for Persons with HIV/AIDS) ("**HOPWA**").

☐ Title IV Part 578 of the McKinney-Vento Homeless Assistance Act of 1987, as amended, 42 USC. 11301 et seq. and the Continuum of Care Program regulations as amended by the Homeless Emergency Assistance and Rapid Transition to Housing (HEARTH) Act of 2009 (Continuum of Care) ("**COC**").

☐ Title I of the Housing and Economic Recovery Act of 2008, Section 1338 (Public Law 110-289). (National Housing Trust Fund) ("**NHTF**").

☐ Part A of the Energy and Conservation in Existing Buildings Act of 1976, as amended and 42 U.S.C. Section 6861 (Department of Energy Weatherization Assistance Program for Low Income Persons) ("**DOE WAP**").

☐ Title IV Energy Conservation and Production Act (ECPA), as amended; and 42 U.S.C. Section 6861, *et. seq.* including WAP regulations contained in 10 CFR 440, DOE Financial Assistance Rules at 2 CFR 200 and the Bipartisan Infrastructure Law (Infrastructure Investment and Jobs Act), Public Law 117-58. (**"DOE WAP BIL"**).

☐ H.R 2471, the Consolidated Appropriations Act, 2022 establishing the Weatherization Readiness Fund (**"DOE WRF"**).

☐ Low Income Energy Assistance Act of 1981, as amended, 42 U.S.C. Section 8621-8630, (Low Income Home Energy Assistance Program) ("**LIHEAP WAP**").

☐ Southwest Gas Corporation, Weatherization Assistance Program ("**SWG WAP**").

☐ Arizona Public Service, Weatherization Assistance Program ("**APS WAP**").

☐ Salt River Project, Weatherization Assistance Program ("**SRP WAP**").

☐ Crisis Contingency and Safety Net Fund) ("**CCSNF**").

☐ State Fiscal Recovery Funds ("**SFRF**")

and

CITY OF FLAGSTAFF
(Entity)

An Arizona City ("Recipient") DUNS #088302625, located at

211 W. Aspen Ave
Street
Flagstaff, AZ 86001
City State Zip

In consideration of the mutual representations and obligations hereunder, ADOH and Recipient agree as follows:

Section 1. FUNDS PROVIDED

ADOH agrees to provide $840,000.00 in the following type of funds to Recipient in accordance with this Agreement. ADOH is entitled to change the funding sources as described in this section, in its sole discretion, so long as the total amount of funds to be disbursed is not affected thereby.

☐ **CDBG**, CFDA # 14.228
Federal Fiscal Year _____
$_____

☐ **HOME**, CFDA # 14.239
Federal Fiscal Year _____
$_____

☐ **HTF**
State Fiscal Year _____
$_____

☐ **HPF**
State Fiscal Year _____
$_____

☒ **HSSF**
State Fiscal Year 2023
$840,000.00

☐ **HOPWA**, CFDA # 14.241
Federal Fiscal Year _____
$_____

☐ **COC**, CFDA # 14.267
Federal Fiscal Year _____
$_____

☐ **NHTF**, CFDA # 14.275
Federal Fiscal Year _____
$_____

☐ **DOE WAP,** CFDA # 81.042
Federal Fiscal Year _____
$_____

☐ **DOE WAP BIL,** CFDA # 81.042
Federal Fiscal Year _____
$_____

☐ **DOE WRF,** CFDA # 81.042
Federal Fiscal Year _____
$_____

☐ **LIHEAP WAP**, CFDA # 93.568
Federal Fiscal Year _____
$_____

☐ **SWG WAP**
State Fiscal Year _____
$_____

☐ **APS WAP**
State Fiscal Year _____
$_____

☐ **SRP WAP**
State Fiscal Year _____
$_____

☐ **CCSNF**
State Fiscal Year _____
$_____

☐ **SFRF**
State Fiscal Year _____
$_____

Section 2. OTHER FUNDS

If applicable, Recipient agrees to secure funding other than that listed in **Section 1** for the completion of this Agreement as indicated in the ***Budget*** attached hereto as **Attachment C**. ADOH reserves the right to rescind some or all of the funding committed through this Agreement if other funding sources become unavailable.

Section 3. ACCEPTANCE OF FUNDS

Recipient hereby accepts the award of funds under the terms of this Agreement and agrees to execute and return this Agreement to ADOH within thirty (30) days of receipt unless Recipient receives a written waiver of this requirement by ADOH.

Section 4. DURATION

This Agreement shall be effective beginning on the date of execution by ADOH and shall remain in effect until JUNE 30, 2024 unless sooner terminated, extended or otherwise amended in accordance with the terms of this Agreement.

Section 5. INCORPORATION OF TERMS FOR COMPLIANCE WITH PROGRAM REQUIREMENTS AND APPLICABLE STATE AND FEDERAL LAW

Recipient shall carry out each activity in compliance with all applicable State and Federal laws, Federal regulations and other requirements including, but not limited to, the

provisions indicated as marked below and hereby incorporated into this Agreement, as if fully set forth herein. Also incorporated into this Agreement as applicable, are the terms of any resolution authorizing Recipient's application for funds, which is attached hereto as **Attachment G,** ***Authorizing Resolution(s)*** and any ***Special Conditions of the Agreement*** attached hereto as **Attachment E.**

☐ **CDBG** funds require adherence to the following provisions as revised: (1) 24 CFR Part 570; (2) *Certification and Other Requirements Relating to Title I Assistance* attached hereto as Attachment F; (3) the provisions contained in the *State of Arizona Consolidated Plan*; (4) *ADOH ERR Handbook*; (5) *ADOH Labor Standards Handbook*; (6) *CDBG Application Handbook*; (7) *CDBG Grant Administration Handbook;* and (8) *CDBG Procurement, Contracts and Acquisition Handbook* (collectively "the Incorporated Documents") as each may be amended from time to time. In the event of a conflict between the terms of this Agreement and the terms of the Incorporated Documents, the terms of this Agreement shall govern.

☐ **HOME** funds require adherence to the following provisions as revised: (1) 24 CFR Part 92; (2) *Certification and Other Requirements Relating to Title II Assistance* attached hereto as Attachment F; (3) the provisions contained in the *State of Arizona Consolidated Plan*; (4) *ADOH ERR Handbook*; (5) *ADOH Labor Standards Handboo*k; and (6) the *State Housing Fund Program Summary and Application Guide*.

☐ **HTF** funds require adherence to the *State Housing Fund Program Summary and Application Guide* as revised.

☐ **HPF** funds require adherence to the *Special Needs Housing Manual* as revised.

☒ **HSSF** funds require adherence to S.B. 1720 and the Notice of Funds Available issued for acceptance of applications for HSSF funding.

☐ **COC** funds require adherence to the following provisions as revised: (1) 24 CFR Part 578; and (2) the *Special Needs Housing Manual*.

☐ **HOPWA** funds require adherence to the following provisions as revised: (1) 24 CFR Part 574; and (2) the *Special Needs Housing Manual.*

☐ **NHTF** requires adherence to the following provisions as revised: (1) 24 CFR Parts 91 and 93, Housing Trust Fund Interim Rule; (2) the provisions contained in the *State of Arizona Consolidated Plan*; (3) *State Housing Fund Program Summary and Application Guide*; (4) State of Arizona Qualified Allocation Plan; and *(5) National Housing Trust Fund Allocation Plan.*

☐ **DOE WAP, DOE WAP BIL and DOE WRF** funds require adherence to the following provisions as revised: (1) 10 CFR Part 440 as revised; (2) the *Arizona Weatherization Assistance Program State Plan (State Plan)*; (3) *Health and Safety Plan (HSD Plan)*; (4) *the*

Arizona Weatherization Policies and Procedures Handbook; (5) *Arizona Weatherization Assistance Program Field Guide*; (6) *Standard Work Specifications*; and (7) *DOE WPN 22-4 Quality Work Plan.*

☐ **LIHEAP WAP** funds require adherence to the following provisions: (1) 45 CFR Part 96 as revised; (2) *the Arizona Weatherization Assistance Program State Plan (State Plan);* (3) *Health and Safety Plan (HSD Plan);* (4) *the Arizona Weatherization Policies and Procedures Handbook;* (5) *Arizona Weatherization Assistance Program Field Guide*; (6) *Standard Work Specifications*; and (7) *WAP Memorandum 15-10 Quality Management Plan.*

☐ **SWG WAP, APS WAP or SRP WAP** funds require adherence to the following provisions: (1) *the Arizona Weatherization Assistance Program State Plan (State Plan);* (2) *Health and Safety Plan (HSD Plan);* (3) *the Arizona Weatherization Policies and Procedures Handbook*; (4) *Arizona Weatherization Assistance Program Field Guide;* (5) *Standard Work Specifications*; and (6) *WAP Memorandum 15-10 Quality Management Plan.*

☐ **CCSNF** funds require adherence to the terms and conditions of the Crisis Contingency and Safety Net Fund such that the following costs shall be paid to the Recipient for the protection of homeless individuals and homeless families in the time of the COVID-19 crisis: (1) salaries for additional staffing; (2) operational expenses; and (3) any additional costs specifically outlined in the Scope of Work described in Section 6 below.

☐ **SFRF** funds require adherence to the terms and conditions of the State Fiscal Recovery Funds such that the following costs shall be paid to the Recipient for the protection of homeless individuals and homeless families in the time of the COVID-19 crisis through costs specifically outlined in the Scope of Work described in Section 6 below.

Section 6. SCOPE OF WORK

Recipient agrees to utilize all funds made available under this Agreement only for the purpose of implementing the *Scope of Work* hereby incorporated into this Agreement and described in Attachment A.

Revisions to Scope of Work. Recipient agrees to follow the procedures indicated as marked below regarding changes to the *Scope of Work*.

Revisions to the *Scope of Work* that change the manner in which an activity is to be executed or that change final outcome such as number of units, feet of utility line, number of households served, square footage of building, etc. require written approval from ADOH. The following substantial revisions to the *Scope of Work* require written amendment to this Agreement:

(a) The purpose of the project changes;
(b) The location of the project changes;

(c) A project activity is added, deleted or altered such that it becomes a different activity;
(d) The beneficiary of any activity changes;
(e) Recipient is requesting a change to the loan or grant terms. Recipient must submit a written request for an Agreement amendment to ADOH, with a revised *Scope of Work* attached;
(f) The ownership entity changes; and
(g) Any other changes that involve program requirements.

ADOH will respond to the written request within fourteen (14) business days. Amendments may not be implemented until ADOH consents in writing and an amendment to the Agreement has been executed.

Section 7. REPORTS

Recipient shall be responsible for providing various reports of all activities related to this Agreement as identified below and as requested by ADOH or HUD. Recipient shall also provide to ADOH any additional written information requested by ADOH in a timely manner and within reasonable deadlines as shall be set by ADOH.

7.1 Performance Report. Recipient agrees to submit the ADOH *Performance Report* respective of the types of projects indicated below and attached as Attachment B.

☐ **HOME, NHTF, HTF** funded rental development projects ("Rental Projects") or **HPF** funded rapid rehousing projects: Recipient must submit a *Bimonthly Performance Report* attached hereto as Attachment B. The Bimonthly Progress Report must be submitted to ADOH on the 20th of January, March, May, July, September and November and address activities of the preceding two (2) months (i.e. the January report covers the months of November and December).

☐ **HOME, HTF and CDBG** non-rental projects ("HOME, HTF and CDBG Non-Rental Projects"). Recipient must submit a *Monthly Progress Report* attached hereto as Attachment B. The Monthly Progress Report must be submitted to ADOH on the 15th of each month and address activities of the preceding one (1) month (i.e. the July report covers the month of June). Failure to submit timely Monthly Progress Reports will result in suspension of payment reimbursement requests until such reports are brought current.

☒ **HSSF** funded assistance for persons who are homeless ("Homeless Shelter and Services Projects"). Recipient must submit a *Quarterly Performance Report* attached hereto as Attachment B. The Quarterly Progress Report follows the state fiscal year from July 1 through June 30 and must be submitted to ADOH on the 20th day of October, January, April and July and address activities of the preceding quarter (i.e. the October report covers the months of July through September).

☐ **HOPWA** funded rental assistance and services ("HOPWA Projects"). A Recipient of HOPWA awarded funding shall administer said program in the contract term as set forth in Section 4 and submit one (1) *HUD Consolidated Annual Performance Evaluation Report (CAPER)* in accordance with the schedule set forth in Attachment B no later than sixty (60) days following the end of Fiscal Year date which is June 30th annually.

☐ **COC** funded assistance for persons who are homeless ("Homeless Projects"). ADOH is required to administer the program during the contract term, which is synonymous with the HUD grant term and as set forth in Section 4. Recipient must submit a *Bimonthly Performance Report* attached hereto as Attachment B. The Bimonthly Progress Report must be submitted to ADOH on the 20th of January, March, May, July, September and November and address activities of the preceding two (2) months (i.e. the January report covers the months of November and December). Recipient shall submit *Annual Progress Report (APR)* data from HMIS to ADOH, no later than thirty (30) days following the contract termination date listed on Page 1 of the Agreement.

☐ **DOE WAP, DOE WAP BIL, DOE WRF, LIHEAP WAP, SWG WAP, APS WAP and SRP WAP** funded projects ("Weatherization Projects"). Recipient must submit a *Monthly Performance Report* attached hereto as Attachment B. The Monthly Performance Report must be submitted to ADOH on the 30th (for the month of February, the last calendar day of the month) of each month and address activities of the preceding month (i.e. the January 30th report covers the month of December).

☐ **CCSNF** funded projects ("CCSNF Projects"). Recipient must submit a *Monthly Performance Report* attached hereto as Attachment B. The Monthly Performance Report must be submitted to ADOH on the 30th (for the month of June, the last calendar day of the month) of each month and address activities of the preceding month (i.e. the July report covers the month of June).

☐ **SFRF** funded projects ("SFRF Projects"). Recipient must submit a *Monthly Performance Report* attached hereto as Attachment B. The Monthly Performance Report must be submitted to ADOH on the 30th of each month and address activities of the preceding month (i.e. the April report covers the month of March).

7.2 Contract Closeout—Completion Reports and Post-Funding Audits. Recipient's obligation to ADOH under this Agreement shall not end until all closeout requirements described in this paragraph are completed. ADOH will notify Recipient in writing that a Completion Report is due to ADOH within sixty (60) days of one (1) of the following occurrences:

(a) The funds have been expended;
(b) The Scope of Work has been completed;
(c) The contract period set forth in this Agreement has expired; or
(d) The Agreement has been otherwise terminated.

The Completion Report shall contain the information identified in the notice.

Following the receipt and approval of the Completion Report, ADOH will notify Recipient in writing that the Agreement is administratively closed.

After the project is administratively closed, Recipient must submit all required audits to ADOH. All audits for fiscal years in which Recipient received funds from ADOH must be received, reviewed and found to be satisfactory by ADOH. In the event that ADOH determines that any project costs described in a post-funding audit are unjustified or describe ineligible activities, Recipient will be required to refund such monies back to ADOH.

Section 8. SCHEDULE OF COMPLETION

Recipient agrees to make progress with the *Scope of Work* in accordance with the *Schedule of Completion* hereby incorporated into this Agreement and described in Attachment B.

Revisions to the Schedule of Completion. Recipient agrees to follow the procedures indicated as marked below regarding changes to the Schedule of Completion.

☐ **Rental Projects funded with HOME or HTF**. Recipient must notify ADOH of revisions to the *Schedule of Completion* using the *Bimonthly Performance Report,* attached hereto as Attachment B. To the extent that the changes cause the schedule timeline to be extended, Recipient must submit a written request for a contract amendment to ADOH with a revised *Schedule of Completion* attached. Contract amendment requests must be received by ADOH a minimum of thirty (30) days prior to the contract expiration date. ADOH will respond to the written request within fourteen (14) business days. Amendments may not be implemented until ADOH consents in writing and an amendment to the Agreement has been executed.

☐ **Non-Rental Projects funded with HOME, HTF and CDBG.** Recipient must notify ADOH of revisions to the *Schedule of Completion* using the *Monthly Performance Report,* attached hereto as Attachment B. To the extent that the changes cause the schedule timeline to be extended, Recipient must submit a written request for a contract amendment to ADOH with a revised *Schedule of Completion* attached. Contract amendment requests must be received by ADOH a minimum of thirty (30) days prior to the contract expiration date. ADOH will respond to the written request within fourteen (14) business days. Amendments may not be implemented until ADOH consents in writing and an amendment to the Agreement has been executed.

☒ **Homeless Projects funded with HTF, HPF, HSSF or COC.** To the extent that the changes cause the schedule timeline to be extended, Recipient must submit a written request for a contract amendment to ADOH with a revised *Schedule of Completion and Performance Report* attached. Contract amendment requests must be received by ADOH a minimum of thirty (30) days prior to the contract expiration date. ADOH

will respond to the written request within fourteen (14) business days. Amendments may not be implemented until ADOH consents in writing and an amendment to the Agreement has been executed.

☐ **Weatherization.** Projects funded with DOE WAP, DOE WAP BIL, DOE WRF, LIHEAP, SWG WAP APS WAP and/or SRP WAP. Recipients will have twelve (12) months to complete the Scope of Work with no extensions. ADOH may, based on a review of the progress of Recipient completed units and expenditures, move funds from a non or under-performing Recipient to a Recipient meeting or exceeding their performance goals. ADOH will review the performance of the Recipient on a monthly basis. The first re-allocation of funds if applicable would occur at approximately four (4) months with additional re-allocations made on an as needed basis.

☐ **CCSNF Projects**. To the extent that the changes cause the schedule timeline to be extended, Recipient must submit a written request for a contract amendment to ADOH with a revised *Schedule of Completion and Performance Report* attached. Contract amendment requests must be received by ADOH a minimum of thirty (30) days prior to the contract expiration date. ADOH will respond to the written request within fourteen (14) business days. Amendments may not be implemented until ADOH consents in writing and an amendment to the Agreement has been executed.

☐ **SFRF Projects**. To the extent that the changes cause the schedule timeline to be extended, Recipient must submit a written request for a contract amendment to ADOH with a revised *Schedule of Completion and Performance Report* attached. Contract amendment requests must be received by ADOH a minimum of thirty (30) days prior to the contract expiration date. ADOH will respond to the written request within fourteen (14) business days. Amendments may not be implemented until ADOH consents in writing and an amendment to the Agreement has been executed.

Section 9. BUDGET

Recipient agrees to use the funds provided pursuant to this Agreement in accordance with the Budget that is attached as Attachment C. Recipient further agrees that any project costs, unless otherwise specified, exceeding the Budget shall be the sole responsibility of Recipient.

Availability of funding under this Agreement is contingent on final review and approval of the Budget. Budgetary considerations for specific programs are described below:

☐ **CDBG Revisions to the Budget.** Recipient must obtain written approval from ADOH to move funds from one Budget Activity Line Item to another. The following substantial revisions to the *Budget* require a contract amendment:

(a) Funds are moved from one Budget Activity Line Item to another and the change in the Budget Activity Line from which it is moved or to which it is being moved exceeds fifty percent (50%), unless the move is from administration to a non-administration activity, in which case only written notice without a contract amendment is required;
(b) Additional funding sources are added to the Project;
(c) Recipient is requesting a change to the grant terms.

☐ **HOME, HOPWA, HPF, NHTF and HTF Revisions to the Budget.** Recipient must obtain prior written approval from ADOH to move funds from one Budget Activity Line Item to another. ADOH will only approve changes to the Budget for eligible costs as outlined in the State Housing Fund program. The following substantial revisions to the *Budget* require a contract amendment:

(a) Additional funding sources are added to the project which require a project to be re-underwritten to determine gap;
(b) Recipient is requesting a change to the loan terms.

☒ **HSSF, CCSNF and SFRF Revisions to the Budget.** Recipient must obtain written approval from ADOH to move funds from one Budget Activity Line Item to another. ADOH will only approve changes to the Budget for eligible costs.

☐ **WEATHERIZATION Revisions to the Budget.** Recipient must obtain written approval from ADOH to move funds from one Budget Activity Line Item to another. ADOH will only approve changes to the Budget for eligible costs. Administration, Technical Assistance and Health and Safety line items cannot be increased unless the overall award of funds increases.

See Section 10 for changes that affect the Budget.

Recipient shall not retain any funds that are drawn down in excess of immediate cash needs (to be utilized within fifteen (15) days of draw down) to cover subsequent requests for reimbursement and must return them to ADOH within thirty (30) days of receipt. Recipient must also return to ADOH any interest that is earned on these funds that are drawn down and not expended for eligible costs within fifteen (15) days of draw down.

Section 10. AMENDMENTS AND MODIFICATIONS

ADOH may consent to amendment or modification of this Agreement upon written request of Recipient. All amendments or modifications to this Agreement shall be by mutual consent of the parties in writing.

Requests for amendments or modifications that result in changes to the Budget must be supported by a revised Budget that is otherwise consistent with Section 9.

ADOH will respond to the request for amendment or modification to this Agreement within fourteen (14) business days.

Section 11. ENVIRONMENTAL REVIEW CONDITIONS

In accordance with 24 CFR 50 and 24 CFR 58 ("Environmental Review"), the environmental effects of each activity carried out with federal funds must be assessed. Local government entities are responsible for conducting environmental reviews and requesting a release of funds from ADOH. Non-profits and other non-governmental entities are responsible for conducting Environmental Reviews before ADOH requests a release of funds from HUD. Completion of the Environmental Review Record ("ERR") is mandatory before taking any physical action on a site or entering into contracts. Only exempt activities such as architecture, engineering and administration may be undertaken and reimbursed by ADOH prior to receiving a written release of funds. Exempt activities described in 24 CFR 58.34(a)(1)-(11) are activities that generally have no physical impact on the environment. If federal funds are involved in a project, neither federal nor non-federal funds may be expended or committed by contract (conditional or not) for property acquisition, rehabilitation, conversion, lease, repair or construction activities, until HUD or ADOH has provided written authorization based on approval of an ERR.

An option agreement (to purchase land) on a proposed site or property is allowable prior to the completion of the Environmental Review if the option agreement is contingent upon an ADOH or HUD authorization to use funds based on a completed ERR. The cost of the option must be a nominal portion of the purchase price.

Projects funded solely with Housing Trust Funds do not require an ERR but are required to meet the requirements of the State Historic Preservation Act by consulting with the State Historic Preservation Office (SHPO). For State Housing Funded projects, Phase I Environmental Assessments are required to be completed on properties for which new construction/change in use is proposed, regardless of whether federal or state funds are the source of funding. Expenditures incurred or obligated by construction contract prior to ADOH's release of funds or consultation with SHPO will not be reimbursed by ADOH.

Recipients who had committed or expended non-federal funds to begin a project before receiving the authorization from ADOH or HUD may still be eligible to use federal funds on the project under the following circumstances:

(a) Recipients started the project without the intention of using federal assistance (i.e. as evidenced by other anticipated funding, the original project budget, etc.);

(b) All work on the project ceases once an application for federal funds is made and an ERR is begun on all activities (i.e. acquisition, construction, etc.). ADOH or HUD provides authorization to proceed based on the completed ERR.

☐ **WEATHERIZATION (DOE WAP, DOE WAP BIL, DOE WRF, LIHEAP WAP).** DOE has made a final NEPA determination for all activities under this Funding Agreement that are listed in the State Plan formally approved by DOE and incorporated into this Funding Agreement. Recipients are responsible for compliance with Section 106 pursuant to 36 CFR Part 800.2 (c)(4).

Section 12. APPLICATION AND OTHER PRE-AWARD COSTS

Recipient may use a portion of the funds provided hereunder to reimburse itself for exempt activities pursuant to 24 CFR 58.34(a)(1)-(11) such as architecture, engineering, testing and sampling of asbestos and capital needs assessments and environmental reviews.

☐ **CDBG.** If Recipient is receiving funding under this Agreement from the CDBG program, in accordance with federal procedures, Recipient may use funds provided hereunder to reimburse it or to pay for costs incurred in preparing the application. In no event shall such compensation exceed eighteen percent (18%) of the total funding provided to Recipient by ADOH.

Section 13. COMPENSATION AND METHOD OF PAYMENT

Subject to availability of and receipt of funds from the State's Unclaimed Property Fund (for state HTF funds) and/or the United States Treasury (for HOME, CDBG, COC, NHTF HOPWA, DOE WAP, DOE WAP BIL, DOE WRF and LIHEAP WAP funds) and the commitment of other required funding as indicated in Recipient's application, ADOH agrees to reimburse or advance Recipient for authorized expenditures according to the *Budget* in Attachment C. Recipient must maintain invoices and other similar documentation to support payment expenses under those generally accepted accounting principles and procedures approved by ADOH and outlined in 2 CFR 200 as applicable; 24 CFR Parts 44, 92 and 570 as applicable; and 10 CFR 440 and 600 as applicable.

☒ **HSSF.** At the discretion of ADOH, FY 2023 HSSF grantees may receive all or a portion of their awarded funds in advance.

Recipient may request funds only after the date of the executed Agreement and other legal documents as applicable, provided Recipient has satisfied ADOH funding contingencies and federal Environmental Review conditions. Requests for reimbursement must be made using the ADOH *Request for Payment* form hereby incorporated into this Agreement and attached as Attachment D. For construction projects, Release of Lien documents must be attached to the Request for Payment in amounts proportionate to contractor reimbursement requests.

Recipient must maintain proof of said expenditures including checks, payrolls, time records, invoices, contracts, vouchers, orders and other accounting documents evidencing in proper detail the nature and propriety of the respective charges as may be required by

applicable federal rules and regulations, including requirements by the Federal Office of Management and Budget, and as may be otherwise reasonably required to permit ADOH to determine or confirm that any such expenditures are prudent and within the Scope of Work.

Recipient's right to incur expenses under this Agreement shall cease upon expiration of this Agreement. All requests for reimbursement on expenditures made prior to expiration of this Agreement must be requested within sixty (60) days after expiration. Unless expressly authorized by ADOH in writing, expenditures not requested within the sixty (60) day period after expiration of this Agreement shall be disallowed and all funds shall be reclaimed by ADOH.

Section 14. FUNDS RECOUPED BY RECIPIENT, INTEREST AND PROGRAM INCOME

14.1 Definitions. For purposes of this section, the following definitions shall apply:

"Funds Recouped by Recipient" means funds initially provided by ADOH to Recipient under this Agreement and any matching contributions that are recouped by Recipient when: (1) the funds provided by ADOH under this Agreement or matching contributions or the proceeds of funds provided by ADOH (including, but not limited to, equipment or housing) do not continue to be used for an approved purpose or eligible activity, as described in applicable law or regulations, for the full period of affordability required by this Agreement; or (2) when a State-assisted homeownership housing does not continue to be the principal residence of the assisted homebuyer for the full affordability period required by this Agreement. Funds Recouped by Recipient are subject to all the requirements of Program Income described below with the exception that Recipient shall not use Funds Recouped by Recipient for administrative purposes. For this reason, Recipient must separately account for all Funds Recouped by Recipient.

"Interest" means any compensation paid or to be paid for the use or deposit of the funds provided by ADOH to Recipient under this Agreement.

"Program Income" means gross income received by Recipient directly generated from the use of funds provided by ADOH under this Agreement. When Program Income is generated by housing that is only partially assisted with funds provided by ADOH under this Agreement or matching contributions, the income shall be prorated to reflect the percentage of funds provided by ADOH under this Agreement. Program Income includes, but is not limited to, the following: (1) proceeds from the disposition by sale or long-term lease of real property purchased or improved with funds provided by ADOH under this Agreement; (2) gross income from the use or rental of real or personal property acquired by Recipient with funds provided by ADOH under this Agreement, less costs incidental to generation of the income; (3) payments of principal and interest on loans made using funds provided by ADOH under this Agreement or matching contributions; (4) proceeds from the sale of loans made with funds provided by ADOH under this Agreement or matching contributions; (5) proceeds

from sale of obligations secured by loans made with funds provided by ADOH under this Agreement or matching contributions; (6) Interest earned on Program Income pending its disposition; (7) proceeds from the disposition of equipment purchased with CDBG funds; (8) gross income from the use or rental of real property, owned by Recipient, that was constructed or improved with funds provided by ADOH under this Agreement, less costs incidental to generation of the income; (9) if the funds provided by ADOH under this Agreement are from the CDBG Program, funds collected through special assessments made against properties owned and occupied by households not of low and moderate income, where the assessments are used to recover all or part of the CDBG portion of a public improvement; and (10) if the funds provided by ADOH under this Agreement are from the HOME Program, any other interest or return on the investment permitted under 24 C.F.R. Part 92.205(b) of HOME funds or matching contributions.

14.2 Use of Program Income and Funds Recouped by Recipient.

Recipient is not authorized by ADOH to retain and reuse Program Income, Funds Recouped by Recipient or accrued Interest as described in the following paragraph(s) except as authorized by ADOH through a written agreement.

Recipient must return all Program Income, Funds Recouped by Recipient and Interest to ADOH within thirty (30) days of receipt.

Recipient must remit to ADOH any Program Income, Funds Recouped by Recipient or Interest on hand at the time of expiration, cancellation, or termination of this Agreement or subsequently received by Recipient within **thirty (30) days** of receipt by Recipient.

Section 15. DE-OBLIGATION, RECAPTURE AND REPAYMENT OF FUNDS

15.1 De-obligation. ADOH may reduce funds from the funding award evidenced by this Agreement without regard to the source of funding, under the following circumstances: (1) Recipient has completed performance under the *Scope of Work* (Attachment A) without using all of the funds provided by ADOH under this Agreement; (2) this Agreement expires and not all funds have been expended; (3) ADOH's original allocation was a loan and Recipient or Sub-recipient paid the loan; (4) Recipient, with the consent of ADOH, cancelled or changed an activity required under the *Scope of Work* for reasons other than non-performance; or (5) Recipient receives Program Income that has not been included in the budget or set forth in the *Scope of Work;* and (6) this Agreement has otherwise been terminated. ADOH may de-obligate funds under this Agreement under the foregoing circumstances upon written notice to Recipient.

15.2 Reallocation of De-obligated HOME or State HTF Funds. If the funds provided by ADOH under this Agreement are from the State HTF or the HOME Program, ADOH may reallocate funds that it has de-obligated under this Agreement as it determines in its sole discretion.

15.3 Reallocation of De-obligated CDBG Funds. If the funds provided by ADOH under this Agreement are from the CDBG Program, ADOH may reallocate funds that it has de-obligated under this Agreement to Recipient from which the funds were de-obligated for use under an existing or new funding contract of the same funding year if Recipient can immediately commit the reallocated funds to a project and execute a new or amended funding contract within sixty (60) calendar days of the reallocation. If ADOH is not able to reallocate funds that it has de-obligated under this Agreement in accordance with the foregoing sentence of this subsection, ADOH may reallocate those funds as it determines in its sole discretion.

15.4 Recapture. ADOH may reduce funds from the amount of the funding award evidenced by this Agreement, without regard to the source of funding, under the following circumstances: (1) ADOH determines that Recipient has failed to use the funds provided by ADOH under this Agreement in compliance with the terms of this Agreement or the requirements of applicable laws and regulations (non-compliance); or (2) Recipient fails to perform in accordance with the performance obligations set forth in the *Scope of Work* (Attachment A) and the *Schedule of Completion* (Attachment B) or the terms of this Agreement. ADOH may recapture funds under this Agreement under the foregoing circumstances upon written notice to Recipient.

15.5 Reallocation of Recaptured Funds. ADOH may reallocate funds that it has recaptured under this Agreement, without regard to the source of funding, as it determines in its sole discretion.

15.6 Repayment of Funds. Recipient agrees to repay funds provided under this contract if ADOH determines that Recipient has failed to use the funds provided by ADOH under this Agreement in compliance with the terms of this Agreement or the requirements of applicable laws and regulations. ADOH may specify in writing the terms of the repayment or alternative terms in lieu of repayment; however, in no case shall repayment or alternative terms be accomplished later than 180 days following the written determination of non-compliance by ADOH.

Section 16. REVERSION OF ASSETS

16.1 Funds Remaining at Expiration. Upon expiration of this Agreement, Recipient shall transfer to ADOH any unexpended funds advanced to Recipient by ADOH under this Agreement.

16.2 Real Property Acquired or Improved with CDBG Funds. Upon expiration of this Agreement, any real property under Recipient's control that was acquired or improved in whole or in part with CDBG funds, for non-owner occupied use, provided to Recipient by ADOH under this Agreement (including CDBG funds provided to Recipient in the form of a loan) in excess of $25,000, shall either: (1) be used to meet one of the national objectives in 24 CFR Part 570.208 until five (5) years after expiration of this Agreement, or for such longer

period of time as determined to be appropriate by Recipient; or (2) not be used in accordance with 24 CFR Part 570.503(b)(8)(i), in which event Recipient shall pay to ADOH an amount equal to the current market value of the property less any portion of the value attributable to expenditures of non-CDBG funds for the acquisition of, or improvement to, the property. No payment is required after the period of time specified in 24 CFR Part 570.503 (b)(8)(i).

16.3 Real Property Acquired or Improved with HOME Funds. Upon expiration of this Agreement, any real property under Recipient's control that was acquired or improved in whole or in part with HOME funds, for non-owner occupied uses, provided to Recipient by ADOH under this Agreement (including funds provided to Recipient in the form of a loan), must be occupied only by households that are eligible as low-income families and must meet the requirements to qualify as affordable housing and is subject to encumbrances and obligations described in any applicable Declaration of Conditions, Covenants and Restrictions ("CC&Rs") for the period of affordability set forth in 24 CFR Part 92.252.

16.4 Real Property Acquired or Improved with State Housing Trust Funds. Upon expiration of this Agreement, any real property under Recipient's control that was acquired or improved in whole or in part with state HTF funds, for non-owner occupied uses, provided to Recipient by ADOH under this Agreement (including funds provided to Recipient in the form of a loan), must be occupied only by households that are eligible as low-income families and must meet the requirements to qualify as affordable housing and is subject to encumbrances and obligations described in any applicable Declaration of CC&Rs for the period of affordability set forth in the CC&Rs.

Section 17. DEPARTMENT OF HOUSING RESPONSIBILITIES

ADOH shall monitor and evaluate Recipient to determine compliance with and performance under this Agreement. A summary of discrepancies noted by ADOH during monitoring visits will be specified in writing. Appropriate time for correction of discrepancies will be specified in the written report to Recipient. ADOH shall follow up on discrepancies to ensure that they have been corrected in a timely manner. The failure of ADOH to require timely performance of any provision of this Agreement shall in no way affect the right of ADOH thereafter to enforce such provision nor shall the waiver of any succeeding breach of such provision act as waiver of the provision itself.

ADOH shall provide reasonable technical assistance to assist Recipient to comply with program requirements for the provision of services under this Agreement. However, this in no way relieves Recipient of full responsibility for its acts or omissions in the performance of activities required by this Agreement.

Section 18. SUBCONTRACTING

Recipient shall not disburse any funds received under this Agreement without fully completed written agreements with subcontractors requiring they follow all provisions of this Agreement and a completed Environmental Review pursuant to Section 11 of this Agreement.

The use of subcontractors does not relieve Recipient of responsibility for ensuring the administration of the provided funds in accordance with all applicable program requirements. Recipient is responsible for determining the adequacy of performance under subcontractor agreements and procurement contracts and for taking appropriate action when performance issues arise.

Section 19. FAILURE TO MAKE PROGRESS

Failure of Recipient to make progress according to the Schedule of Completion, attached hereto as Attachment B may result in contract termination, de-obligation of funds or recapture of funds. Recipient agrees to meet with ADOH at the site in which the funded activity is taking place to discuss progress and allow ADOH to provide technical assistance if:

(a) Recipient fails to begin work on its Environmental Review pursuant to Section 11 within the sixty (60) calendar days from the date ADOH executes this Agreement;

(b) Recipient fails to expend any funds in performance of and in accordance with the terms of this Agreement within ninety (90) calendar days from the inception date of this Agreement.

ADOH will terminate any Agreement and recapture funds from the same Agreement in which Recipient does not commence any of the activities described in the *Scope of Work* (Attachment A) or fails to expend any funds in accordance with the *Budget* (Attachment C) within 180 calendar days from the full execution date of this Agreement. ADOH may in its sole discretion, forgo providing technical assistance and recapture funds as outlined in this Agreement under Section 15.4 hereof and/or terminate this Agreement for cause pursuant to Section 20 of this Agreement.

Section 20. TERMINATION FOR CAUSE

ADOH may terminate this Agreement in whole or in part at any time whenever it determines that Recipient has failed to comply with the conditions hereof including, but not limited to the Scope of Work set forth in Attachment A, Schedule of Completion set forth in Attachment B and Budget set forth in Attachment C to this Agreement. If ADOH so determines, it shall notify Recipient in writing by certified mail, return receipt requested, of such termination for cause with such notification to include the reason(s) for the termination

and the effective date of termination. If ADOH terminates this Agreement pursuant to this Section, ADOH shall recapture all funds allocated to Recipient under this Agreement pursuant to Section 15.4 hereof and obtain repayment of funds expended pursuant to Section 15.6, hereof.

Section 21. TERMINATION FOR CONVENIENCE

ADOH or Recipient may terminate this Agreement in whole or part (one (1) or more activities) if either party believes that continuation will not produce beneficial results. If ADOH so determines, it shall notify Recipient in writing by certified mail, return receipt requested, of such termination for convenience and the effective date of termination. If Recipient so determines, it shall notify ADOH in writing by certified mail, return receipt requested, of such termination for convenience and the effective date of termination. If ADOH terminates this Agreement pursuant to this Section, ADOH shall de-obligate, recapture or receive repayment, as applicable, all funds allocated to Recipient under this Agreement pursuant to Section 15 hereof.

Section 22. ENFORCEMENT

22.1 Remedies for Noncompliance. If Recipient materially fails to comply with any term of this Agreement or applicable law, ADOH may take one or more of the following actions, as appropriate in the circumstances:

(a) Temporarily withhold cash payments pending correction of the deficiency by Recipient or more severe enforcement action by the awarding agency;
(b) Disallow (that is, deny both use of funds and matching credit for) all or part of the cost of the activity or action not in compliance;
(c) Wholly or partly suspend or terminate the award evidenced by this Agreement;
(d) Withhold further awards to Recipient's project funded by the award evidenced by this Agreement;
(e) Recapture funds and terminate contract;
(f) Withhold future ADOH grant awards from all sources; or
(g) Take other remedies that may be legally available.

22.2 Appealable Agency Action. Enforcement action taken under this section is an appealable agency action pursuant to A.R.S., Title 41, Chapter 6, Article 10.

22.3 Effects of suspension and termination. Costs incurred by Recipient resulting from obligations incurred by Recipient during a suspension or after termination of an award are not allowable unless ADOH expressly authorizes them in the notice of suspension or termination or subsequently.

22.4 Relationship to debarment and suspension. The enforcement remedies identified in this section, including suspension and termination, do not preclude Recipient

from being subject to "Debarment and Suspension" under the United States President's Executive Order 12549.

Section 23. CANCELLATION

Pursuant to A.R.S. § 38-511, ADOH may, within three (3) years after its execution, cancel this Agreement, without penalty or further obligation, if any person significantly involved in initiating, negotiating, securing, drafting or creating this Agreement on behalf of ADOH, at any time while this Agreement or any extension of this Agreement is in effect, is or becomes an employee or agent of any other party to this Agreement in any capacity or a consultant to any party of this Agreement with respect to the subject matter of the contract. A cancellation notice made pursuant to this provision shall be effective when Recipient receives written notice of the cancellation unless the notice specifies a later time.

Section 24. RECORDS RETENTION

Pursuant to A.R.S. § 35-214, Recipient shall retain and require that its subcontractors retain for inspection and audit by ADOH, all books, accounts, reports, files including information regarding actual beneficiaries of the fund, and other records relating to the bidding and performance of this Agreement for a period of five (5) years following the date of the letter informing Recipient of the Administrative Closeout or termination.

☐ **CDBG funded projects only**: All CDBG records must be retained for at least three (3) years after the grant agreement close out between HUD and ADOH has been approved by HUD. ADOH will notify recipients of the records retention date of expiration for CDBG funded projects.

☐ **WEATHERIZATION projects only**: All records must be retained for at least three (3) years after the grant agreement close out between DOE or SWG and ADOH has been approved. ADOH will notify recipients of the records retention date of expiration for Weatherization projects.

Upon request by ADOH, Recipient shall produce a legible copy of all such records at the Administrative Office of ADOH or at the Office of the Auditor General. The original records shall be available and produced for inspection and audit when required by ADOH or the Auditor General.

Recipient shall maintain records that adequately identify the source and application of the funds provided under this Agreement (including Program Income and Recaptured Funds) as part of the financial transactions of their funding program, consistent with generally accepted accounting principles and the requirements of 2 CFR 200. Recipient will provide reports regarding the capture and reuse of Program Income and Recaptured Funds as requested by ADOH from time to time.

In addition, in the event that the project resulted in Recipient holding any liens or notes as a result of this funding, Recipient must retain all pertinent records for five (5) years beyond the expiration or release of such liens or notes.

Section 25. NO OBLIGATION OF STATE GENERAL APPROPRIATIONS FUNDS

Nothing herein shall be construed as obligating state general appropriation funds, excepting HTF funds or HSSF funds per S.B. 1720, for payment of any debt or liability of any nature arising hereunder. The parties expressly recognize that all payments to be made by ADOH are from federal funds, HTF and HSSF funds made available to ADOH for this purpose.

Section 26. AVAILABILITY OF FUNDS

Payments under this Agreement are subject to the availability of the federal funds provided to the ADOH for the HOME, CDBG, HOPWA, COC, NHTF, DOE WAP, DOE WAP BIL, DOE WRF, LIHEAP, CCSNF and SFRF programs, the availability of state funds provided for the state HTF, HPF and HSSF Programs and the availability of private funds provided for the SWG WAP, APS WAP and SRP WAP programs. Every payment obligation of ADOH under this Agreement is conditioned upon the availability of funds appropriated or allocated for the payment of such obligation. If funds are not allocated and available for the continuance of this Agreement, this Agreement may be terminated by ADOH at the end of the period for which funds are available. No liability shall accrue to ADOH in the event this provision is exercised, and ADOH shall not be obligated or liable for any future payments or for any damages as a result of termination under this paragraph.

Section 27. APPLICABLE LAW AND ARBITRATION

This Agreement shall be governed and interpreted by the laws of the State of Arizona. The parties to this Agreement agree to resolve all disputes arising out of or relating to this Agreement through arbitration, after exhausting applicable administrative review, to the extent required by A.R.S. § 12-1518 except as may be required by other applicable statutes.

Section 28. INDEMNIFICATION

Recipient shall indemnify, defend, and save harmless ADOH, the State of Arizona and its agents, officials and employees from any and all claims, demands, suits, actions, proceedings, loss, costs and damages of every kind and description, including any attorney's fees and litigation expenses, which may be brought or made against or incurred by the State on account of loss of or damage to any property or for injuries to or death of any person, caused by, arising out of or contributed to, in whole or in part, by reason of any alleged act, omission, professional error, fault, mistake or negligence of Recipient, its employees, agents, representatives or subcontractors, their employees, agents or representatives in connection with or incidental to the performance of this Agreement, or arising out of Workmen's Compensation claims, Unemployment Compensation claims or Unemployment Disability

Compensation claims of employees of Recipient or its subcontractors or claims under similar such laws or obligations. Recipient's obligation under this section shall not extend to any liability caused by the sole negligence of ADOH, the State of Arizona or its employees.

Section 29. FEDERAL GOVERNMENT LIABILITY

It is agreed by all parties that the Federal Government and particularly the U.S. Department of Housing and Urban Development ("HUD") and the U.S. Department of Energy (DOE) is not a party to this Agreement and that no legal liability on the part of the Federal Government is inferred or implied under the terms of this Agreement.

Section 30. AUDIT

If federal funds are paid to Recipient through this Agreement, Recipient shall comply with the audit requirements set forth in 2 CFR 200. Recipient shall comply with A.R.S. § 35-181.03 if any state funds are paid through this Agreement. Recipient agrees to rectify issues identified in audits within ADOH prescribed time periods. Failure to comply shall result in withholding of all present and future ADOH provided funds.

Section 31. AUDIT EXCEPTIONS

If federal or state audit exceptions are made relating to this Agreement, Recipient shall reimburse all costs incurred by the State of Arizona and ADOH associated with defending against the audit exception or performing an audit or follow-up audit including but not limited to: audit fees, court costs, attorney's fees based upon a reasonable hourly amount for attorneys in the community, travel costs, penalty assessments and all other costs of whatever nature.

Immediately upon notification from ADOH, Recipient shall reimburse the amount of the audit exception and any other related costs directly to ADOH as specified by ADOH in the notification.

Section 32. UNALLOWABLE USE OF FUNDS

Recipient, its officers, employees and agents, shall not utilize any of the federal funds or HTF provided under this Agreement to solicit or influence, or attempt to solicit or influence, directly or indirectly, any member of Congress regarding pending or prospective legislation.

Section 33. INTEREST OF MEMBERS OF DEPARTMENT OF HOUSING AND OTHERS

No officer or employee of ADOH and no public official, employee or member of the governing body of Recipient who exercises any functions or responsibilities in review or approval of the undertaking or carrying out of this Agreement shall participate in any decision relating to this Agreement which affects their personal interest or the interest of any

corporation, partnership or association in which they are directly or indirectly interested, or have any interest, direct or indirect, in this Agreement or its proceeds.

Section 34. ACCESS TO RECORDS, PARTICIPANTS AND STAFF

Recipient agrees to provide ADOH and its representatives access at any reasonable time to all participants and staff involved in this Agreement and to all records and reports involving this Agreement.

Section 35. IDENTIFICATION OF DOCUMENTS

All materials used for public outreach and for informational purposes as a part of this Agreement, other than documents exclusively for internal use by ADOH, shall identify the source of federal (CDBG, HOME, NHTF, COC, HOPWA, DOE WAP, DOE WAP BIL, DOE WRF, LIHEAP WAP, CCSNF, SFRF) or state (HTF, HPF, HSSF) funds or private funds (APS, SRP, SWG) used as part of this Agreement as well as acknowledgement of support from ADOH.

Section 36. COPYRIGHT

Reports, maps or other documents produced in whole or in part under this Agreement are works for hire and shall not be the subject of any application for copyright by or on behalf of Recipient, by any employee or subcontractor of Recipient. Recipient shall advise ADOH or its designee at the time of delivery of any copyrighted or copyrightable work furnished under this Agreement, or any adversely held copyrighted or copyrightable material incorporated in any such work and of any invasion of the right of privacy therein contained.

Section 37. RIGHTS IN DATA

ADOH may duplicate, use and disclose in any manner and for any purpose whatsoever, within the limits established by federal and state laws and regulations, all information relating to this Agreement.

Section 38. FUNDING CONDITIONS

ADOH will make the funding assistance available to Recipient upon execution of this Agreement by the parties. The obligation and utilization of the funding assistance provided through this Agreement are subject to the proper observation of the requirements incorporated by reference. Recipient shall require any subcontracting entities to observe and follow all provisions of this Agreement.

Section 39. NON-DISCRIMINATION

(a) Recipient shall comply with A.R.S. § 41-1463 and Executive Orders 99-4 and 2009-09, which prohibit Recipient from discriminating against persons, or depriving or tending to deprive any individual of employment opportunities or otherwise adversely affecting the individual's status as an employee on the basis of race, color, religion, sex, age, national origin, disability or political affiliation and require Recipient to take action to ensure that applicants are employed and that employees are treated during employment without regard to race, color, religion, sex, age, national origin, disability, or political affiliation. Recipient shall comply with all of the other requirements of Executive Order 2009-09.

(b) Recipient agrees to comply with Title VII of the Civil Rights Act of 1964, as amended. Recipient shall also comply with applicable federal regulations that prohibit discrimination in the employment or advancement in employment of qualified persons with disabilities. Recipient shall comply with all applicable federal regulations regarding equal employment opportunity and relevant orders issued by the U.S. Secretary of Labor. Recipient agrees to comply, and will require any subcontractor(s) to comply with applicable federal nondiscrimination requirements, which may include: Omnibus Crime Control and Safe Streets Act of 1968 (42 U.S.C. §3789(d)); the Victims of Crime Act (42 U.S.C. §10604(e)); the Juvenile Justice and Delinquency Prevention Act of 2002 (42 U.S.C. §5672(b)); the Civil Rights Act of 1964 (42 U.S.C. §2000(d)); Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. §794); Title II of the Americans with Disabilities Act of 1990 (42 U.S.C. §§12132); Title IX of the Education Amendments of 1972 (20 U.S.C. §1681); the Age Discrimination Act of 1975 (42 U.S.C. §6102); 28 C.F.R. pt. 35 (DOJ Regulations- Nondiscrimination on the Basis of Disability in State and Local Government Services); 28 C.F.R. pt. 42 (DOJ Regulations- Nondiscrimination; Equal Employment Opportunity; Policies and Procedures); Executive Order 13279 (equal protection of the laws for faith-based and community organizations); and 28 C.F.R. pt. 38 (DOJ Regulations- Equal Treatment for Faith-Based Organizations).

Section 40. THIRD PARTY ANTITRUST VIOLATIONS

Recipient assigns to the State of Arizona any claim for overcharges resulting from antitrust violations to the extent that such violations concern materials or services supplied by third parties to Recipient toward fulfillment of this Agreement.

Section 41. COMPLIANCE REQUIREMENTS FOR A.R.S. § 41-4401—IMMIGRATION LAWS AND E-VERIFY REQUIREMENT

(a) Recipient warrants compliance with all Federal immigration laws and regulations relating to employees and warrants its compliance with Section

A.R.S. § 23-214, Subsection A. (That subsection reads: "After December 31, 2007, every employer, after hiring an employee, shall verify the employment eligibility of the employee through the E-Verify program.")

(b) A breach of a warranty regarding compliance with immigration laws and regulations shall be deemed a material breach of the contract and Recipient may be subject to penalties up to and including termination of this Agreement.

(c) The ADOH retains the legal right to inspect the papers of any employee who works on this Agreement to ensure that Recipient or Recipient's subcontractor is complying with the warranty under paragraph (a).

Section 42. INSURANCE

During the contract period, Recipient shall purchase and maintain in full force the following insurance. All certifications of insurance must provide for a thirty (30) day notice to ADOH of cancellation, non-renewal or material change. Proof of insurance from Recipient shall be provided to ADOH prior to execution of this contract and periodic certifications must be furnished at the request of the Program Specialist.

Recipient and its subcontractors, at Recipient's and subcontractors' own expense, shall purchase and maintain the herein stipulated minimum insurance with companies duly licensed, possessing a current A.M. Best, Inc. Rating of A-, 7, local government insurance pools formed pursuant to ARS 11-952.01 or other as approved by ADOH and licensed in the State of Arizona with policies and forms satisfactory to ADOH.

All insurance required herein shall be maintained in full force and effect until all work or service required to be performed under the terms of this Agreement is completed satisfactorily and formally accepted; failure to do so may, at the sole discretion of ADOH, constitute a material breach of this Agreement.

Recipient's insurance shall be primary insurance as respects ADOH and any insurance or self-insurance maintained by ADOH shall not contribute to it.

Recipient shall not fail to comply with the claim reporting provisions of the insurance policies or cause any breach of an insurance policy warranty, which would affect coverage afforded under insurance policies to protect ADOH.

The insurance policies, except Worker's Compensation, shall contain a waiver of transfer of rights of recovery (subrogation) against ADOH, its agents, representatives, directors, officers and employees for any claims arising out of Recipient's acts, errors, mistakes, omissions, work or service.

The insurance policies may provide coverage, which contain deductibles or self-insured retentions. Such deductible and/or self-insured retentions shall not be applicable

with respect to the coverage provided to ADOH under such policies. Recipient shall be solely responsible for the deductible and/or self-insured retention, and ADOH, at its option, may require Recipient to secure payment of such deductibles or self-insured retentions by a Surety Bond listing ADOH as the Obligee or co-Obligee or an irrevocable and unconditional letter of credit.

ADOH reserves the right to request and to receive, within ten (10) working days, certified copies of any or all of the herein required insurance policies and/or endorsements. ADOH shall not be obligated, however, to review same or to advise Recipient of any deficiencies in such policies and endorsements, and such receipt shall not relieve Recipient from, or be deemed a waiver of ADOH's right to insist on, strict fulfillment of Recipient's obligations under this Agreement.

The insurance policies, except Worker's Compensation and Professional Liability, required by this Agreement, shall name ADOH, its agents, representatives, officers, directors, officials and employees as additionally insured.

42.1 Required Coverage

Commercial General Liability. Recipient shall maintain Commercial General Liability insurance with a limit of not less than $1,000,000 for each occurrence with a $2,000,000 Products/Completed Operations Aggregate and a $2,000,000 General Aggregate Limit. The policy shall include coverage for bodily injury, broad form property damage, personal injury, products and completed operations and blanket contractual coverage. Coverage will be at least as broad as Insurance Service Office, Inc. Policy Form CG 00011093 or any replacements thereof.

Such policy shall contain a severability of interest provision and shall not contain a sunset provision or commutation clause, nor any provision that would serve to limit third party action over claims. The Commercial General Liability additional insured endorsement shall be at least as broad as the Insurance Service Office, Inc. Additional Insured, Form B, CG 20101185, and shall include coverage for Recipient's operations and products and completed operations.

Automobile Liability. Recipient shall maintain Commercial/Business Automobile Liability insurance with a combined single limit for bodily injury and property damage of not less than $1,000,000 each occurrence with respect to Recipient's any auto, all owned autos, scheduled autos, hired autos, non-owned autos assigned to or used in performance of Recipient's work. Coverage will be at least as broad as coverage code 1, "any auto", (Insurance Service Office, Inc. Policy Form CA 00011293, or any replacements thereof).

Worker's Compensation. Recipient shall carry Worker's Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of Recipient's employees engaged in the performance of the work or services; and Employer's Liability

insurance of not less than $100,000 for each accident, $100,000 disease for each employee and $500,000 disease policy limit.

In case any work is subcontracted, Recipient will require the subcontractor to provide Worker's Compensation and Employer's Liability to at least the same extent as required of Recipient.

42.2 Certificates of Insurance

Prior to commencing work or services under this Agreement, Recipient shall furnish ADOH with Certificates of Insurance, or formal endorsements as required by this Agreement, issued by Recipient's insurer(s), as evidence that policies providing the required coverage, conditions and limits required by this Agreement are in full force and effect.

In the event any insurance policy(s) required by this contract is (are) written on a "claims made" basis, coverage shall extend for two (2) years past completion and acceptance of Recipient's work or services and as evidenced by annual Certificates of Insurance.

If a policy does expire during the life of this Agreement, a renewal certificate must be sent to ADOH fifteen (15) days prior to the expiration date.

42.3 Cancellation and Expiration Notice

Insurance required herein shall not expire, be canceled, or materially changed without thirty (30) days written notice to ADOH.

Section 43. PRIVACY CONSIDERATIONS

Recipients of federal funds (for the purpose of this section "federal funds" means funding from the CDBG, HOME, HOPWA and COC programs; *see* Section 1, above) from ADOH warrant and represent that commencing from the effective date of this Agreement and until the latest expiration or termination date of any promissory note, deed of trust, declaration or other agreement that secures the federal funds that are the subject of this Agreement, Recipient and Recipient's contractors shall comply with the requirements of the federal Privacy Act, 5 U.S.C. § 552a. Recipient warrants and represents that it has read and understands the requirements of the Federal Privacy Act and requires the same of its contractors and subcontractors.

Section 44. NOTICES

When routine reports or correspondence is required to be sent to ADOH, it shall be addressed to Arizona Department of Housing, to the attention of the assigned Program Specialist at 1110 West Washington Street, Suite 280, Phoenix, Arizona 85007. Notices or correspondence regarding material changes to the contract or requests for amendment shall

be addressed to the same. All correspondence regarding this Agreement must be identified by its ADOH Agreement number (which is located on the top left hand corner of the first page of this Agreement).

When notice or correspondence is required to be sent to Recipient, it shall be addressed to:

CITY OF FLAGSTAFF
Entity
GREG CLIFTON
Attention (if applicable)
211 W. ASPEN AVE
Mailing Address
Flagstaff, AZ 86001
City State Zip

Section 45. REGISTRATION WITH SOCIAL SERVE

For new construction or rehabilitation of rental projects, Recipient agrees to register the project with *socialserve.com* and keep the project listed with *socialserve.com* for the duration of the period of affordability as indicated in the Conditions, Covenants and Restrictions.

Section 46. ADOH SIGNAGE

For new construction and rehabilitation projects, Recipient must erect a sign at the project site indicating that the project is funded through the Arizona Department of Housing and indicate the sources of funds. The sign must be a minimum size of twenty-four (24) inches high by thirty-six (36) inches wide, include a minimum five (5) inch high ADOH logo and text printed at a minimum seventy-two (72) point font. An individual ADOH sign does not have to be provided if Recipient incorporates ADOH information into a larger group sign.

Section 47. PHOTOGRAPHS

For new construction and rehabilitation projects, Recipient is required to provide to ADOH before and after photographs of the project in digital or film format.

Section 48. STATE OF ARIZONA

This Agreement shall be construed in accordance with the laws of the State of Arizona.

Section 49. WRITTEN CERTIFICATION UNDER A.R.S. § 35-393.01.

If the [Recipient] engages in for-profit activity and has ten (10) or more employees, and if this Agreement has a value of $100,000 or more, then the [Recipient] certifies it is not currently engaged in, and agrees for the durations of this Agreement, not to engage in a

boycott of goods and services from Israel. This certification does not apply to a boycott prohibited by 50 U.S C. § 4842 or a regulation issued pursuant to 50 U.S C. § 4842.

Section 50. A.R.S. § 1-501 Relating to Federal Programs

Notwithstanding any other state law and to the extent permitted by federal law, any person who applies for a federal public benefit that is administered by this state or a political subdivision of this state and that requires participants to be citizens of the United States, legal residents of the United States or otherwise lawfully present in the United States shall submit required documentation to the entity that administers the federal public benefit demonstrating lawful presence in the United States.

AGREED, effective as of the later date of the signatures of the duly authorized representatives subscribed below:

THE STATE OF ARIZONA, ARIZONA DEPARTMENT OF HOUSING	**CITY OF FLAGSTAFF RECIPIENT**
BY: _____	BY: _____ Digitally signed by Greg Clifton Date: 2023.06.23 15:46:18 -07'00'
Joan Serviss *or* Ruby Dhillon-Williams *or* Keon Montgomery	Greg Clifton
TITLE: Director	TITLE: City Manager
DATE: 06/27/23	DATE: 6/23/2023

ATTEST:

Digitally signed by Stacy Saltzburg
Date: 2023.06.23 10:30:36 -07'00'

CITY CLERK

APPROVED AS TO FORM:

Christina Rubalcava for

Digitally signed by Christina Rubalcava for
Date: 2023.06.22 13:11:39 -07'00'

CITY ATTORNEY

ATTACHMENT A
SCOPE OF WORK

The homeless services award will be comprised of Homeless Shelter and Services Funds (HSSF) and will allow the City of Flagstaff **(recipient)** to provide supportive services, overnight shelter, and move-in assistance to approximately 600 unsheltered persons experiencing homelessness.

This contract award is contingent upon:

A. Serving unsheltered persons experiencing homelessness as follows:

1. Assist approximately 600 unsheltered persons experiencing homelessness with supportive services, overnight shelter, and move-in assistance. Overnight shelter will include hotel/motel bed nights as emergency shelter for victims of crime who are unhoused due to their victimization, and temporary emergency shelter and transportation to people impacted by the closure of the "sober living" / residential facilities as part of Rainbow Bridge.

    i. A minimum of 20 homeless households will receive move-in assistance to cover security deposits and application fees for quick housing occupancy.
    ii. A minimum of 200 individuals will receive motel/hotel vouchers.

2. Partner with local homeless and housing service providers to facilitate transitional housing and move-in assistance for households experiencing homelessness.

B. Recipient shall begin project implementation no later than July 31, 2023.

C. Perform all allowable activities within the period of performance from July 1, 2023 through June 30, 2024.

D. Submit **quarterly** reports of the activities completed during the quarterly performance period and the data pertaining to unsheltered persons served on the Attachment B Performance Report Form (attached hereto).

Project Funds
The State has reserved $840,000.00 from Homeless Shelter and Services Fund dollars for project funding per the budget expenditures identified in the Recipient's program proposal.

Arizona Department of Housing

HSSF **ATTACHMENT B**

ADOH PERFORMANCE REPORT/SCHEDULE OF COMPLETION

Recipient	City of Flagstaff			Date	
Contract No	801-23 Contract Period: from July 1, 2023 to June 30, 2024			Revision	
Activity	Homeless Shelter Services - Vouchers and Case management			Month	
Recipient Address	211 W. Aspen Ave			City	Flagstaff
Contact Person	Kristine Pavlik			Zip Code	86001
Phone	928-213-2749	Email	kristine.pavlik@flagstaffaz.gov	County	Coconino
Program Specialist		Email			

Indicate adherence to contract or schedule changes Quarterly. Due by the 20th of the month following the Quarter end. See Below.

Contract Schedule	Contract Date	Complete Yes/No	Modification Date
Execute ADOH Contract	6/30/2023		
Program Start Date	7/1/2023		
Submission of 1st Quarter Report	10/20/2023		
Submission of 2nd Quarter Report	1/20/2024		
Submission of 3rd Quarter Report	4/20/2024		
Submission of Final Quarter Report	7/20/2024		
Project Complete - Contract Expires	6/30/2024		
Project Final Request for Reimbursement and Close Out Reports Due	8/30/2024		

Please provide: 1. a brief description of activities performed this period. Include occurrences that caused variation from schedule changes to plans, unforeseen circumstances, etc. Please be specific. 2. The date of submission of your last Request for Payment (RFP) 3. All Data on Data Ta
RFP's should be submitted at a minimum every 6 months to remain compliant with HUD activity expenditure guidelines.

Last RFP submitted on:	

Recipient Authorized Signature Date	Title

Arizona Department of Housing

SFRF

ATTACHMENT B

ADOH PERFORMANCE REPORT/SCHEDULE OF COMPLETION

Recipient	City of Flagstaff			Date	
Contract No	801-23 Contract Period: from July 1, 2023 to June 30, 2024				
Activity	Homeless Shelter Services - Vouchers and Case management			Month	
Recipient Address	211 W. Aspen Ave			City	Flagstaff
Contact Person	Kristine Pavlik			Zip Code	86001
Phone	928-213-2749	Email	kristine.pavlik@flagstaffaz.gov	County	Coconino
Program Specialist		Email			

Indicate adherence to contract or schedule changes quarterly. Due by the 15th of month following the end of the quarter.

	Unduplicated			Duplicated			BED Nights	
Race	#	%	YTD #	#	%	YTD #	#	YTD #
11- White								
12- Black or African American								
13 - Asian								
14 – American Indian or Alaska Native								
15 – Native Hawaiian or Other Pacific Islander								
16 – Alaska Native and White								
17 – Asian and White								
18 –African American and White								
19- American Indian or Alaska Native and African American								
20 – Other Multi Racial								
Ethnicity								
Hispanic/Latino								
Non-Hispanic/Latino								
Not Specified								

Gender								
Male								
Female								
Transgender								
AMI								
0-30% AM								
31-50% AMI								
51-80% AMI								
81% + AMI								
Metrics								
BSHN Households Served								
HIRS Households served								
SCB Organizations served								
Age Group								
18-29								
30-39								
40-49								
50-59								
60 Plus								
Unknown								
Totals	0		0	0		0	0	0

Arizona Department of Housing

HSSF **Attachment C**

Budget

Recipient	City of Flagstaff			Date	
Contract No	801-23 Contract Period: from July 1, 2023 to June 30, 2024			Revision No.	
Activity	Homeless Shelter Services - Vouchers and Case management				
Recipient Address	211 W. Aspen Ave			City	Flagstaff
Contact Person	Kristine Pavlik			Zip Code	86001
Phone	928-213-2749	Email	kristine.pavlik@flagstaffaz.gov	County	Coconino
Program Specialist		Email			

For specific allowable expenditures please refer to the Budget submitted with the Recipients FY2023 NOFA Response Proposal attached hereto.

a	c	d	e	f	g	h
Budget Line Item or Activity No.	HSSF FY2023	HSSF FY2023	Source Program Year	Source Program Year	Source Program Year	TOTAL
Activity 1 - Administration	$ 140,000.00					
Activity 2 - Project Specific		$ 700,000.00				
Total	$ 140,000.00	$ 700,000.00				$ 840,000.00

Arizona Department of Housing

HSSF **Attachment D**

ARIZONA DEPARTMENT OF HOUSING REQUEST FOR PAYMENT SUMMARY SHEET PAGE 1 OF 2

Recipient	City of Flagstaff			Date	
Contract No	801-23 Contract Period: from July 1, 2023 to June 30, 2024			Pay Req. No	
Activity	Homeless Shelter Services - Vouchers and Case management			Direct Wire Dep	Yes No
Recipient Address	211 W. Aspen Ave.			City	Flagstaff
Contact Person	Kristine Pavlik			ZIP	86001
Phone	928-213-2749	Email	kristine.pavlik@flagstaffaz.gov	County	Coconino
Program Specialist		Email			

Itemized Payment Statement (Sheet 2 of 2) must accompany this form. Include copies of invoices, cashed checks, and other backup documentation. ORIGINAL SIGNATURES are required for processing.

a	b	c	d	e	f	g	h
Budget Line Item or Activity No.	IDIS Act No.	HSSF FY2023	HSSF FY2023	Total Amount Req. to Date	Balance in Account	Amount of this Request	New Balance
Act. 1 Administration	N/A	$140,000.00			$ 140,000.00		$ 140,000.00
Act. 2 Project Specific	N/A		$700,000.00		$ 700,000.00		$ 700,000.00
					$ -		$ -
					$ -		$ -
					$ -		$ -
					$ -		$ -
					$ -		$ -
					$ -		$ -
					$ -		$ -
					$ -		$ -
					$ -		$ -
Total		$140,000.00	$700,000.00	$ -	$ 840,000.00	$ -	$ 840,000.00

Recipient Authorized Signature Date Title

Recipient Authorized Signatory certifies that all activities undertaken by the contractor with funds provided under this contract have been carried out in accordance with the contract. Attach wiring information if not previously submitted. Attach alternate mailing address if necessary.

Performance Reports		Current ☐	Not Current ☐	For ADOH Use Only		
ADOH Program Specialist Approval		Date			ADOH Program Administrator Approval	Date

Arizona Department of Housing

F-4

ARIZONA DEPARTMENT OF HOUSING REQUEST FOR PAYMENT -ITEMIZED PAYMENT STATEMENT PAGE 2 OF 2

Recipient	City of Flagstaff	Date	
Contract No	801-23	Pay Req. No	

Budget Line Item or Activity No	Description of Expense (List in according to funding source)	Paid (or Payable) to	Date Paid	Check # Invoice PO	Invoice Amount Charged to CDBG	Balance paid by other source	Name of other source
Totals							

7. F.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Kristine Pavlik, Housing and Grants Administrator
Date:	08/31/2023
Meeting Date:	09/05/2023

TITLE:

Consideration and Approval of Grant Agreements: Approve Grant Agreements between the City of Flagstaff and community partners utilizing $902,352.00 in funding from the American Rescue Plan Act Coronavirus Local Fiscal Recovery Funds for Housing Assistance Projects

STAFF RECOMMENDED ACTION:

1. Approve Grant Agreements with the following organizations, utilizing a portion of the American Rescue Plan Act Coronavirus Local Fiscal Recovery Funds for Housing Assistance Projects:

    1. **Project No: CL6321S** (Affordable Housing):
        - $397,398.00 to Habitat for Humanity of Northern Arizona for the Starter Homes at Timber Sky Project

    2. **Project No: CL6321T** (Services for the Unhoused):
        - $199,006.00 to Catholic Charities Community Services, Inc. for the Homeless Outreach and Housing Connections Project
        - $46,250.00 to Homeless Youth Connection for the Flagstaff Transitional Living Project

    3. **Project No: CL6321D** (Other Housing Assistance):
        - $200,000.00 to DNA People's Legal Services for the Housing Stability Legal Services Project
        - $59,948.00 to the Salvation Army for the Eviction Prevention Project; and

2. Authorize the City Manager to execute the necessary documents for all agreements.

Executive Summary:

Staff is seeking approval of Grant Agreements between the City of Flagstaff and community partners, utilizing a portion of the City's American Rescue Plan Act Coronavirus Local Fiscal Recovery Funds (Local Recovery Funds) to respond to the COVID-19 public health emergency and its negative economic impacts. Local Recovery Funds in the amount of $902,352.00 will be used to provide housing assistance to City of Flagstaff residents.

- **Project No: CL6321S** (Affordable Housing):
    - $397,398.00 to Habitat for Humanity of Northern Arizona for the Starter Homes at Timber Sky Project

- **Project No: CL6321T** (Services for the Unhoused):
    - $199,006.00 to Catholic Charities Community Services, Inc. for the Homeless Outreach and

Housing Connections Project
  - $46,250.00 to Homeless Youth Connection for the Flagstaff Transitional Living Project

- **Project No: CL6321D** (Other Housing Assistance):
  - $200,000.00 to DNA People's Legal Services for the Housing Stability Legal Services Project
  - $59,948.00 to the Salvation Army for the Eviction Prevention Project

Financial Impact:

On October 12, 2021, City Council provided direction on the use of Local Recovery Funds. City Council allocated $1,900,000.00 to housing assistance within the Negative Economic Impacts funding category. This funding is budgeted in FY2023-24 in account 024-09-402-6321-1-4290.

On November 7, 2022, the City of Flagstaff released a Notice of Funding Available ("NOFA") for Housing Assistance Projects that address community needs identified as a result of the COVID-19 pandemic in order to improve community resilience, address disparities of disproportionately impacted communities and create and preserve stable, affordable housing and prevent eviction. The City received eight (8) eligible applications by the December 19, 2023 deadline.

Housing staff conducted a risk assessment of all eight (8) applying agencies and their proposed Projects. Additionally, a Ranking Committee comprised of three (3) community representatives and three (3) City Staff met to review the proposals and rank them by consensus. Rankings primarily serve as a risk and benefit assessment and are the guiding input for Staff recommendations of ARPA Local Recovery Funds allocations. Staff presented the recommended allocations to the Housing Commission at the March meeting and the Housing Commission voted unanimously to forward them to Council with a recommendation for approval.

Policy Impact:

The City of Flagstaff 10-Year Housing Plan provides policy initiatives and strategies that the City will implement to address the City's Housing Emergency including encouraging the adaptive reuse of buildings and reducing homelessness.

Connection to PBB Priorities/Objectives, Carbon Neutrality Plan & Regional Plan:

Priority Based Budget Key Community Priorities and Objectives

- **Safe & Healthy Community**
  - Support social services, community partners & housing opportunities
  - Provide alternative responses, resources & programs, inclusive of mental health & other services

- **Inclusive & Engaged Community**
  - Foster community pride & civic engagement by increasing opportunities for public involvement, in line with best practices & legal requirements
  - Advance social equity & social justice in Flagstaff by supporting social services
  - Facilitate & foster diversity & inclusivity, including support of anti-racist policies & practices
  - Enhance community involvement, education & regional partnerships to strengthen the level of public trust
  - Ensure city facilities, services, & programs are accessible for all residents & representative of Flagstaff’s diverse community

- **Sustainable, Innovative Infrastructure**
  - Support the community’s social infrastructure needs; assist those partner organizations that provide services the City does not

- **Robust Resilient Economy**
  - Support & strengthen a more robust, diverse, & sustainable economy in ways that reflect community values & provides for affordable housing opportunities
  - Enhance understanding between the development community, the City & Flagstaff residents
  - Enhance the community's workforce development programs & improve partnerships with higher education institutions & the private & public sectors

- **Livable Community**
  - Support regional partners which provide equitable & inclusive educational opportunities for Flagstaff residents of all ages
  - Actively support attainable & affordable housing through City projects & opportunities with developers

- **Environmental Stewardship**
  - Implement, maintain & further the Climate Action & Adaptation Plan (CAAP) with awareness of social inequities

Regional Plan

- **Goal NH.1. Foster and maintain healthy and diverse urban, suburban, and rural neighborhoods in the Flagstaff region.**
  - Policy NH.1.1. Preserve and enhance existing neighborhoods.

- **Goal NH.3. Make available a variety of housing types at different price points, to provide housing opportunities for all economic sectors.**
  - Policy NH.3.1. Provide a variety of housing types throughout the City and region, including purchase and rental options, to expand the choices available to meet the financial and lifestyle needs of our diverse population.
  - Policy NH.3.3. Increase the availability of affordable housing for very low-income persons, through innovative and effective funding mechanisms

- **Goal NH.4. All housing is safe and sanitary.**
  - Policy NH.4.1. Expand the availability of affordable housing throughout the region by preserving existing housing, including housing for very low-income persons. Policy NH.4.2. Reduce substandard housing units by conserving and rehabilitating existing housing stock to minimize impacts on existing residents.
  - Policy NH.4.3. Address accessibility issues and other housing barriers to persons with disabilities or special needs.
  - Policy NH.4.4. Encourage green practices in housing construction and rehabilitation that support durable, healthy, and energy efficient homes.
  - Policy NH.4.5. Renovate the existing housing stock to conserve energy and reduce utility and maintenance costs for owners and occupants.
  - Policy NH.4.6. Consider and integrate public transportation, when possible, in planning housing developments, to help reduce a household's transportation costs and minimize impact on the community's roads and transportation system.
  - Policy NH.4.7. Enforce compliance with fair housing laws.

- **Goal NH.5. Eliminate homelessness.**
  - Policy NH.5.1. Provide adequate resources for families with children experiencing homelessness.
  - Policy NH.5.2. Provide adequate resources for individuals experiencing homelessness.
  - Policy NH.5.3. Support and expand programs that prevent homelessness.
  - Policy NH.5.4. Make transitional housing resources available to populations experiencing homelessness

Carbon Neutrality Plan

- **Community resilience**
  - CR-1: Ensure all mitigation actions improve Flagstaff's ability to adapt to the future.
  - CR-2: Strengthen existing community systems to create resilience to both short-term shocks and long-term change.

- **Equitable systems**
  - ES-2: Proactively engage community members on an ongoing basis
  - ES-4: Actively seek to recognize past harms, repair trust, and build deeper relationships with community members.

10 Year Housing Plan

- **Connect people to equitable housing solutions.**
  - Connect 1: Reduce homelessness in the Flagstaff community and seek creative solutions to foster housing permanency for all.
    - Connect 1.3 Continue to support and develop Coordinated Entry as a meaningful process that provides linkages to healthcare, behavioral health, and housing
  - Connect 2: Implement a framework for centering equity in proposed and existing housing practices, policies, and programs.
    - Connect 2.1 Evaluate housing policies and strategies in City of Flagstaff planning documents through an equity lens.
    - Connect 2.2 Encourage community organizations such as local Continuum of Care to continue to integrate equity into programs and policies.
  - Connect 3: Integrate healthcare into housing programs, and housing into healthcare programs, as appropriate.
    - Connect 3.3 Work in partnership with the community to develop and promote community health measurement data collection into housing services when viable
    - Connect 3.2 Encourage neighborhoods, housing types and building practices that increase health.
    - Connect 3.1 Raise awareness of housing security as a social determinate of health

- **Preserve affordable housing**
  - Preserve 1: Encourage the adaptive reuse of buildings.
    - Preserve 2.2 Acquire and rehabilitate already built properties for affordable housing projects when financially feasible.

- **Protect people from housing discrimination and remove housing barriers.**
  - Protect 1: Continue Flagstaff's commitment to further Federal and Arizona Fair Housing laws in all housing-related services and programs, valuing the efforts of those who seek to reduce barriers to equitable housing opportunities, and providing Fair Housing education and resources to the community.

Has There Been Previous Council Decision on This:

On October 12, 2021, City Council provided direction on the use of Local Recovery Funds. City Council allocated $1,900,000.00 to housing assistance within the Negative Economic Impacts funding category.

On April 11, 2023, Housing Staff presented to City Council the Ranking Committee recommendations, forwarded by the Housing Commission, for allocation of Local Recovery Funds for Housing Assistance.

On June 20, 2023, City Council approved a $500,000.00 Grant Agreement with Housing Solutions of Northern Arizona for the JoJo's Place Transitional Housing Project and a $100,000.00 with Flagstaff Shelter Services for the Hotel to Housing Program.

Options and Alternatives:

1. Approve Grant Agreements with the following organizations, utilizing a portion of the American Rescue Plan Act Coronavirus Local Fiscal Recovery Funds for Housing Assistance Projects:

    1. **Project No: CL6321S** (Affordable Housing):
        - $397,398.00 to Habitat for Humanity of Northern Arizona for the Starter Homes at Timber Sky Project

    2. **Project No: CL6321T** (Services for the Unhoused):
        - $199,006.00 to Catholic Charities Community Services, Inc. for the Homeless Outreach and Housing Connections Project
        - $46,250.00 to Homeless Youth Connection for the Flagstaff Transitional Living Project

    3. **Project No: CL6321D** (Other Housing Assistance):
        - $200,000.00 to DNA People's Legal Services for the Housing Stability Legal Services Project
        - $59,948.00 to the Salvation Army for the Eviction Prevention Project; or

2. Approve some, but not all, of the Grant Agreements; or

3. Do not approve the Grant Agreements and direct staff to conduct an additional solicitation.

Background/History:

The City is a recipient of certain funds through the American Rescue Plan Act, Pub. L. No. 117-2 (March 11, 2021), which authorizes the U.S. Department of the Treasury to make payments from the Coronavirus Local Fiscal Recovery Fund. On October 12, 2021, City Council allocated $1,900,000.00 to Housing Assistance within the Negative Economic Impact funding category.

On November 7, 2022, the City of Flagstaff released a Notice of Funding Available ("NOFA") for Housing Assistance Projects that address community needs identified as a result of the COVID-19 pandemic in order to improve community resilience, address disparities of disproportionately impacted communities and create and preserve stable, affordable housing and prevent eviction. The City received eight (8) eligible applications by the December 19, 2023 deadline.

Housing staff conducted a risk assessment of all eight (8) applying agencies and their proposed Projects. Additionally, a Ranking Committee comprised of three (3) community representatives and three (3) City Staff met to review the proposals and rank them by consensus. Rankings primarily serve as a risk and benefit assessment and are the guiding input for Staff recommendations of ARPA Local Recovery Funds allocations. Staff presented the recommended allocations to the Housing Commission at the March meeting and the Housing Commission voted unanimously to forward them to Council with a recommendation for approval.

With $1,900,000 in ARPA Local Recovery Funds available for Housing Assistance, Staff recommended the following funding allocations:

- $59,948.00 to the Salvation Army for the Eviction Prevention Project
- $46,000.00 to Homeless Youth Connection for the Flagstaff Transitional Living Project
- $397,398.00 to Habitat for Humanity of Northern Arizona for the Starter Homes at Timber Sky Project
- $200,000.00 to DNA People's Legal Services for the Housing Stability Legal Services Project
- $199,006.00 to Catholic Charities Community Services, Inc. for the Homeless Outreach and Housing Connections Project

- $500,000.00 to Housing Solutions of Northern Arizona for the JoJo's Place Transitional Housing Project
- $100,000.00 to Flagstaff Shelter Services for the Hotel to Housing Program
- $398,398.00 to HS Development Partners for the Villas at Lake Mary LIHTC Development (a loan)

Key Considerations:

The projects will aid the City in its efforts to meet the identified overarching goal of the 10-Year Housing Plan to reduce the current affordable housing need in our community by half over the next 10 years by contributing to either:

- Impact at least 6,000 low-to-moderate income Flagstaff residents through a combination of unit creation or subsidy provision.
- Create or preserve 7,976 housing units by 2031 with a minimum of 10% of them being affordable. This will increase the overall supply of market rate, workforce and affordable housing occupied by local residents.

If funded as detailed in the chart above, these projects would support the creation of 7 transitional housing beds exclusively for youth experiencing homelessness, the development of 24 sites of future Starter Homes for affordable homeownership, provide operational support for shelter and outreach services to over 1,000 individuals experiencing homelessness and prevent eviction for over 95 households.

Community Involvement:

City Council discussed Local Recovery Funds allocation amounts and categories for funding at the City Council work session on September 7, 2021 and provided direction on use of the Local Recovery Funds on October 12, 2021. These meetings were held in accordance with Open Meeting Law and include a public participation process allowing for public comments. There was an open and competitive application process for Local Recovery Funds for Housing Assistance.

Attachments: Habitat for Humanity
The Salvation Army
Catholic Charities Community Services
Grant Provisions
DNA Legal
Homeless Youth Connection

AGREEMENT BETWEEN THE CITY OF FLAGSTAFF
and
HABITAT FOR HUMANITY OF NORTHERN ARIZONA
for the
STARTER HOMES AT TIMBER SKY PROJECT

THIS AGREEMENT (the "Agreement") is made and entered into by and between the City of Flagstaff, a political subdivision of the State of Arizona (the "City"), and Habitat for Humanity of Northern Arizona, an Arizona nonprofit corporation with offices at 2016 N. Fourth St., Flagstaff, AZ 86004 (the "Agency" or "Subrecipient").

RECITALS

A. Sections 602(b) and 603(b) of the Social Security Act, as added by section 9901 of the American Rescue Plan Act, Pub. L. No. 117-2 (March 11, 2021), authorizes the U.S. Department of the Treasury ("Treasury") to make payments to certain recipients from the Coronavirus Local Fiscal Recovery Fund ("Recovery Funds").

B. The City is a recipient of certain Recovery Funds and is authorized to utilize the Recovery Funds in accordance with the rules and regulations promulgated by Treasury. Specifically, the procurement for distribution of the Recovery Funds requiring compliance with the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200 ("Uniform Guidance").

C. The City desires to utilize a portion of its Recovery Funds to directly respond to the coronavirus pandemic by providing the Agency with Recovery Funds to support civil infrastructure work and land development for 40 Starter Home sites located in the Timber Sky neighborhood (the "Project"). After construction, Starter Homes will be sold to income-eligible households with a household income at or below 80% of the Area Median Income. The Agency is willing and has the resources to implement the Project.

D. The Project is eligible for expenditure of the Recovery Funds under the Uniform Guidance, "Appendix 1: Expenditure Categories." The procurement of the Project complies with both the Uniform Guidance and Procurement Code provisions.

NOW, THEREFORE, it is mutually agreed by and between the parties as follows:

1. AGENCY'S SCOPE OF SERVICES

1.1 Scope of Services. The Agency agrees to be a subrecipient of the Recovery Funds and complete the Project as described in the Scope of Work attached as **Exhibit A** and incorporated by reference into this Agreement. Recovery Funds will be used for civil infrastructure and land development costs including permit fees, site leveling, drainage and flood water retention, road and home pad development, sidewalks, utility trenching and utility connections for up to 40 future Starter Home sites. Expenses incurred from July 1, 2022 to the expiration of this Agreement are eligible for reimbursement.

1.2 Changes in Scope of Services. No change(s) shall be made to the Scope of Services except by written Agreement amendment. To obtain an Agreement amendment, the Agency must submit a revised Scope of Services with a written request for authorization for a Scope of Services amendment. If authorized, an Agreement amendment shall be drafted pursuant to the Procurement Code and must be approved by the City Council, and executed by duly authorized signatories, before the amendment will become effective.

2. AMOUNT AND NATURE OF ASSISTANCE BY CITY

2.1 Agreement Amount. Subject to all of the terms, covenants, and conditions of this Agreement, the City will enter into an Agreement with the Agency for a subaward amount not to exceed **three hundred ninety seven thousand three hundred and ninety eight dollars ($397,398.00)** for the services described in **Exhibit A** incurred from July 1, 2022, to the expiration of this Agreement. The City shall serve as the fiscal agent for the Recovery Funds. The Agency agrees to be responsible for all sums in excess of this amount necessary to complete the Project. The Subrecipient agrees to utilize funds available under this Agreement to supplement rather than supplant funds otherwise available. The Agency shall not use the Recovery Funds received from the City in any other manner except as provided in this Agreement. Wrongful expenditure of the Recovery Funds will constitute a breach of this Agreement and the City shall have the right to terminate this Agreement under the terms and conditions specified in this Agreement.

2.2 The City shall. Clearly identify every subaward to the Agency as a subaward and include the following information at the time of the subaward and include any changes in subsequent subaward modifications. When the information is not available, the City must provide the best information available to describe the Federal award and subaward:

2.2.1 Federal Award Identification;

- Subrecipient name (which must match Unique Entity Identifier (UEI));
- Subrecipient's UEI;
- Federal Award Identification Number (FAIN);
- Federal Award Date;
- Subaward Period of Performance Start and End date;
- Amount of Federal Funds Obligated by this action;
- Total Amount of Federal Funds Obligated to the Subrecipient;
- Total Amount of the Federal Award;
- Federal award Project description, as required to be responsive to the Federal Funding Accountability and Transparency Act (FFATA);
- Name of Federal awarding agency, pass-through entity, and contact information for awarding official;
- CFDA Number and name; the pass-through entity must identify the dollar amount made available under each Federal award and the CFDA number at

time of disbursement;

- Identification of whether the award is Research & Development; and
- Indirect cost rate for the Federal award (including if the de minimis rate is charged. All requirements imposed by the pass-through entity on the Subrecipient so that the Federal award is used in accordance with Federal statutes, regulations, and the terms and conditions of the Federal award.

2.2.2 Any additional requirements that the pass-through entity imposes on the Subrecipient in order for the pass-through entity to meet its own responsibility to the Federal awarding agency including identification of any required financial and performance reports;

2.2.3 Any approved federally recognized indirect cost rate negotiated between the Subrecipient and the Federal government or, if no such rate exists, either a rate negotiated between the pass-through entity and the Subrecipient or a de minimis indirect cost rate as defined in the Code of Federal Regulations.

2.2.4 A requirement that that Subrecipient permit the pass-through entity and auditors to have access to the Subrecipient's records and financial statements as necessary for the pass-through entity to meet the requirements of 2 C.F.R. §200.331 and § 200.300, "Statutory and national policy requirements," through 2 C.F.R. § 200.309, "Modifications to Period of performance," and Subpart F, "Audit Requirements"; and

2.2.5 Appropriate terms and conditions concerning closeout of the subaward.

2.3 Payments.

2.3.1 Payment by the City to the Agency for services and other expenses related to the administration of the Project will be provided on a reimbursement basis. Reimbursement may be requested monthly, quarterly, or a one-time/final reimbursement request. Reimbursement will be paid in dollar amounts approved by the City for completed work.

2.3.2 To request reimbursements, the Agency shall submit a Payment Request, attached as **Exhibit B** and incorporated by reference in this Agreement. The Agency must submit a final reimbursement request for expenses received and invoiced prior to the end of the termination of this Agreement no more than forty-five (45) days after the end of the Agreement. Requests for reimbursement received later than the forty-five (45) days after the Agreement termination will not be paid. The final reimbursement request as submitted shall be marked FINAL and include a copy of the Property Control Form. All reports shall be submitted to the contact persons as described in the Notice Section of this Agreement. The Agency may use funds to reimburse allowable costs of activities for expenses incurred from July1, 2022, to the expiration of this Agreement. Final payment invoices must be received no later than sixty (60) days after completion of the Scope of Work or

Agreement time-period, whichever comes first. No payments shall be made on invoices received after that date.

2.3 Changes in Budget. Any variance from the Budget must be made through a budget amendment. To obtain a budget amendment, the Agency must submit a new budget to the City with a written request for authorization for a budget amendment. The City Housing Director or her designee is authorized to approve budget amendments as long as the amendment does not increase the total budget of the Project.

2.4 Indirect Costs. If indirect costs are charged, the Agency will develop an indirect cost allocation plan for determining the Agency's appropriate share of administrative costs and shall submit such plan to the City for approval, in a form specified by the City.

3. CERTIFICATION OF COMPLETION

Upon satisfactory completion of the Close-Out Report and submission of all required documentation, the City shall provide the Agency with a letter that certifies completion. The certification is conclusive determination that the Agency has satisfactorily completed its contractual obligations. The City shall not unreasonably withhold such certification.

4. ADMINISTRATIVE REQUIREMENTS

4.1 Accounting. The Agency shall comply with the requirements and standards of Office of Management and Budget (OMB) and guidance in subparts A through F of 2 C.F.R part 200 and shall adhere to the accounting principles and procedures required therein, utilize adequate internal controls, and maintain necessary source documentation for all costs incurred. The Agency's financial management system shall include, at a minimum, accurate, current, and complete disclosures of expenditures of the Recovery Funds; records which adequately identify the source and application of Recovery Funds provided for financially assisted activities; effective control over and accountability for Recovery Funds, real and personal property, and other assets; comparison of actual outlays with budgeted amounts; and records supported by source documentation. The Agency shall maintain Recovery Funds received under this Agreement in separate ledger accounts and not mix funds with other sources; manage funds according to applicable Federal regulations for administrative requirements, cost principles, and audits; and maintain adequate business systems to comply with Federal requirements. The business systems that must be maintained are: Financial Managements, Procurement, Personnel, Property, and Travel. A system is adequate if it is written, followed consistently (it applies to similar items), and consistently applied (it applies to all sources of funds).

4.2 Procurement. The Agency shall procure all materials, property, or services in accordance with the requirements of the Uniform Guidance and 2 C.F.R. § 200.317 through 2 C.F.R. § 200.327. The Agency’s procurement outreach and documentation shall be governed by the price limits set forth in the Procurement Code, notwithstanding OMB Circular A-110. All procurement undertakings must make an

effort to utilize Minority and Women Owned Business Enterprises. The Agency shall maintain an inventory of all equipment, furniture, and non-expendable personal property purchased with Recovery Funds.

4.3 Internal Controls. The City will evaluate the Agency to determine if there is a risk that the Agency will not comply with Federal statutes, regulations, and the terms and conditions of the subaward for purposes of determining the appropriate Subrecipient monitoring including the factors listed in 2 C.F.R. § 200.331(b)(1-4). The Agency will operate according to a written set of policies and procedures that define staff qualifications and duties, lines of authority, separation of functions, and access to assets and sensitive documents. Included in these policies and procedures will be written accounting procedures for approving and recording transactions and the control of cash receipts, disbursements, and cash balances. The Agency's financial policies and lines of authority shall be reviewed during monitoring visits defined in this Agreement.

4.4 Monitoring. The City shall monitor the use of the Recovery Funds, including reviewing the Payment Requests and Performance Reports provided by the Agency. The City shall follow-up and ensure that the Agency takes timely and appropriate action on all deficiencies pertaining to the Federal award detected through audits, on-site reviews, and other means. The City shall issue a management decision for audit findings pertaining to the Recovery Funds provided to the Agency from the City as required by 2 C.F.R. § 200.521, "Management decision." The Agency agrees to cooperate and provide all information necessary for the City to monitor the Agency periodically to ensure compliance with this Agreement, compliance with federal regulations and laws, fiscal responsibility, adequate performance, and any other item of concern relating to the use of Recovery Funds and the provisions defined in this Agreement, including by permitting the pass-through entity and auditors to have access to the Subrecipient's records and financial statements as necessary for the pass-through entity to meet the requirements of 2 C.F.R. § 200.300, "Statutory and national policy requirements," 2 C.F.R. § 200.309, "Modifications to period of performance," 2 C.F.R. § 200.331, "Subrecipient and contractor determinations," and Subpart F, "Audit Requirements." The monitoring will take the form of at least one site visit of the Agency's place of business and/or construction site and other various requests for information. During the term of this Agreement, the Agency shall be monitored periodically by the City, both programmatically and financially, to ensure that the program's goals, objectives, performance requirements, timelines, milestone completion, budgets, and other related program criteria, are being met. Monitoring will be accomplished through a combination of office-based reviews and onsite monitoring visits. Monitoring can involve aspects of the work involved under this contract including but not limited to the review and analysis of the financial, programmatic, performance, and administrative issues relative to each program, and will identify areas where technical assistance and other support may be needed. All on-site monitoring shall take place during normal business hours, upon advance written notice, on dates and at times as mutually agreed upon by the Agency and the City.

4.5 Documentation, Record-Keeping and Other Requirements Specific to Expenditure Categories. The Agency shall maintain all records required by federal and state law that are pertinent to the activities to be funded under this Agreement. Such records shall include but not be limited to:

4.5.1 All additional reporting requirements specific to expenditure categories as identified by Treasury attached as **Exhibit C** and incorporated by reference in this Agreement.

4.5.2 Records providing a full description of each activity undertaken;

4.5.3 Records demonstrating that each activity undertaken meets one of the Expenditure Categories identified in the U.S. Department of Treasury Compliance and Reporting Guidance, Appendix 1: Expenditure Categories;

4.5.4 Records required to determine the eligibility of activities;

4.5.5 Records required to document the acquisition, improvement, use, or disposition of real property acquired or improved with Recovery Funds;

4.5.6 Financial records as required by 2 C.F.R. Part 200 Performance and Financial Monitoring and Reporting, Sections 200.328, 329, and 331; and

4.5.7 Other records necessary to document compliance with 2 C.F.R. Part 200 Performance and Financial Monitoring and Reporting, Sections 200.328, 329, and 331.

4.6 Records Retention. The Agency will retain all records pursuant to the City's record retention policy and Federal requirements, whichever period is longer. Records must be retained longer if any litigation, claim, or audit is started before the expiration of the record retention period. Other extensions to the record retention period may apply as specified in 2 C.F.R. § 200.333.

4.7 Client Data. The Agency shall maintain client data demonstrating client eligibility for services provided. Such data shall include, but not be limited to, client name, address, income level or other basis for determining eligibility, ethnicity, special needs, family size, elderly status, and description of service provided. Such information shall be made available to City monitors or their designees for review upon request.

4.8 Disclosure. The Agency understands that client information collected under this Agreement is private and the use or disclosure of such information, when not directly connected with the administration of the City's or the Agency's responsibilities with respect to services provided under this Agreement, is prohibited by Arizona State law unless written consent is obtained from such person receiving service and, in the case of a minor, that of a responsible parent or guardian.

4.9 Audits and Inspections. All of the Agency's records with respect to any matters

covered by this Agreement shall be made available to the City, grantor agency, their designees, or the Federal Government (including but not limited to Treasury, the Comptroller General of the United States, or any of their duly authorized representatives), unless otherwise protected by law, at any time during normal business hours, as often as the City or grantor agency deems necessary until all required records are turned over to the City of Flagstaff to audit, examine, and make excerpts or transcripts of all relevant data, provided. Any deficiencies noted in audit reports must be fully cleared by the Agency within thirty (30) days after receipt by the Agency. Failure of the Agency to comply with the above audit requirements will constitute a violation of this Agreement and may result in the withholding of future payments. The Agency agrees to have an annual Agency financial audit conducted in accordance with current City policy and, as applicable, subject to the Single Audit act of 1984 and all relevant OMB guidance, including, 2 C.F.R. § 200, Subpart F, "Audit requirements." The Agency will conduct an annual audit conducted in accordance with 2 C.F.R. 200, Subpart F, "Audit requirements," if the Agency expends more than seven-hundred fifty thousand dollars ($750,000) from Federal awards, in compliance with the Federal Single Audit Act (31 U.S.C. par. 7501-7507), as amended by the Single Audit Act Amendments of 1996 (P.L. 104 to 156).

4.10 Monthly Reports to City. During the entire Agreement period, the Agency shall prepare and submit to the City by the second (2nd) Friday of each month a Performance Report, attached as **Exhibit D** and incorporated by reference in this Agreement. If the scope of the Project has been fully completed and implemented, and there will be no further updates, then the monthly Performance Report for the month in which the Project was completed will be sufficient as the final report. The report should be marked as final and should be inclusive of all necessary and pertinent information regarding the Project as deemed necessary by the City. Notwithstanding anything to the contrary, the Agency shall not be required to provide any of the Agency's confidential or proprietary information in reports provided to the City, including without limitation, any information regarding research collaborators, research plans, or any data, results, or other information resulting from the Agency's performance of research or any other activities relating thereto. The Agency agrees to submit other reports and records as may be required by the City from time to time, which are related to the implementation of the Project, adherence to the Agreement, and adherence to federal, state, and local laws and regulations.

4.11 Close-Out Report. The Agency is responsible for the close out of the Recovery Funds. The Agency's obligation to the City shall not end until all close-out requirements are completed. Activities during this close-out period shall include, but are not limited to: making final payments, disposing of program assets (including the return of all unused materials, equipment, unspent cash advances, program income balances, and accounts receivable to the City), and determining the custodianship of records. The City will send the Agency written notification that a Close-Out Report is due when one of the following contractual obligations have been met, and the Agency shall submit the Close-Out Report attached in that letter within sixty (60) days of receiving this notification:

4.11.1 The Recovery Funds have been expended and the Scope of Work has been completed;

4.11.2 The Agreement period has expired; or

4.11.3 The Scope of Work has been completed.

4.12 Subrecipient Obligations. The Agency shall perform all obligations required of subrecipients under the rules governing Recovery Funds.

5. ACKNOWLEDGEMENT

The Agency shall acknowledge during the term of the Agreement the contribution of the City of Flagstaff Recovery Funds toward the Project in all instances where the Project is advertised. All activities, facilities, and items utilized pursuant to this Agreement shall be prominently labeled as receiving Recovery Funds. In addition, the Agency will include a reference to the support provided herein in all publications made possible with Recovery Funds made available under this Agreement.

6. PROJECT IMPLEMENTATION

The Agency shall have responsibility for day-to-day management and implementation of the Project.

7. UNFORESEEN DELAY IN PERFORMANCE

Neither the Agency nor the City shall be considered in breach or default of its obligations to make satisfactory progress toward the completion of the Project in the event of unforeseen delay in the performance of such obligations due to unforeseeable causes beyond its control and without its fault or negligence. The time for performance of the obligations and length of period of restriction on use shall be extended for the period of the unforeseen delay, as determined by the City, if the party seeking the extension shall request it in writing of the other party within ten (10) days after the beginning of the unforeseen delay.

8. INSURANCE

The Agency and its sub-agencies shall procure and maintain insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Agency, its agents, representatives, employees, or sub-agencies, until all of their obligations have been discharged, including satisfaction of any warranty periods under this Agreement.

The insurance requirements herein are minimum requirements for this Agreement and in no way limit the indemnity covenants contained in this Agreement. The City in no way warrants that the minimum limits contained herein are sufficient to protect the Agency from liabilities that might arise out of the performance of the work under this Agreement by the Agency, its agents, representatives, employees, or sub-agencies, and the Agency is free to purchase additional insurance as may be determined necessary.

8.1 Minimum Scope and Limits of Insurance. The Agency shall provide coverage at least as broad and with limits of liability not less than those stated below.

8.1.1 Commercial General Liability - Occurrence Form

General Aggregate	$ 2,000,000
Products-Completed Operations Aggregate	$ 1,000,000
Each Occurrence	$ 1,000,000

8.1.2 Umbrella Coverage ..... $ 2,000,000

8.1.3 Automobile Liability - Any Auto or Owned, Hired, and Non-Owned Vehicles

Combined Single Limit Per Accident or Bodily Injury and Property Damage	$ 1,000,000

8.1.4 Workers' Compensation and Employer's Liability

Workers' Compensation	Statutory
Employer's Liability: Each Accident	$ 1,000,000
Disease-Each Employee	$ 1,000,000
Disease-Policy Limit	$ 1,000,000

8.2 Self-Insured Retentions/Deductibles. Any self-insured retentions and deductibles shall be declared to and approved by the City. If not approved, the City may require that the insurer reduce or eliminate such self-insured retentions with respect to the City, its officers, agents, employees, and volunteers. The Agency shall be solely responsible for any self-insured retention amounts. City at its option may require the Agency to secure payment of such self-insured retention by a surety bond or irrevocable and unconditional letter of credit.

8.3 Other Insurance Requirements. The policies are to contain, or be endorsed to contain, the following provisions:

8.3.1 Commercial General Liability and Automobile Liability Coverages

8.3.1.1 The City of Flagstaff, its officers, officials, agents, employees, and volunteers are to be listed as additional insureds with respect to liability arising out of: activities performed by, or on behalf of, the Agency, including the City's general supervision of the Agency; products and completed operations of the Agency; and automobiles owned, leased, hired, or borrowed by the Agency.

8.3.1.2 The Agency's insurance shall contain broad form contractual liability coverage.

8.3.1.3 The Agency's insurance coverage shall be primary insurance with respect to the City, its officers, officials, agents, employees, and

volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, agents, employees, or volunteers shall be in excess to the coverage of the Agency's insurance and shall not contribute to it.

8.3.1.4 The Agency's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

8.3.1.5 Coverage provided by the Agency shall not be limited to the liability assumed under the indemnification provisions of this Agreement.

8.3.1.6 The policies shall contain a waiver of subrogation against the City, its officers, officials, agents, employees, and volunteers for losses arising from work performed by the Agency for the City.

8.3.2 Workers' Compensation and Employer's Liability Coverage. The insurer shall agree to waive all rights of subrogation against the City, its officers, officials, agents, employees, and volunteers for losses arising from work performed by the Agency for the City.

8.3.3 Notice of Cancellation. Each insurance policy required by the insurance provisions of this Agreement shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice has been given to the City. Such notice shall be sent directly to: Risk Manager, 211 W. Aspen Avenue, Flagstaff, AZ, 86001, and shall be sent by certified mail, return receipt requested.

8.3.4 Acceptability of Insurers. Insurance shall be placed with insurers duly licensed or approved unlicensed companies in the State of Arizona and with a "Best's" rating of not less than A-: VII. The City in no way warrants that the above-required minimum insurer rating is sufficient to protect the Agency from potential insurer insolvency.

8.3.5 Verification of Coverage. The Agency shall furnish the City with Certificates of Insurance as required by this Agreement. The certificates for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf. Any policy endorsements that restrict or limit coverage shall be clearly noted on the Certificate of Insurance. The Project name/description and City contract number shall be noted on the certificates of insurance. The City must receive and approve all certificates of insurance and endorsements before the Agency commences work.

8.3.5.1 Each insurance policy required by this Agreement shall be in effect at or prior to commencement of work under this Agreement and remain in effect for the duration of this Agreement. Failure to maintain the insurance policies as required by this Agreement or to

provide evidence of renewal shall be a material breach of Agreement.

8.3.5.2 All Certificates of Insurance required by this Agreement shall be sent directly to: Stacey Brechler-Knaggs, Grants & Contracts Manager, 211 West Aspen Avenue, Flagstaff, Arizona, 86001. The City reserves the right to require complete, certified copies of all insurance policies and endorsements required by this Agreement, at any time.

8.3.6 Sub-agencies. The Agency's Certificates of Insurance shall include all sub-agencies as insureds under its policies, or the Agency shall furnish to the City separate Certificates of Insurance for each sub-agency. All coverages for sub-agencies shall be subject to the minimum requirements identified above.

8.3.7 Approval. Any modification or variation from the insurance requirements in this Agreement shall have prior approval from the Flagstaff City Attorney's Office and the Risk Manager, whose decision shall be final. Such action shall not require a formal Agreement Amendment but may be made by administrative action.

9. INDEBTEDNESS TO INTERNAL REVENUE SERVICE OR OTHER PUBLIC ENTITY

9.1 Delinquent Taxes. Any judgment, lien, levy, or outstanding amount owed to the Internal Revenue Service, State, County, City, or other public entity by the Agency may constitute an event of default or breach of this Agreement, unless previously approved by the City in writing, and may constitute sufficient reason for cancellation of this Agreement by the City according to the procedures contained in this Agreement.

9.2 Disclosure of Delinquent Taxes. Before entering into this Agreement, and during the time-period covered by this Agreement, the Agency shall disclose any information related to this Section. This shall also include the immediate reporting of breaches in payback arrangements or breaches in other Agreements related to the above. Failure to comply with any disclosure provision in this Section may also constitute sufficient reason for cancellation of this Agreement by the City according to the procedures contained in this Agreement.

10. DEFAULT/REMEDIES

In the event of any default in or breach of this Agreement or any of its terms or conditions by either party, such party shall, upon written notice from the other, proceed immediately to cure or remedy such default or breach. In any event, such breach or default shall be remedied within thirty (30) days after receipt of such notice. In case such action is not taken or not diligently pursued, or the default or breach not cured or remedied within thirty (30) days, the aggrieved party may terminate this Agreement or institute such proceedings as may be necessary or desirable in its opinion to cure and remedy such default or breach, including, but not limited to, proceedings to compel specific

performance by the party in default or breach of its obligations. Notwithstanding the foregoing, in the event of a breach of any term of this Agreement by the Agency, the City, at its sole election and in addition to any other remedy, may immediately withhold payment of funds until such default is cured and may initiate suspension or termination as set forth below.

11. INDEPENDENT AGENCY STATUS

The Agency is an independent entity in the performance of all activities and functions pursuant to this Agreement. The Agency and City are not and shall not be considered as joint ventures, partners, or agents of each other and neither shall have the power to bind or obligate the other. The Agency's officers, employees, agents, and subcontractors shall not be considered as officers, employees, agents, or subcontractors of the City. The Agency hereby agrees not to represent to anyone that the Agency is an agent of the City or has any authority to act on behalf of the City. The Agency shall be responsible for all employment compensation claims for Workers' Compensation benefits, or other claims by employees arising as a result of activities funded in whole or in part from the proceeds of this Agreement, and the Agency shall hold the City harmless for any and all such claims.

12. INDEMNIFICATION AND HOLD HARMLESS PROVISIONS

To the fullest extent permitted by law, the Agency shall defend, indemnify, and hold harmless the City, its agents, representatives, officers, directors, officials, and employees from and against all claims, damages, losses, and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or alleged to have resulted from the acts, errors, mistakes, omissions, work, or services of the Agency, its employees, agents, or any tier of subcontractors in the performance of this Agreement. The Agency's duty to defend, hold harmless, and indemnify the City, its agents, representatives, officers, directors, officials, and employees shall arise in connection with the claim, damage, loss, or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting therefrom, caused by any acts, errors, mistakes, omissions, work, or services in the performance of this Agreement including any employee of the Agency or any tier of subcontractors or any other person for whose acts, errors, mistakes, omissions, work, or services the Agency may be legally liable.

13. NONDISCRIMINATION AND AFFIRMATIVE ACTION REGARDING EMPLOYMENT

13.1 Nondiscrimination. The Agency shall not discriminate against any employee or applicant for employment or person to whom it provides services because of race, color, religion, sex, national origin, disability, genetic information, veteran's status, pregnancy, and/or familial status, and represents and warrants that it complies with all applicable federal, state, and local laws and executive orders regarding employment. In addition, if the Agency operates within City of Flagstaff limits, the Agency shall comply with the City Code, Chapter 14-02, "Civil Rights," which also prohibits discrimination based on sexual orientation, or gender identity or expression.

13.2 Incorporation of Nondiscrimination Clause into the Agency Activities. The Agency

further agrees that the Section 14.1 clause will be incorporated in all supplier contracts or other agreements entered into in connection with this Agreement.

13.3 Certifications from Subcontractors and Suppliers. The Agency assures that its authorized agent will obtain all supplier and subcontractor certifications contained in the Agreement documents and that those suppliers and contractors will adhere to all affirmative action requirements.

14. COMPLIANCE WITH ALL LAWS

14.1 Federal, State, and Local Laws. The Agency shall give all notices and comply with all laws, ordinances, rules, building codes, regulations, and lawful orders of any public authority bearing on the performance of activities pursuant to this Agreement. If the Agency observes that any of the Agreement documents are in conflict with any laws, statutes, building codes, or regulations, it shall promptly notify the City, in writing, and the parties shall execute any appropriate written modification.

14.2 Liability. Should the Agency perform any work knowing it to be contrary to applicable laws, ordinances, rules, building codes, or regulations, and not give proper notice to the City, it shall assume full responsibility therefore and shall bear all cost incurred due to its negligence.

14.3 Agency Adherence to Federal Regulations and Laws. The Agency agrees to comply with the following laws related to the receipt of Recovery Funds:

14.3.1 The Agency shall comply with the Grant Provisions for the U.S Department of Treasury, American Rescue Plan Act, Coronavirus State and Local Fiscal Recovery Funds, attached as **Exhibit E** and incorporated by reference in this Agreement.

14.3.2 The Agency shall carry out its responsibilities in compliance with the requirements of Executive Order 11063, as amended by Executive Order 12259; Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d); the prohibitions against age discrimination under the Age Discrimination Act of 1975 (42 U.S.C. § 6101-07); and the prohibitions against discrimination against handicapped individuals under Section 504 of the Rehabilitation Act of 1973 (19 U.S.C. § 794).

14.3.3 The Agency shall comply, as applicable, with the requirements of the Davis-Bacon Act (40 U.S.C. § 276a-276a-5), as supplemented by Department of Labor regulations (29 C.F.R. Part 5); and comply with Sections 103 and 107 of the Agreement Work Hours and Safety Standards Act (40 U.S.C. § 327-330), as supplemented by Department of Labor regulations (29 C.F.R. Part 5).

14.3.4 The Agency shall comply with Executive Order 11246 of September 24, 1965, entitled “Equal Employment Opportunity,” as amended by Executive

Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations. (41 C.F.R. chapter 60).

14.3.5 The Agency agrees to comply with the Copeland "Anti-Kick Back" Act (18 U.S.C. § 874), as supplemented in Department of Labor regulations (29 C.F.R. part 3).

14.3.6 The Agency agrees to comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368m Executive Order 11738), and Environmental Protection Contract regulations (40 C.F.R. part 15).

14.3.7 The Agency agrees to comply with all applicable standards, orders, or regulations issued under Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352). Contractors that apply or bid for an award exceeding $100,000 must file the required certification.

14.3.8 The Agency agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act and the Federal Water Pollution Control Act as amended. Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency.

14.3.9 The Agency agrees to comply, as applicable, with 2 C.F.R. part 200, Uniform Administrative Requirements, Cost Principle, and Audit Requirement for Federal Awards.

14.4 Suspension or Debarment. Submittal of an offer or execution of a contract shall attest that the Subrecipient or contractor is not currently suspended or debarred to contract in local, state, or federal jurisdictions. If the Subrecipient or any of its contractors become suspended or debarred, the Subrecipient shall immediately notify the City. The City may, by written notice to the Subrecipient, immediately terminate this Agreement if the City determines that the Subrecipient or their contractors have been debarred, suspended, or otherwise lawfully prohibited from participating in any public procurement activity, including but not limited to, being disapproved as a subcontractor of any public procurement unit or other governmental body.

14.5 Contracts and Subawards to Debarred and Suspended Parties. Pursuant to 2 C.F.R. subpart C § 200.213, grantees and subrecipients must not make an award or permit any award (subgrant or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549, “Debarment and Suspension.” By entering into this Agreement, Subrecipient agrees to comply with all relevant codes including 2 C.F.R. subpart C, “Responsibilities of Participants Regarding Transactions.” The Agency must verify that any sub-agencies are not excluded or disqualified.

The Agency does this by:

(a) Checking the SAM Exclusions: System for Award Management (SAM) – www.sam.gov.

(b) Collecting a certification from that person.

(c) Adding a clause or condition to the covered transaction with that person.

15. DISPUTES

The laws of the State of Arizona, without regard to any otherwise applicable choice or conflict of law provisions, will govern this Agreement.

16. AVAILABILITY OF FUNDS

It is expressly understood by the parties hereto that this Agreement has been negotiated and executed in anticipation of receipt of funds by the City from the federal government, and that the terms, conditions, and sums payable under this Agreement are subject to any changes or limitations which may be required by the terms of the City's agreement with the federal government.

17. CONSULTATION

The Agency and the City hereby agree to consult one another on a timely basis regarding the applicability of this Agreement to any condition which may impact the execution of this Agreement, and which may arise during the Agreement period.

18. CONTINUING LIABILITY

The Agency shall have continuing liability after the term of this Agreement for any breach of this Agreement, including failure to perform in accordance with required Federal law, rules, and regulations until after all complaints, investigations, and sanctions, including those arising out of audits performed by Treasury, the City, or other authorized agencies are resolved. The Agency shall be liable for any sanctions or requirements imposed at any time upon the City arising out of the Agency's activities performed pursuant to this Agreement.

19. TERMINATION

19.1 Transactional Conflicts of Interest. The parties acknowledge that this Agreement is subject to cancellation by the City of Flagstaff under the provisions of A.R.S. § 38-511.

19.2 Termination. In accordance with 2 C.F.R. part 200, subpart D, the City may suspend or terminate this Agreement if the Agency materially fails to comply with any term or condition of this Agreement, or if the Agency fails to maintain a good faith effort to carry out the purpose of this Agreement. If the Agency fails to materially comply with any term of the award, whether stated in a Federal statute or regulation, an assurance, in a State plan or application, a notice of award, or elsewhere, City may

take one or more of the following actions, as appropriate in the circumstances:

19.2.1 Temporarily withhold cash payments pending correction of the deficiency by the grantee or subgrantee or more severe enforcement action by the awarding agency;

19.2.2 Disallow (that is, deny both use of funds and matching credit for) all or part of the cost of the activity or action not in compliance;

19.2.3 Wholly or partly suspend or terminate the current award for the grantee's or subgrantee's program;

19.2.4 Withhold further awards for the program; or

19.2.5 Take other remedies that may be legally available.

19.3 Termination for Convenience. The City or the Agency may terminate this Agreement for convenience in accordance with 2 C.F.R. part 200 and the Procurement Code if both parties agree upon the termination and termination conditions. The party initiating the termination shall notify the other party in writing stating the reasons for such termination. The Agency may unilaterally terminate this Agreement upon written notification to the City setting forth the reasons for such termination, the effective date, and in the case of partial termination the portion to be terminated. However, if, in the case of a partial termination, the City determines that the remaining portion of the award will not accomplish the purposes for which the award was made, the City may terminate the award in its entirety.

20. NOTICE

Notice shall be provided as follows:

City of Flagstaff
Stacey Brechler-Knaggs
Grants & Contracts Manager
211 W. Aspen Ave.
Flagstaff, AZ 86001
(928) 213-2227

Habitat for Humanity of Northern Arizona
Eric Wolverton
Executive Director
PO Box 3783
Flagstaff, AZ 86003
(928) 814-9368

Copy to:

Kristine Pavlik
Housing and Grants Administrator
2323 N. Walgreens St. Suite 2
Flagstaff, AZ 86004
(928) 213-2749

Sarah Darr
Housing Director
3481 N. Fanning Dr.
Flagstaff, AZ
(928) 213-2745

Such written notices, demands, and communications may be sent to such other addresses as either party may from time to time designate by mail as provided in this Section.

21. LIST OF EXHIBITS

Exhibit A:	Scope of work
Exhibit B:	Payment Request
Exhibit C:	Expenditure Specific Reporting Requirements
Exhibit D:	Performance Report
Exhibit E:	Grant Provisions

(Signatures appear on following page)

IN WITNESS WHEREOF, the parties acknowledge that they have read, understand, approve, and accept all of the provisions of this Agreement and the attached Exhibits.

DATED this _____ day of _____, 20___.

City of Flagstaff	**Habitat for Humanity of Northern Arizona**
Greg Clifton, City Manager	Eric Wolverton, Executive Director
Attest:	Attest:
City Clerk	Corporate Secretary
Approved as to form:	
City Attorney	

EXHIBIT A
SCOPE OF WORK
(Attached)

1. **Starter Homes at Timber Sky Project Scope of Work**
2. **Starter Homes at Timber Sky Project Budget**
3. **Starter Homes at Timber Sky Project Schedule of Completion**

EXHIBIT A
SCOPE OF WORK
SPECIAL CONDITIONS OF THE AGREEMENT

1. PROGRAM ELIGIBILITY CRITERIA

The Habitat for Humanity of Northern Arizona ("Agency") Starter Homes at Timber Sky Project ("Project") will allow the Agency to complete civil infrastructure work and land development for 40 Starter Home sites located in the Timber Sky neighborhood.

1.1 Eligibility for the Project administered by the Agency requires that the completed Starter Homes:

1.1.1 Be sold to income-eligible households with a household income at or below 80% of the Area Median Income.

1.2 Agency shall document and retain all client records with regards to Project eligibility.

2. SCOPE OF WORK

The Agency will provide services as set forth in detail in its December 19, 2022, proposal submitted in response to the City of Flagstaff American Rescue Plan Act (ARPA) Housing Assistance Local Recovery Funds Notice of Funding Available, hereby incorporated by reference, and as described herein.

The Agency will utilize ARPA Local Recovery Fund dollars for civil infrastructure and land development costs including permit fees, site leveling, drainage and flood water retention, road development, sidewalks, utility trenching and utility connections for up to 40 future Starter Home sites

2.1 Agency will provide the necessary personnel, equipment, office space, meeting space, supplies, and services to conduct the services as described herein.

2.2 Agency's responsibilities include:

2.2.1 Hiring and training staff involved in the program operations.

2.2.2 Providing the services as described herein.

EXHIBIT A
SCOPE OF WORK
SPECIAL CONDITIONS OF THE AGREEMENT

3. PROJECT ADMINISTRATION

The Agency will provide all of the necessary services to carry out the daily tasks of ensuring that the project progresses satisfactorily and that all of the administrative functions associated with the project are properly executed in accordance with the contract and the requirement of the Federal ARPA CLFRF program.

3.1 Agency responsibilities include:

3.1.1 Maintain project files detailing expenses, procurement, project information, and correspondence, in addition to any other necessary information.
3.1.2 Submit applicable grant reports to the Housing Section.
3.1.3 Maintain client files detailing income eligibility and back up documentation, ethnicity, age, and special needs, in addition to any other necessary information.
3.1.4 Maintain project accounting records, including documentation of expenditures and receipts.
3.1.5 Manage personnel.
3.1.6 Complete audits and other submissions.
3.1.7 Ensure a cost-effective, timely and efficient delivery of services.
3.1.8 Ensure that an open process is conducted in all outreach activities and equal opportunity is provided to all persons regardless of race, color, sex, sexual orientation, religion, handicap, familial status, or national origin.

EXHIBIT A
PROJECT BUDGET

Implementing Agency:	Habitat for Humanity of Northern Arizona
Project Number:	
Persons Served:	40 households
Date:	8/1/2023

Item and Activity	Item/Activity Desription	Source 1	Source 2	Source 3	Source 4	
		City of Flagstaff	Private	Agency	In-Kind	Project
		Local Recovery Funds	Donations	Cash Reserves	Donations	TOTALS
1	**Civil Infrastructure**					
A	General Conditions			$51,500.00		**$51,500.00**
B	Earthwork	$330,585.00				**$330,585.00**
C	Removals			$4,500.00		**$4,500.00**
D	Improvements			$283,749.00		**$283,749.00**
E	Utilities			$435,249.00	$350,000.00	**$785,249.00**
F	Rock Removal	$66,813.00	$63,539.00	$7,711.00		**$71,250.00**
G	Tax			$136,656.00		**$136,656.00**
E	Contingency					**$0.00**
2	**Administration**					
A	Project Manager			$10,000.00		**$10,000.00**
Totals		$397,398.00	$63,539.00	$929,365.00	$350,000.00	**$1,673,489.00**

EXHIBIT A
PROJECT SCHEDULE OF COMPLETION

PROJECT SCHEDULE

Starter Homes at Timber Sky
Habitat for Humanity

8/1/2023
40 households

		YEAR 1st month begins with notice to proceed																
Item Description	Prior to Notice to Proceed	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th
Complete Architectural and Engineeering Work																			
Site Plan Approval and Permits																			
Procure General Contractor																			
Phase 1 - Civil Infrastructure																			
Phase 2 - Civil Infrastructure																			
Phase 3 - Civil Infrastructure																			
Report progress to City staff																			
Close out report and monitoring																			

AGREEMENT BETWEEN THE CITY OF FLAGSTAFF
and
THE SALVATION ARMY
for the
EVICTION PREVENTION PROJECT

THIS AGREEMENT (the "Agreement") is made and entered into by and between the City of Flagstaff, a political subdivision of the State of Arizona (the "City"), and The Salvation Army, a California nonprofit corporation with offices at 507 N. Humphreys St., Flagstaff, AZ 86001 (the "Agency" or "Subrecipient").

RECITALS

A. Sections 602(b) and 603(b) of the Social Security Act, as added by section 9901 of the American Rescue Plan Act, Pub. L. No. 117-2 (March 11, 2021), authorizes the U.S. Department of the Treasury ("Treasury") to make payments to certain recipients from the Coronavirus Local Fiscal Recovery Fund ("Recovery Funds").

B. The City is a recipient of certain Recovery Funds and is authorized to utilize the Recovery Funds in accordance with the rules and regulations promulgated by Treasury. Specifically, the procurement for distribution of the Recovery Funds requiring compliance with the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200 ("Uniform Guidance").

C. The City desires to utilize a portion of its Recovery Funds to directly respond to the coronavirus pandemic by providing eviction prevention services to eligible Flagstaff residents. The Agency will provide eviction prevention, including rental assistance and supportive services to (15) unique households with an annual household income at or below 100% of the Area Median Income and living in the City of Flagstaff (the "Project"). The Agency is willing and has the resources to implement the Project.

D. The Project is eligible for expenditure of the Recovery Funds under the Uniform Guidance, "Appendix 1: Expenditure Categories." The procurement of the Project complies with both the Uniform Guidance and Procurement Code provisions.

NOW, THEREFORE, it is mutually agreed by and between the parties as follows:

1. AGENCY'S SCOPE OF SERVICES

1.1 Scope of Services. The Agency agrees to be a subrecipient of the Recovery Funds and complete the Project as described in the Scope of Work attached as **Exhibit A** and incorporated by reference into this Agreement. Recovery Funds will be used to support rental assistance and the salary of 1 full time social service case worker. Expenses incurred from July 1, 2022 to the expiration of this Agreement are eligible for reimbursement.

1.2 Changes in Scope of Services. No change(s) shall be made to the Scope of Services except by written Agreement amendment. To obtain an Agreement amendment, the Agency must submit a revised Scope of Services with a written request for authorization for a Scope of Services amendment. If authorized, an Agreement amendment shall be drafted pursuant to the Procurement Code and must be approved by the City Council, and executed by duly authorized signatories, before the amendment will become effective.

2. AMOUNT AND NATURE OF ASSISTANCE BY CITY

2.1 Agreement Amount. Subject to all of the terms, covenants, and conditions of this Agreement, the City will enter into an Agreement with the Agency for a subaward amount not to exceed **fifty nine thousand nine hundred and forty eight dollars ($59,948.00)** for the services described in **Exhibit A** incurred from July 1, 2022, to the expiration of this Agreement. The City shall serve as the fiscal agent for the Recovery Funds. The Agency agrees to be responsible for all sums in excess of this amount necessary to complete the Project. The Subrecipient agrees to utilize funds available under this Agreement to supplement rather than supplant funds otherwise available. The Agency shall not use the Recovery Funds received from the City in any other manner except as provided in this Agreement. Wrongful expenditure of the Recovery Funds will constitute a breach of this Agreement and the City shall have the right to terminate this Agreement under the terms and conditions specified in this Agreement.

2.2 The City shall. Clearly identify every subaward to the Agency as a subaward and include the following information at the time of the subaward and include any changes in subsequent subaward modifications. When the information is not available, the City must provide the best information available to describe the Federal award and subaward:

2.2.1 Federal Award Identification;

- Subrecipient name (which must match Unique Entity Identifier (UEI));
- Subrecipient's UEI;
- Federal Award Identification Number (FAIN);
- Federal Award Date;
- Subaward Period of Performance Start and End date;
- Amount of Federal Funds Obligated by this action;
- Total Amount of Federal Funds Obligated to the Subrecipient;
- Total Amount of the Federal Award;
- Federal award Project description, as required to be responsive to the Federal Funding Accountability and Transparency Act (FFATA);
- Name of Federal awarding agency, pass-through entity, and contact information for awarding official;
- CFDA Number and name; the pass-through entity must identify the dollar amount made available under each Federal award and the CFDA number at

time of disbursement;

- Identification of whether the award is Research & Development; and
- Indirect cost rate for the Federal award (including if the de minimis rate is charged. All requirements imposed by the pass-through entity on the Subrecipient so that the Federal award is used in accordance with Federal statutes, regulations, and the terms and conditions of the Federal award.

2.2.2 Any additional requirements that the pass-through entity imposes on the Subrecipient in order for the pass-through entity to meet its own responsibility to the Federal awarding agency including identification of any required financial and performance reports;

2.2.3 Any approved federally recognized indirect cost rate negotiated between the Subrecipient and the Federal government or, if no such rate exists, either a rate negotiated between the pass-through entity and the Subrecipient or a de minimis indirect cost rate as defined in the Code of Federal Regulations.

2.2.4 A requirement that that Subrecipient permit the pass-through entity and auditors to have access to the Subrecipient's records and financial statements as necessary for the pass-through entity to meet the requirements of 2 C.F.R. §200.331 and § 200.300, "Statutory and national policy requirements," through 2 C.F.R. § 200.309, "Modifications to Period of performance," and Subpart F, "Audit Requirements"; and

2.2.5 Appropriate terms and conditions concerning closeout of the subaward.

2.3 Payments.

2.3.1 Payment by the City to the Agency for services and other expenses related to the administration of the Project will be provided on a reimbursement basis. Reimbursement may be requested monthly, quarterly, or a one-time/final reimbursement request. Reimbursement will be paid in dollar amounts approved by the City for completed work.

2.3.2 To request reimbursements, the Agency shall submit a Payment Request, attached as **Exhibit B** and incorporated by reference in this Agreement. The Agency must submit a final reimbursement request for expenses received and invoiced prior to the end of the termination of this Agreement no more than forty-five (45) days after the end of the Agreement. Requests for reimbursement received later than the forty-five (45) days after the Agreement termination will not be paid. The final reimbursement request as submitted shall be marked FINAL and include a copy of the Property Control Form. All reports shall be submitted to the contact persons as described in the Notice Section of this Agreement. The Agency may use funds to reimburse allowable costs of activities for expenses incurred from July 1, 2022, to the expiration of this Agreement. Final payment invoices must be received no later than sixty (60) days after completion of the Scope of Work or

Agreement time-period, whichever comes first. No payments shall be made on invoices received after that date.

2.3 Changes in Budget. Any variance from the Budget must be made through a budget amendment. To obtain a budget amendment, the Agency must submit a new budget to the City with a written request for authorization for a budget amendment. The City Housing Director or her designee is authorized to approve budget amendments as long as the amendment does not increase the total budget of the Project.

2.4 Indirect Costs. If indirect costs are charged, the Agency will develop an indirect cost allocation plan for determining the Agency's appropriate share of administrative costs and shall submit such plan to the City for approval, in a form specified by the City.

3. CERTIFICATION OF COMPLETION

Upon satisfactory completion of the Close-Out Report and submission of all required documentation, the City shall provide the Agency with a letter that certifies completion. The certification is conclusive determination that the Agency has satisfactorily completed its contractual obligations. The City shall not unreasonably withhold such certification.

4. ADMINISTRATIVE REQUIREMENTS

4.1 Accounting. The Agency shall comply with the requirements and standards of Office of Management and Budget (OMB) and guidance in subparts A through F of 2 C.F.R part 200 and shall adhere to the accounting principles and procedures required therein, utilize adequate internal controls, and maintain necessary source documentation for all costs incurred. The Agency's financial management system shall include, at a minimum, accurate, current, and complete disclosures of expenditures of the Recovery Funds; records which adequately identify the source and application of Recovery Funds provided for financially assisted activities; effective control over and accountability for Recovery Funds, real and personal property, and other assets; comparison of actual outlays with budgeted amounts; and records supported by source documentation. The Agency shall maintain Recovery Funds received under this Agreement in separate ledger accounts and not mix funds with other sources; manage funds according to applicable Federal regulations for administrative requirements, cost principles, and audits; and maintain adequate business systems to comply with Federal requirements. The business systems that must be maintained are: Financial Managements, Procurement, Personnel, Property, and Travel. A system is adequate if it is written, followed consistently (it applies to similar items), and consistently applied (it applies to all sources of funds).

4.2 Procurement. The Agency shall procure all materials, property, or services in accordance with the requirements of the Uniform Guidance and 2 C.F.R. § 200.317 through 2 C.F.R. § 200.327. The Agency’s procurement outreach and documentation shall be governed by the price limits set forth in the Procurement Code, notwithstanding OMB Circular A-110. All procurement undertakings must make an

effort to utilize Minority and Women Owned Business Enterprises. The Agency shall maintain an inventory of all equipment, furniture, and non-expendable personal property purchased with Recovery Funds.

4.3 Internal Controls. The City will evaluate the Agency to determine if there is a risk that the Agency will not comply with Federal statutes, regulations, and the terms and conditions of the subaward for purposes of determining the appropriate Subrecipient monitoring including the factors listed in 2 C.F.R. § 200.331(b)(1-4). The Agency will operate according to a written set of policies and procedures that define staff qualifications and duties, lines of authority, separation of functions, and access to assets and sensitive documents. Included in these policies and procedures will be written accounting procedures for approving and recording transactions and the control of cash receipts, disbursements, and cash balances. The Agency's financial policies and lines of authority shall be reviewed during monitoring visits defined in this Agreement.

4.4 Monitoring. The City shall monitor the use of the Recovery Funds, including reviewing the Payment Requests and Performance Reports provided by the Agency. The City shall follow-up and ensure that the Agency takes timely and appropriate action on all deficiencies pertaining to the Federal award detected through audits, on-site reviews, and other means. The City shall issue a management decision for audit findings pertaining to the Recovery Funds provided to the Agency from the City as required by 2 C.F.R. § 200.521, "Management decision." The Agency agrees to cooperate and provide all information necessary for the City to monitor the Agency periodically to ensure compliance with this Agreement, compliance with federal regulations and laws, fiscal responsibility, adequate performance, and any other item of concern relating to the use of Recovery Funds and the provisions defined in this Agreement, including by permitting the pass-through entity and auditors to have access to the Subrecipient's records and financial statements as necessary for the pass-through entity to meet the requirements of 2 C.F.R. § 200.300, "Statutory and national policy requirements," 2 C.F.R. § 200.309, "Modifications to period of performance," 2 C.F.R. § 200.331, "Subrecipient and contractor determinations," and Subpart F, "Audit Requirements." The monitoring will take the form of at least one site visit of the Agency's place of business and/or construction site and other various requests for information. During the term of this Agreement, the Agency shall be monitored periodically by the City, both programmatically and financially, to ensure that the program's goals, objectives, performance requirements, timelines, milestone completion, budgets, and other related program criteria, are being met. Monitoring will be accomplished through a combination of office-based reviews and onsite monitoring visits. Monitoring can involve aspects of the work involved under this contract including but not limited to the review and analysis of the financial, programmatic, performance, and administrative issues relative to each program, and will identify areas where technical assistance and other support may be needed. All on-site monitoring shall take place during normal business hours, upon advance written notice, on dates and at times as mutually agreed upon by the Agency and the City.

4.5 Documentation, Record-Keeping and Other Requirements Specific to Expenditure Categories. The Agency shall maintain all records required by federal and state law that are pertinent to the activities to be funded under this Agreement. Such records shall include but not be limited to:

4.5.1 All additional reporting requirements specific to expenditure categories as identified by Treasury attached as **Exhibit C** and incorporated by reference in this Agreement.

4.5.2 Records providing a full description of each activity undertaken;

4.5.3 Records demonstrating that each activity undertaken meets one of the Expenditure Categories identified in the U.S. Department of Treasury Compliance and Reporting Guidance, Appendix 1: Expenditure Categories;

4.5.4 Records required to determine the eligibility of activities;

4.5.5 Records required to document the acquisition, improvement, use, or disposition of real property acquired or improved with Recovery Funds;

4.5.6 Financial records as required by 2 C.F.R. Part 200 Performance and Financial Monitoring and Reporting, Sections 200.328, 329, and 331; and

4.5.7 Other records necessary to document compliance with 2 C.F.R. Part 200 Performance and Financial Monitoring and Reporting, Sections 200.328, 329, and 331.

4.6 Records Retention. The Agency will retain all records pursuant to the City's record retention policy and Federal requirements, whichever period is longer. Records must be retained longer if any litigation, claim, or audit is started before the expiration of the record retention period. Other extensions to the record retention period may apply as specified in 2 C.F.R. § 200.333.

4.7 Client Data. The Agency shall maintain client data demonstrating client eligibility for services provided. Such data shall include, but not be limited to, client name, address, income level or other basis for determining eligibility, ethnicity, special needs, family size, elderly status, and description of service provided. Such information shall be made available to City monitors or their designees for review upon request.

4.8 Disclosure. The Agency understands that client information collected under this Agreement is private and the use or disclosure of such information, when not directly connected with the administration of the City's or the Agency's responsibilities with respect to services provided under this Agreement, is prohibited by Arizona State law unless written consent is obtained from such person receiving service and, in the case of a minor, that of a responsible parent or guardian.

4.9 Audits and Inspections. All of the Agency's records with respect to any matters covered by this Agreement shall be made available to the City, grantor agency, their designees, or the Federal Government (including but not limited to Treasury, the Comptroller General of the United States, or any of their duly authorized representatives), unless otherwise protected by law, at any time during normal business hours, as often as the City or grantor agency deems necessary until all required records are turned over to the City of Flagstaff to audit, examine, and make excerpts or transcripts of all relevant data, provided. Any deficiencies noted in audit reports must be fully cleared by the Agency within thirty (30) days after receipt by the Agency. Failure of the Agency to comply with the above audit requirements will constitute a violation of this Agreement and may result in the withholding of future payments. The Agency agrees to have an annual Agency financial audit conducted in accordance with current City policy and, as applicable, subject to the Single Audit act of 1984 and all relevant OMB guidance, including, 2 C.F.R. § 200, Subpart F, "Audit requirements." The Agency will conduct an annual audit conducted in accordance with 2 C.F.R. 200, Subpart F, "Audit requirements," if the Agency expends more than seven-hundred fifty thousand dollars ($750,000) from Federal awards, in compliance with the Federal Single Audit Act (31 U.S.C. par. 7501-7507), as amended by the Single Audit Act Amendments of 1996 (P.L. 104 to 156).

4.10 Monthly Reports to City. During the entire Agreement period, the Agency shall prepare and submit to the City by the second (2nd) Friday of each month a Performance Report, attached as **Exhibit D** and incorporated by reference in this Agreement. If the scope of the Project has been fully completed and implemented, and there will be no further updates, then the monthly Performance Report for the month in which the Project was completed will be sufficient as the final report. The report should be marked as final and should be inclusive of all necessary and pertinent information regarding the Project as deemed necessary by the City. Notwithstanding anything to the contrary, the Agency shall not be required to provide any of the Agency's confidential or proprietary information in reports provided to the City, including without limitation, any information regarding research collaborators, research plans, or any data, results, or other information resulting from the Agency's performance of research or any other activities relating thereto. The Agency agrees to submit other reports and records as may be required by the City from time to time, which are related to the implementation of the Project, adherence to the Agreement, and adherence to federal, state, and local laws and regulations.

4.11 Close-Out Report. The Agency is responsible for the close out of the Recovery Funds. The Agency's obligation to the City shall not end until all close-out requirements are completed. Activities during this close-out period shall include, but are not limited to: making final payments, disposing of program assets (including the return of all unused materials, equipment, unspent cash advances, program income balances, and accounts receivable to the City), and determining the custodianship of records. The City will send the Agency written notification that a Close-Out Report is due when one of the following contractual obligations have been met, and the Agency shall submit the Close-Out Report attached in that letter within sixty (60)

days of receiving this notification:

4.11.1 The Recovery Funds have been expended and the Scope of Work has been completed;

4.11.2 The Agreement period has expired; or

4.11.3 The Scope of Work has been completed.

4.12 Subrecipient Obligations. The Agency shall perform all obligations required of subrecipients under the rules governing Recovery Funds.

5. ACKNOWLEDGEMENT

The Agency shall acknowledge during the term of the Agreement the contribution of the City of Flagstaff Recovery Funds toward the Project in all instances where the Project is advertised. All activities, facilities, and items utilized pursuant to this Agreement shall be prominently labeled as receiving Recovery Funds. In addition, the Agency will include a reference to the support provided herein in all publications made possible with Recovery Funds made available under this Agreement.

6. PROJECT IMPLEMENTATION

The Agency shall have responsibility for day-to-day management and implementation of the Project.

7. UNFORESEEN DELAY IN PERFORMANCE

Neither the Agency nor the City shall be considered in breach or default of its obligations to make satisfactory progress toward the completion of the Project in the event of unforeseen delay in the performance of such obligations due to unforeseeable causes beyond its control and without its fault or negligence. The time for performance of the obligations and length of period of restriction on use shall be extended for the period of the unforeseen delay, as determined by the City, if the party seeking the extension shall request it in writing of the other party within ten (10) days after the beginning of the unforeseen delay.

8. INSURANCE

The Agency and its sub-agencies shall procure and maintain insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Agency, its agents, representatives, employees, or sub-agencies, until all of their obligations have been discharged, including satisfaction of any warranty periods under this Agreement.

The insurance requirements herein are minimum requirements for this Agreement and in no way limit the indemnity covenants contained in this Agreement. The City in no way warrants that the minimum limits contained herein are sufficient to protect the Agency from liabilities that might arise out of the performance of the work under this Agreement by the Agency, its agents,

representatives, employees, or sub-agencies, and the Agency is free to purchase additional insurance as may be determined necessary.

8.1 Minimum Scope and Limits of Insurance. The Agency shall provide coverage at least as broad and with limits of liability not less than those stated below.

8.1.1 Commercial General Liability - Occurrence Form

General Aggregate	$ 2,000,000
Products-Completed Operations Aggregate	$ 1,000,000
Each Occurrence	$ 1,000,000

8.1.2 Umbrella Coverage ..... $ 2,000,000

8.1.3 Automobile Liability - Any Auto or Owned, Hired, and Non-Owned Vehicles

Combined Single Limit Per Accident or Bodily Injury and Property Damage	$ 1,000,000

8.1.4 Workers' Compensation and Employer's Liability

Workers' Compensation	Statutory
Employer's Liability: Each Accident	$ 1,000,000
Disease-Each Employee	$ 1,000,000
Disease-Policy Limit	$ 1,000,000

8.2 Self-Insured Retentions/Deductibles. Any self-insured retentions and deductibles shall be declared to and approved by the City. If not approved, the City may require that the insurer reduce or eliminate such self-insured retentions with respect to the City, its officers, agents, employees, and volunteers. The Agency shall be solely responsible for any self-insured retention amounts. City at its option may require the Agency to secure payment of such self-insured retention by a surety bond or irrevocable and unconditional letter of credit.

8.3 Other Insurance Requirements. The policies are to contain, or be endorsed to contain, the following provisions:

8.3.1 Commercial General Liability and Automobile Liability Coverages

8.3.1.1 The City of Flagstaff, its officers, officials, agents, employees, and volunteers are to be listed as additional insureds with respect to liability arising out of: activities performed by, or on behalf of, the Agency, including the City's general supervision of the Agency; products and completed operations of the Agency; and automobiles owned, leased, hired, or borrowed by the Agency.

8.3.1.2 The Agency's insurance shall contain broad form contractual liability coverage.

8.3.1.3 The Agency's insurance coverage shall be primary insurance with respect to the City, its officers, officials, agents, employees, and volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, agents, employees, or volunteers shall be in excess to the coverage of the Agency's insurance and shall not contribute to it.

8.3.1.4 The Agency's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

8.3.1.5 Coverage provided by the Agency shall not be limited to the liability assumed under the indemnification provisions of this Agreement.

8.3.1.6 The policies shall contain a waiver of subrogation against the City, its officers, officials, agents, employees, and volunteers for losses arising from work performed by the Agency for the City.

8.3.2 Workers' Compensation and Employer's Liability Coverage. The insurer shall agree to waive all rights of subrogation against the City, its officers, officials, agents, employees, and volunteers for losses arising from work performed by the Agency for the City.

8.3.3 Notice of Cancellation. Each insurance policy required by the insurance provisions of this Agreement shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice has been given to the City. Such notice shall be sent directly to: Risk Manager, 211 W. Aspen Avenue, Flagstaff, AZ, 86001, and shall be sent by certified mail, return receipt requested.

8.3.4 Acceptability of Insurers. Insurance shall be placed with insurers duly licensed or approved unlicensed companies in the State of Arizona and with a "Best's" rating of not less than A-: VII. The City in no way warrants that the above-required minimum insurer rating is sufficient to protect the Agency from potential insurer insolvency.

8.3.5 Verification of Coverage. The Agency shall furnish the City with Certificates of Insurance as required by this Agreement. The certificates for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf. Any policy endorsements that restrict or limit coverage shall be clearly noted on the Certificate of Insurance. The Project name/description and City contract number shall be noted on the certificates of insurance. The City must receive and approve all certificates of insurance and endorsements before the Agency commences work.

8.3.5.1 Each insurance policy required by this Agreement shall be in effect at or prior to commencement of work under this Agreement and

remain in effect for the duration of this Agreement. Failure to maintain the insurance policies as required by this Agreement or to provide evidence of renewal shall be a material breach of Agreement.

8.3.5.2 All Certificates of Insurance required by this Agreement shall be sent directly to: Stacey Brechler-Knaggs, Grants & Contracts Manager, 211 West Aspen Avenue, Flagstaff, Arizona, 86001. The City reserves the right to require complete, certified copies of all insurance policies and endorsements required by this Agreement, at any time.

8.3.6 Sub-agencies. The Agency's Certificates of Insurance shall include all sub-agencies as insureds under its policies, or the Agency shall furnish to the City separate Certificates of Insurance for each sub-agency. All coverages for sub-agencies shall be subject to the minimum requirements identified above.

8.3.7 Approval. Any modification or variation from the insurance requirements in this Agreement shall have prior approval from the Flagstaff City Attorney's Office and the Risk Manager, whose decision shall be final. Such action shall not require a formal Agreement Amendment but may be made by administrative action.

9. INDEBTEDNESS TO INTERNAL REVENUE SERVICE OR OTHER PUBLIC ENTITY

9.1 Delinquent Taxes. Any judgment, lien, levy, or outstanding amount owed to the Internal Revenue Service, State, County, City, or other public entity by the Agency may constitute an event of default or breach of this Agreement, unless previously approved by the City in writing, and may constitute sufficient reason for cancellation of this Agreement by the City according to the procedures contained in this Agreement.

9.2 Disclosure of Delinquent Taxes. Before entering into this Agreement, and during the time-period covered by this Agreement, the Agency shall disclose any information related to this Section. This shall also include the immediate reporting of breaches in payback arrangements or breaches in other Agreements related to the above. Failure to comply with any disclosure provision in this Section may also constitute sufficient reason for cancellation of this Agreement by the City according to the procedures contained in this Agreement.

10. DEFAULT/REMEDIES

In the event of any default in or breach of this Agreement or any of its terms or conditions by either party, such party shall, upon written notice from the other, proceed immediately to cure or remedy such default or breach. In any event, such breach or default shall be remedied within thirty (30) days after receipt of such notice. In case such action is not taken or not diligently pursued, or the default or breach not cured or remedied within thirty (30) days, the aggrieved party may terminate this

Agreement or institute such proceedings as may be necessary or desirable in its opinion to cure and remedy such default or breach, including, but not limited to, proceedings to compel specific performance by the party in default or breach of its obligations. Notwithstanding the foregoing, in the event of a breach of any term of this Agreement by the Agency, the City, at its sole election and in addition to any other remedy, may immediately withhold payment of funds until such default is cured and may initiate suspension or termination as set forth below.

11. INDEPENDENT AGENCY STATUS

The Agency is an independent entity in the performance of all activities and functions pursuant to this Agreement. The Agency and City are not and shall not be considered as joint ventures, partners, or agents of each other and neither shall have the power to bind or obligate the other. The Agency's officers, employees, agents, and subcontractors shall not be considered as officers, employees, agents, or subcontractors of the City. The Agency hereby agrees not to represent to anyone that the Agency is an agent of the City or has any authority to act on behalf of the City. The Agency shall be responsible for all employment compensation claims for Workers' Compensation benefits, or other claims by employees arising as a result of activities funded in whole or in part from the proceeds of this Agreement, and the Agency shall hold the City harmless for any and all such claims.

12. INDEMNIFICATION AND HOLD HARMLESS PROVISIONS

To the fullest extent permitted by law, the Agency shall defend, indemnify, and hold harmless the City, its agents, representatives, officers, directors, officials, and employees from and against all claims, damages, losses, and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or alleged to have resulted from the acts, errors, mistakes, omissions, work, or services of the Agency, its employees, agents, or any tier of subcontractors in the performance of this Agreement. The Agency's duty to defend, hold harmless, and indemnify the City, its agents, representatives, officers, directors, officials, and employees shall arise in connection with the claim, damage, loss, or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting therefrom, caused by any acts, errors, mistakes, omissions, work, or services in the performance of this Agreement including any employee of the Agency or any tier of subcontractors or any other person for whose acts, errors, mistakes, omissions, work, or services the Agency may be legally liable.

13. NONDISCRIMINATION AND AFFIRMATIVE ACTION REGARDING EMPLOYMENT

13.1 Nondiscrimination. The Agency shall not discriminate against any employee or applicant for employment or person to whom it provides services because of race, color, religion, sex, national origin, disability, genetic information, veteran's status, pregnancy, and/or familial status, and represents and warrants that it complies with all applicable federal, state, and local laws and executive orders regarding employment. In addition, if the Agency operates within City of Flagstaff limits, the Agency shall comply with the City Code, Chapter 14-02, "Civil Rights," which also prohibits discrimination based on sexual orientation, or gender identity or expression.

13.2 Incorporation of Nondiscrimination Clause into the Agency Activities. The Agency further agrees that the Section 14.1 clause will be incorporated in all supplier contracts or other agreements entered into in connection with this Agreement.

13.3 Certifications from Subcontractors and Suppliers. The Agency assures that its authorized agent will obtain all supplier and subcontractor certifications contained in the Agreement documents and that those suppliers and contractors will adhere to all affirmative action requirements.

14. COMPLIANCE WITH ALL LAWS

14.1 Federal, State, and Local Laws. The Agency shall give all notices and comply with all laws, ordinances, rules, building codes, regulations, and lawful orders of any public authority bearing on the performance of activities pursuant to this Agreement. If the Agency observes that any of the Agreement documents are in conflict with any laws, statutes, building codes, or regulations, it shall promptly notify the City, in writing, and the parties shall execute any appropriate written modification.

14.2 Liability. Should the Agency perform any work knowing it to be contrary to applicable laws, ordinances, rules, building codes, or regulations, and not give proper notice to the City, it shall assume full responsibility therefore and shall bear all cost incurred due to its negligence.

14.3 Agency Adherence to Federal Regulations and Laws. The Agency agrees to comply with the following laws related to the receipt of Recovery Funds:

14.3.1 The Agency shall comply with the Grant Provisions for the U.S Department of Treasury, American Rescue Plan Act, Coronavirus State and Local Fiscal Recovery Funds, attached as **Exhibit E** and incorporated by reference in this Agreement.

14.3.2 The Agency shall carry out its responsibilities in compliance with the requirements of Executive Order 11063, as amended by Executive Order 12259; Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d); the prohibitions against age discrimination under the Age Discrimination Act of 1975 (42 U.S.C. § 6101-07); and the prohibitions against discrimination against handicapped individuals under Section 504 of the Rehabilitation Act of 1973 (19 U.S.C. § 794).

14.3.3 The Agency shall comply, as applicable, with the requirements of the Davis-Bacon Act (40 U.S.C. § 276a-276a-5), as supplemented by Department of Labor regulations (29 C.F.R. Part 5); and comply with Sections 103 and 107 of the Agreement Work Hours and Safety Standards Act (40 U.S.C. § 327-330), as supplemented by Department of Labor regulations (29 C.F.R. Part 5).

14.3.4 The Agency shall comply with Executive Order 11246 of September 24, 1965, entitled “Equal Employment Opportunity,” as amended by Executive

Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations. (41 C.F.R. chapter 60).

14.3.5 The Agency agrees to comply with the Copeland "Anti-Kick Back" Act (18 U.S.C. § 874), as supplemented in Department of Labor regulations (29 C.F.R. part 3).

14.3.6 The Agency agrees to comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368m Executive Order 11738), and Environmental Protection Contract regulations (40 C.F.R. part 15).

14.3.7 The Agency agrees to comply with all applicable standards, orders, or regulations issued under Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352). Contractors that apply or bid for an award exceeding $100,000 must file the required certification.

14.3.8 The Agency agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act and the Federal Water Pollution Control Act as amended. Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency.

14.3.9 The Agency agrees to comply, as applicable, with 2 C.F.R. part 200, Uniform Administrative Requirements, Cost Principle, and Audit Requirement for Federal Awards.

14.4 Suspension or Debarment. Submittal of an offer or execution of a contract shall attest that the Subrecipient or contractor is not currently suspended or debarred to contract in local, state, or federal jurisdictions. If the Subrecipient or any of its contractors become suspended or debarred, the Subrecipient shall immediately notify the City. The City may, by written notice to the Subrecipient, immediately terminate this Agreement if the City determines that the Subrecipient or their contractors have been debarred, suspended, or otherwise lawfully prohibited from participating in any public procurement activity, including but not limited to, being disapproved as a subcontractor of any public procurement unit or other governmental body.

14.5 Contracts and Subawards to Debarred and Suspended Parties. Pursuant to 2 C.F.R. subpart C § 200.213, grantees and subrecipients must not make an award or permit any award (subgrant or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549, “Debarment and Suspension.” By entering into this Agreement, Subrecipient agrees to comply with all relevant codes including 2 C.F.R. subpart C, “Responsibilities of Participants Regarding Transactions.” The Agency must verify that any sub-agencies are not excluded or disqualified.

The Agency does this by:

(a) Checking the SAM Exclusions: System for Award Management (SAM) – www.sam.gov.

(b) Collecting a certification from that person.

(c) Adding a clause or condition to the covered transaction with that person.

15. DISPUTES

The laws of the State of Arizona, without regard to any otherwise applicable choice or conflict of law provisions, will govern this Agreement.

16. AVAILABILITY OF FUNDS

It is expressly understood by the parties hereto that this Agreement has been negotiated and executed in anticipation of receipt of funds by the City from the federal government, and that the terms, conditions, and sums payable under this Agreement are subject to any changes or limitations which may be required by the terms of the City's agreement with the federal government.

17. CONSULTATION

The Agency and the City hereby agree to consult one another on a timely basis regarding the applicability of this Agreement to any condition which may impact the execution of this Agreement, and which may arise during the Agreement period.

18. CONTINUING LIABILITY

The Agency shall have continuing liability after the term of this Agreement for any breach of this Agreement, including failure to perform in accordance with required Federal law, rules, and regulations until after all complaints, investigations, and sanctions, including those arising out of audits performed by Treasury, the City, or other authorized agencies are resolved. The Agency shall be liable for any sanctions or requirements imposed at any time upon the City arising out of the Agency's activities performed pursuant to this Agreement.

19. TERMINATION

19.1 Transactional Conflicts of Interest. The parties acknowledge that this Agreement is subject to cancellation by the City of Flagstaff under the provisions of A.R.S. § 38-511.

19.2 Termination. In accordance with 2 C.F.R. part 200, subpart D, the City may suspend or terminate this Agreement if the Agency materially fails to comply with any term or condition of this Agreement, or if the Agency fails to maintain a good faith effort to carry out the purpose of this Agreement. If the Agency fails to materially comply with any term of the award, whether stated in a Federal statute or regulation, an assurance, in a State plan or application, a notice of award, or elsewhere, City may

take one or more of the following actions, as appropriate in the circumstances:

19.2.1 Temporarily withhold cash payments pending correction of the deficiency by the grantee or subgrantee or more severe enforcement action by the awarding agency;

19.2.2 Disallow (that is, deny both use of funds and matching credit for) all or part of the cost of the activity or action not in compliance;

19.2.3 Wholly or partly suspend or terminate the current award for the grantee's or subgrantee's program;

19.2.4 Withhold further awards for the program; or

19.2.5 Take other remedies that may be legally available.

19.3 Termination for Convenience. The City or the Agency may terminate this Agreement for convenience in accordance with 2 C.F.R. part 200 and the Procurement Code if both parties agree upon the termination and termination conditions. The party initiating the termination shall notify the other party in writing stating the reasons for such termination. The Agency may unilaterally terminate this Agreement upon written notification to the City setting forth the reasons for such termination, the effective date, and in the case of partial termination the portion to be terminated. However, if, in the case of a partial termination, the City determines that the remaining portion of the award will not accomplish the purposes for which the award was made, the City may terminate the award in its entirety.

20. NOTICE

Notice shall be provided as follows:

City of Flagstaff
Stacey Brechler-Knaggs
Grants & Contracts Manager
211 W. Aspen Ave.
Flagstaff, AZ 86001
(928) 213-2227

Copy to:

Kristine Pavlik
Housing and Grants Administrator
2323 N. Walgreens St. Suite 2
Flagstaff, AZ 86004
(928) 213-2749

Sarah Darr
Housing Director
3481 N. Fanning Dr.
Flagstaff, AZ
(928) 213-2745

The Salvation Army
Lt. Colonel Ivan Wild
2707 E Van Buren St
Phoenix, AZ 85008
(602) 267-4165
ivan.wild@usw-salvationarmy.org

Copy to:

Capt. Laura Skotnicki
Divisional Social Service Director
2707 E Van Buren St
Phoenix, AZ 85008

Capt. Kathleen Griffiths
Flagstaff Corps Officer
507 N Humphreys St.
Flagstaff, AZ 86001

Such written notices, demands, and communications may be sent to such other addresses as either party may from time to time designate by mail as provided in this Section.

21. LIST OF EXHIBITS

Exhibit A: Scope of work
Exhibit B: Payment Request
Exhibit C: Expenditure Specific Reporting Requirements
Exhibit D: Performance Report
Exhibit E: Grant Provisions

(Signatures appear on following page)

IN WITNESS WHEREOF, the parties acknowledge that they have read, understand, approve, and accept all of the provisions of this Agreement and the attached Exhibits.

DATED this _____ day of _____, 20___.

City of Flagstaff	**The Salvation Army**
Greg Clifton, City Manager	Lt. Colonel Ivan Wild, Divisional Commander
Attest:	Attest:
City Clerk	Corporate Secretary
Approved as to form:	
City Attorney	

EXHIBIT A
SCOPE OF WORK
(Attached)

1. **The Salvation Army Eviction Prevention Project Scope of Work**
2. **The Salvation Army Eviction Prevention Project Budget**
3. **The Salvation Army Eviction Prevention Project Schedule of Completion**

EXHIBIT A
SCOPE OF WORK
SPECIAL CONDITIONS OF THE AGREEMENT

1. PROGRAM ELIGIBILITY CRITERIA

The Salvation Army ("Agency") Eviction Prevention Project ("Project") will allow the Agency to directly respond to the coronavirus pandemic by providing eviction prevention services, including rental assistance and supportive services to eligible Flagstaff residents.

1.1 Eligibility for the Project administered by the Agency requires that the client:

1.1.1 Have an annual household income at or below 100% Area Median Income.

1.2 Agency shall document and retain all client records with regards to Project eligibility.

2. SCOPE OF WORK

The Agency will provide services as set forth in detail in its December 19, 2022, proposal submitted in response to the City of Flagstaff American Rescue Plan Act (ARPA) Housing Assistance Local Recovery Funds Notice of Funding Available, hereby incorporated by reference, and as described herein.

The Agency will utilize ARPA Local Recovery Fund dollars for rental assistance and to support the salary of a full time social service case worker.

2.1 The Agency agrees to serve fifteen (15) unique households at or below 100% of the Area Median Income.

2.2 Agency will provide the necessary personnel, equipment, office space, meeting space, supplies, and services to conduct the services as described herein.

2.3 Agency's responsibilities include:

2.3.1 Hiring and training staff involved in the program operations.
2.3.2 Providing the services as described herein.

EXHIBIT A
SCOPE OF WORK
SPECIAL CONDITIONS OF THE AGREEMENT

3. PROJECT ADMINISTRATION

The Agency will provide all of the necessary services to carry out the daily tasks of ensuring that the project progresses satisfactorily and that all of the administrative functions associated with the project are properly executed in accordance with the contract and the requirement of the Federal ARPA CLFRF program.

3.1 Agency responsibilities include:

3.1.1 Maintain project files detailing expenses, procurement, project information, and correspondence, in addition to any other necessary information.
3.1.2 Submit applicable grant reports to the Housing Section.
3.1.3 Maintain client files detailing income eligibility and back up documentation, ethnicity, age, and special needs, in addition to any other necessary information.
3.1.4 Maintain project accounting records, including documentation of expenditures and receipts.
3.1.5 Manage personnel.
3.1.6 Complete audits and other submissions.
3.1.7 Ensure a cost-effective, timely and efficient delivery of services.
3.1.8 Ensure that an open process is conducted in all outreach activities and equal opportunity is provided to all persons regardless of race, color, sex, sexual orientation, religion, handicap, familial status, or national origin.

EXHIBIT A
PROJECT BUDGET

Project Budget						
City of Flagstaff	**ARPA Housing Assistance Local Recovery Funds**					
Project Description:	Eviction Prevention					
Implementing Agency:	The Salvation Army, A California Corporation					
CoF Project Number:						
Persons Served:	15 households (40 people)					
Date Submitted:						
Item/Activity Identifier	**Item/Activity Desription**	**Source 1**	**Source 2**	**Leverage**	**In-Kind**	**Project**
		City of Flagstaff Local Recover Funds	**Federal/State/ Local Funding**	**Agency Financing**	**Donations**	**TOTALS**
1	**Program or Project Related Expenses**					
A	Assistance to Clients		3,000.00	29,185.00	40,000.00	**$72,185**
B	Deposits					**$0**
C	Rent Vouchers	24,661.26		21,000.00		**$45,661**
D	Program Manager Salary					**$0**
2	**Administration**					**$0**
A	Salaries	20,000.00		23,658.00		**$43,658**
B	Staff expenses (travel reimbursement cms, phone, training)					**$0**
C	Agency Indirect	15,286.74				**$15,287**
3	**Facility Value**					**$0**
A	Facilities					**$0**
B	Operating					**$0**
Totals		**$59,948**	**$3,000**	**$64,843**	**$40,000**	**$167,791**

EXHIBIT A
PROJECT SCHEDULE OF COMPLETION

Project Schedule of Completion														
City of Flagstaff	**ARPA HOUSING ASSISTANCE LOCAL REOCERY FUNDS**													
Project Description:	EVICTION PREVENTION													
Implementing Agency:	THE SALVATION ARMY, A CALIFORNIA CORPORATION													
CoF Project Number:														
Persons Served:	15 households (40 people)													
Date Submitted:	8/01/2023													
Action Items:	**Item Description**	**Program Year: 2022/2023**				**1st Month Begins with the Notice to Proceed**								
			1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th
1	Eviction Prevention to individuals and households														
2	Client follow-up (1st month)														
3	Long Tern Case Management														
5	Exit Survey Clients														
7	Report progress to City staff														
8	Close out report and monitoring														

AGREEMENT BETWEEN THE CITY OF FLAGSTAFF
and
CATHOLIC CHARITIES COMMUNITY SERVICES, INC.
for the
OUTREACH AND HOUSING CONNECTIONS PROJECT

THIS AGREEMENT (the "Agreement") is made and entered into by and between the City of Flagstaff, a political subdivision of the State of Arizona (the "City"), and Catholic Charities Community Services, Inc., an Arizona nonprofit corporation with offices at 2101 N 4th St., Flagstaff, AZ 86004 (the "Agency" or "Subrecipient").

RECITALS

A. Sections 602(b) and 603(b) of the Social Security Act, as added by section 9901 of the American Rescue Plan Act, Pub. L. No. 117-2 (March 11, 2021), authorizes the U.S. Department of the Treasury ("Treasury") to make payments to certain recipients from the Coronavirus Local Fiscal Recovery Fund ("Recovery Funds").

B. The City is a recipient of certain Recovery Funds and is authorized to utilize the Recovery Funds in accordance with the rules and regulations promulgated by Treasury. Specifically, the procurement for distribution of the Recovery Funds requiring compliance with the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200 ("Uniform Guidance").

C. The City desires to utilize a portion of its Recovery Funds to directly respond to the coronavirus pandemic by expanding homeless outreach and housing services for individuals and families experiencing or at-risk for homelessness. The Agency will serve four hundred and fifty (450) unique individuals through a combination of coordinated entry, outreach, behavioral health services, direct assistance, and/or housing placement (the "Project"). The Agency is willing and has the resources to implement the Project.

D. The Project is eligible for expenditure of the Recovery Funds under the Uniform Guidance, "Appendix 1: Expenditure Categories." The procurement of the Project complies with both the Uniform Guidance and Procurement Code provisions.

NOW, THEREFORE, it is mutually agreed by and between the parties as follows:

1. AGENCY'S SCOPE OF SERVICES

1.1 Scope of Services. The Agency agrees to be a subrecipient of the Recovery Funds and complete the Project as described in the Scope of Work attached as **Exhibit A** and incorporated by reference into this Agreement. Recovery Funds will be used to support the salaries of an FTE Outreach Case Manager and ½ FTE Coordinated Entry Intake Specialist and for homelessness prevention and client assistance. Expenses incurred from July 1, 2022, to the expiration of this Agreement are eligible for reimbursement.

1.2 Changes in Scope of Services. No change(s) shall be made to the Scope of Services except by written Agreement amendment. To obtain an Agreement amendment, the Agency must submit a revised Scope of Services with a written request for authorization for a Scope of Services amendment. If authorized, an Agreement amendment shall be drafted pursuant to the Procurement Code and must be approved by the City Council, and executed by duly authorized signatories, before the amendment will become effective.

2. AMOUNT AND NATURE OF ASSISTANCE BY CITY

2.1 Agreement Amount. Subject to all of the terms, covenants, and conditions of this Agreement, the City will enter into an Agreement with the Agency for a subaward amount not to exceed **one hundred ninety nine thousand and six dollars ($199,006.00)** for the services described in **Exhibit A** incurred from July 1, 2022, to the expiration of this Agreement. The City shall serve as the fiscal agent for the Recovery Funds. The Agency agrees to be responsible for all sums in excess of this amount necessary to complete the Project. The Subrecipient agrees to utilize funds available under this Agreement to supplement rather than supplant funds otherwise available. The Agency shall not use the Recovery Funds received from the City in any other manner except as provided in this Agreement. Wrongful expenditure of the Recovery Funds will constitute a breach of this Agreement and the City shall have the right to terminate this Agreement under the terms and conditions specified in this Agreement.

2.2 The City shall. Clearly identify every subaward to the Agency as a subaward and include the following information at the time of the subaward and include any changes in subsequent subaward modifications. When the information is not available, the City must provide the best information available to describe the Federal award and subaward:

2.2.1 Federal Award Identification;

- Subrecipient name (which must match Unique Entity Identifier (UEI));
- Subrecipient's UEI;
- Federal Award Identification Number (FAIN);
- Federal Award Date;
- Subaward Period of Performance Start and End date;
- Amount of Federal Funds Obligated by this action;
- Total Amount of Federal Funds Obligated to the Subrecipient;
- Total Amount of the Federal Award;
- Federal award Project description, as required to be responsive to the Federal Funding Accountability and Transparency Act (FFATA);
- Name of Federal awarding agency, pass-through entity, and contact information for awarding official;
- CFDA Number and name; the pass-through entity must identify the dollar amount made available under each Federal award and the CFDA number at

time of disbursement;

- Identification of whether the award is Research & Development; and
- Indirect cost rate for the Federal award (including if the de minimis rate is charged. All requirements imposed by the pass-through entity on the Subrecipient so that the Federal award is used in accordance with Federal statutes, regulations, and the terms and conditions of the Federal award.

2.2.2 Any additional requirements that the pass-through entity imposes on the Subrecipient in order for the pass-through entity to meet its own responsibility to the Federal awarding agency including identification of any required financial and performance reports;

2.2.3 Any approved federally recognized indirect cost rate negotiated between the Subrecipient and the Federal government or, if no such rate exists, either a rate negotiated between the pass-through entity and the Subrecipient or a de minimis indirect cost rate as defined in the Code of Federal Regulations.

2.2.4 A requirement that that Subrecipient permit the pass-through entity and auditors to have access to the Subrecipient's records and financial statements as necessary for the pass-through entity to meet the requirements of 2 C.F.R. §200.331 and § 200.300, "Statutory and national policy requirements," through 2 C.F.R. § 200.309, "Modifications to Period of performance," and Subpart F, "Audit Requirements"; and

2.2.5 Appropriate terms and conditions concerning closeout of the subaward.

2.3 Payments.

2.3.1 Payment by the City to the Agency for services and other expenses related to the administration of the Project will be provided on a reimbursement basis. Reimbursement may be requested monthly, quarterly, or a one-time/final reimbursement request. Reimbursement will be paid in dollar amounts approved by the City for completed work.

2.3.2 To request reimbursements, the Agency shall submit a Payment Request, attached as **Exhibit B** and incorporated by reference in this Agreement. The Agency must submit a final reimbursement request for expenses received and invoiced prior to the end of the termination of this Agreement no more than forty-five (45) days after the end of the Agreement. Requests for reimbursement received later than the forty-five (45) days after the Agreement termination will not be paid. The final reimbursement request as submitted shall be marked FINAL and include a copy of the Property Control Form. All reports shall be submitted to the contact persons as described in the Notice Section of this Agreement. The Agency may use funds to reimburse allowable costs of activities for expenses incurred from January 1, 2023, to the expiration of this Agreement. Final payment invoices must be received no later than sixty (60) days after completion of the Scope of Work or

Agreement time-period, whichever comes first. No payments shall be made on invoices received after that date.

2.3 Changes in Budget. Any variance from the Budget must be made through a budget amendment. To obtain a budget amendment, the Agency must submit a new budget to the City with a written request for authorization for a budget amendment. The City Housing Director or her designee is authorized to approve budget amendments as long as the amendment does not increase the total budget of the Project.

2.4 Indirect Costs. If indirect costs are charged, the Agency will develop an indirect cost allocation plan for determining the Agency's appropriate share of administrative costs and shall submit such plan to the City for approval, in a form specified by the City.

3. CERTIFICATION OF COMPLETION

Upon satisfactory completion of the Close-Out Report and submission of all required documentation, the City shall provide the Agency with a letter that certifies completion. The certification is conclusive determination that the Agency has satisfactorily completed its contractual obligations. The City shall not unreasonably withhold such certification.

4. ADMINISTRATIVE REQUIREMENTS

4.1 Accounting. The Agency shall comply with the requirements and standards of Office of Management and Budget (OMB) and guidance in subparts A through F of 2 C.F.R part 200 and shall adhere to the accounting principles and procedures required therein, utilize adequate internal controls, and maintain necessary source documentation for all costs incurred. The Agency's financial management system shall include, at a minimum, accurate, current, and complete disclosures of expenditures of the Recovery Funds; records which adequately identify the source and application of Recovery Funds provided for financially assisted activities; effective control over and accountability for Recovery Funds, real and personal property, and other assets; comparison of actual outlays with budgeted amounts; and records supported by source documentation. The Agency shall maintain Recovery Funds received under this Agreement in separate ledger accounts and not mix funds with other sources; manage funds according to applicable Federal regulations for administrative requirements, cost principles, and audits; and maintain adequate business systems to comply with Federal requirements. The business systems that must be maintained are: Financial Managements, Procurement, Personnel, Property, and Travel. A system is adequate if it is written, followed consistently (it applies to similar items), and consistently applied (it applies to all sources of funds).

4.2 Procurement. The Agency shall procure all materials, property, or services in accordance with the requirements of the Uniform Guidance and 2 C.F.R. § 200.317 through 2 C.F.R. § 200.327. The Agency’s procurement outreach and documentation shall be governed by the price limits set forth in the Procurement Code, notwithstanding OMB Circular A-110. All procurement undertakings must make an

effort to utilize Minority and Women Owned Business Enterprises. The Agency shall maintain an inventory of all equipment, furniture, and non-expendable personal property purchased with Recovery Funds.

4.3 Internal Controls. The City will evaluate the Agency to determine if there is a risk that the Agency will not comply with Federal statutes, regulations, and the terms and conditions of the subaward for purposes of determining the appropriate Subrecipient monitoring including the factors listed in 2 C.F.R. § 200.331(b)(1-4). The Agency will operate according to a written set of policies and procedures that define staff qualifications and duties, lines of authority, separation of functions, and access to assets and sensitive documents. Included in these policies and procedures will be written accounting procedures for approving and recording transactions and the control of cash receipts, disbursements, and cash balances. The Agency's financial policies and lines of authority shall be reviewed during monitoring visits defined in this Agreement.

4.4 Monitoring. The City shall monitor the use of the Recovery Funds, including reviewing the Payment Requests and Performance Reports provided by the Agency. The City shall follow-up and ensure that the Agency takes timely and appropriate action on all deficiencies pertaining to the Federal award detected through audits, on-site reviews, and other means. The City shall issue a management decision for audit findings pertaining to the Recovery Funds provided to the Agency from the City as required by 2 C.F.R. § 200.521, "Management decision." The Agency agrees to cooperate and provide all information necessary for the City to monitor the Agency periodically to ensure compliance with this Agreement, compliance with federal regulations and laws, fiscal responsibility, adequate performance, and any other item of concern relating to the use of Recovery Funds and the provisions defined in this Agreement, including by permitting the pass-through entity and auditors to have access to the Subrecipient's records and financial statements as necessary for the pass-through entity to meet the requirements of 2 C.F.R. § 200.300, "Statutory and national policy requirements," 2 C.F.R. § 200.309, "Modifications to period of performance," 2 C.F.R. § 200.331, "Subrecipient and contractor determinations," and Subpart F, "Audit Requirements." The monitoring will take the form of at least one site visit of the Agency's place of business and/or construction site and other various requests for information. During the term of this Agreement, the Agency shall be monitored periodically by the City, both programmatically and financially, to ensure that the program's goals, objectives, performance requirements, timelines, milestone completion, budgets, and other related program criteria, are being met. Monitoring will be accomplished through a combination of office-based reviews and onsite monitoring visits. Monitoring can involve aspects of the work involved under this contract including but not limited to the review and analysis of the financial, programmatic, performance, and administrative issues relative to each program, and will identify areas where technical assistance and other support may be needed. All on-site monitoring shall take place during normal business hours, upon advance written notice, on dates and at times as mutually agreed upon by the Agency and the City.

4.5 Documentation, Record-Keeping and Other Requirements Specific to Expenditure Categories. The Agency shall maintain all records required by federal and state law that are pertinent to the activities to be funded under this Agreement. Such records shall include but not be limited to:

4.5.1 All additional reporting requirements specific to expenditure categories as identified by Treasury attached as **Exhibit C** and incorporated by reference in this Agreement.

4.5.2 Records providing a full description of each activity undertaken;

4.5.3 Records demonstrating that each activity undertaken meets one of the Expenditure Categories identified in the U.S. Department of Treasury Compliance and Reporting Guidance, Appendix 1: Expenditure Categories;

4.5.4 Records required to determine the eligibility of activities;

4.5.5 Records required to document the acquisition, improvement, use, or disposition of real property acquired or improved with Recovery Funds;

4.5.6 Financial records as required by 2 C.F.R. Part 200 Performance and Financial Monitoring and Reporting, Sections 200.328, 329, and 331; and

4.5.7 Other records necessary to document compliance with 2 C.F.R. Part 200 Performance and Financial Monitoring and Reporting, Sections 200.328, 329, and 331.

4.6 Records Retention. The Agency will retain all records pursuant to the City's record retention policy and Federal requirements, whichever period is longer. Records must be retained longer if any litigation, claim, or audit is started before the expiration of the record retention period. Other extensions to the record retention period may apply as specified in 2 C.F.R. § 200.333.

4.7 Client Data. The Agency shall maintain client data demonstrating client eligibility for services provided. Such data shall include, but not be limited to, client name, address, income level or other basis for determining eligibility, ethnicity, special needs, family size, elderly status, and description of service provided. Such information shall be made available to City monitors or their designees for review upon request.

4.8 Disclosure. The Agency understands that client information collected under this Agreement is private and the use or disclosure of such information, when not directly connected with the administration of the City's or the Agency's responsibilities with respect to services provided under this Agreement, is prohibited by Arizona State law unless written consent is obtained from such person receiving service and, in the case of a minor, that of a responsible parent or guardian.

4.9 Audits and Inspections. All of the Agency's records with respect to any matters covered by this Agreement shall be made available to the City, grantor agency, their designees, or the Federal Government (including but not limited to Treasury, the Comptroller General of the United States, or any of their duly authorized representatives), unless otherwise protected by law, at any time during normal business hours, as often as the City or grantor agency deems necessary until all required records are turned over to the City of Flagstaff to audit, examine, and make excerpts or transcripts of all relevant data, provided. Any deficiencies noted in audit reports must be fully cleared by the Agency within thirty (30) days after receipt by the Agency. Failure of the Agency to comply with the above audit requirements will constitute a violation of this Agreement and may result in the withholding of future payments. The Agency agrees to have an annual Agency financial audit conducted in accordance with current City policy and, as applicable, subject to the Single Audit act of 1984 and all relevant OMB guidance, including, 2 C.F.R. § 200, Subpart F, "Audit requirements." The Agency will conduct an annual audit conducted in accordance with 2 C.F.R. 200, Subpart F, "Audit requirements," if the Agency expends more than seven-hundred fifty thousand dollars ($750,000) from Federal awards, in compliance with the Federal Single Audit Act (31 U.S.C. par. 7501-7507), as amended by the Single Audit Act Amendments of 1996 (P.L. 104 to 156).

4.10 Monthly Reports to City. During the entire Agreement period, the Agency shall prepare and submit to the City by the second (2nd) Friday of each month a Performance Report, attached as **Exhibit D** and incorporated by reference in this Agreement. If the scope of the Project has been fully completed and implemented, and there will be no further updates, then the monthly Performance Report for the month in which the Project was completed will be sufficient as the final report. The report should be marked as final and should be inclusive of all necessary and pertinent information regarding the Project as deemed necessary by the City. Notwithstanding anything to the contrary, the Agency shall not be required to provide any of the Agency's confidential or proprietary information in reports provided to the City, including without limitation, any information regarding research collaborators, research plans, or any data, results, or other information resulting from the Agency's performance of research or any other activities relating thereto. The Agency agrees to submit other reports and records as may be required by the City from time to time, which are related to the implementation of the Project, adherence to the Agreement, and adherence to federal, state, and local laws and regulations.

4.11 Close-Out Report. The Agency is responsible for the close out of the Recovery Funds. The Agency's obligation to the City shall not end until all close-out requirements are completed. Activities during this close-out period shall include, but are not limited to: making final payments, disposing of program assets (including the return of all unused materials, equipment, unspent cash advances, program income balances, and accounts receivable to the City), and determining the custodianship of records. The City will send the Agency written notification that a Close-Out Report is due when one of the following contractual obligations have been met, and the Agency shall submit the Close-Out Report attached in that letter within sixty (60)

days of receiving this notification:

4.11.1 The Recovery Funds have been expended and the Scope of Work has been completed;

4.11.2 The Agreement period has expired; or

4.11.3 The Scope of Work has been completed.

4.12 Subrecipient Obligations. The Agency shall perform all obligations required of subrecipients under the rules governing Recovery Funds.

5. ACKNOWLEDGEMENT

The Agency shall acknowledge during the term of the Agreement the contribution of the City of Flagstaff Recovery Funds toward the Project in all instances where the Project is advertised. All activities, facilities, and items utilized pursuant to this Agreement shall be prominently labeled as receiving Recovery Funds. In addition, the Agency will include a reference to the support provided herein in all publications made possible with Recovery Funds made available under this Agreement.

6. PROJECT IMPLEMENTATION

The Agency shall have responsibility for day-to-day management and implementation of the Project.

7. UNFORESEEN DELAY IN PERFORMANCE

Neither the Agency nor the City shall be considered in breach or default of its obligations to make satisfactory progress toward the completion of the Project in the event of unforeseen delay in the performance of such obligations due to unforeseeable causes beyond its control and without its fault or negligence. The time for performance of the obligations and length of period of restriction on use shall be extended for the period of the unforeseen delay, as determined by the City, if the party seeking the extension shall request it in writing of the other party within ten (10) days after the beginning of the unforeseen delay.

8. INSURANCE

The Agency and its sub-agencies shall procure and maintain insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Agency, its agents, representatives, employees, or sub-agencies, until all of their obligations have been discharged, including satisfaction of any warranty periods under this Agreement.

The insurance requirements herein are minimum requirements for this Agreement and in no way limit the indemnity covenants contained in this Agreement. The City in no way warrants that the minimum limits contained herein are sufficient to protect the Agency from liabilities that might arise out of the performance of the work under this Agreement by the Agency, its agents,

representatives, employees, or sub-agencies, and the Agency is free to purchase additional insurance as may be determined necessary.

8.1 Minimum Scope and Limits of Insurance. The Agency shall provide coverage at least as broad and with limits of liability not less than those stated below.

8.1.1 Commercial General Liability - Occurrence Form

General Aggregate	$ 2,000,000
Products-Completed Operations Aggregate	$ 1,000,000
Each Occurrence	$ 1,000,000

8.1.2 Umbrella Coverage ..... $ 2,000,000

8.1.3 Automobile Liability - Any Auto or Owned, Hired, and Non-Owned Vehicles

Combined Single Limit Per Accident or Bodily Injury and Property Damage	$ 1,000,000

8.1.4 Workers' Compensation and Employer's Liability

Workers' Compensation	Statutory
Employer's Liability: Each Accident	$ 1,000,000
Disease-Each Employee	$ 1,000,000
Disease-Policy Limit	$ 1,000,000

8.2 Self-Insured Retentions/Deductibles. Any self-insured retentions and deductibles shall be declared to and approved by the City. If not approved, the City may require that the insurer reduce or eliminate such self-insured retentions with respect to the City, its officers, agents, employees, and volunteers. The Agency shall be solely responsible for any self-insured retention amounts. City at its option may require the Agency to secure payment of such self-insured retention by a surety bond or irrevocable and unconditional letter of credit.

8.3 Other Insurance Requirements. The policies are to contain, or be endorsed to contain, the following provisions:

8.3.1 Commercial General Liability and Automobile Liability Coverages

8.3.1.1 The City of Flagstaff, its officers, officials, agents, employees, and volunteers are to be listed as additional insureds with respect to liability arising out of: activities performed by, or on behalf of, the Agency, including the City's general supervision of the Agency; products and completed operations of the Agency; and automobiles owned, leased, hired, or borrowed by the Agency.

8.3.1.2 The Agency's insurance shall contain broad form contractual liability coverage.

8.3.1.3 The Agency's insurance coverage shall be primary insurance with respect to the City, its officers, officials, agents, employees, and volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, agents, employees, or volunteers shall be in excess to the coverage of the Agency's insurance and shall not contribute to it.

8.3.1.4 The Agency's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

8.3.1.5 Coverage provided by the Agency shall not be limited to the liability assumed under the indemnification provisions of this Agreement.

8.3.1.6 The policies shall contain a waiver of subrogation against the City, its officers, officials, agents, employees, and volunteers for losses arising from work performed by the Agency for the City.

8.3.2 Workers' Compensation and Employer's Liability Coverage. The insurer shall agree to waive all rights of subrogation against the City, its officers, officials, agents, employees, and volunteers for losses arising from work performed by the Agency for the City.

8.3.3 Notice of Cancellation. Each insurance policy required by the insurance provisions of this Agreement shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice has been given to the City. Such notice shall be sent directly to: Risk Manager, 211 W. Aspen Avenue, Flagstaff, AZ, 86001, and shall be sent by certified mail, return receipt requested.

8.3.4 Acceptability of Insurers. Insurance shall be placed with insurers duly licensed or approved unlicensed companies in the State of Arizona and with a "Best's" rating of not less than A-: VII. The City in no way warrants that the above-required minimum insurer rating is sufficient to protect the Agency from potential insurer insolvency.

8.3.5 Verification of Coverage. The Agency shall furnish the City with Certificates of Insurance as required by this Agreement. The certificates for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf. Any policy endorsements that restrict or limit coverage shall be clearly noted on the Certificate of Insurance. The Project name/description and City contract number shall be noted on the certificates of insurance. The City must receive and approve all certificates of insurance and endorsements before the Agency commences work.

8.3.5.1 Each insurance policy required by this Agreement shall be in effect at or prior to commencement of work under this Agreement and

remain in effect for the duration of this Agreement. Failure to maintain the insurance policies as required by this Agreement or to provide evidence of renewal shall be a material breach of Agreement.

8.3.5.2 All Certificates of Insurance required by this Agreement shall be sent directly to: Stacey Brechler-Knaggs, Grants & Contracts Manager, 211 West Aspen Avenue, Flagstaff, Arizona, 86001. The City reserves the right to require complete, certified copies of all insurance policies and endorsements required by this Agreement, at any time.

8.3.6 Sub-agencies. The Agency's Certificates of Insurance shall include all sub-agencies as insureds under its policies, or the Agency shall furnish to the City separate Certificates of Insurance for each sub-agency. All coverages for sub-agencies shall be subject to the minimum requirements identified above.

8.3.7 Approval. Any modification or variation from the insurance requirements in this Agreement shall have prior approval from the Flagstaff City Attorney's Office and the Risk Manager, whose decision shall be final. Such action shall not require a formal Agreement Amendment but may be made by administrative action.

9. INDEBTEDNESS TO INTERNAL REVENUE SERVICE OR OTHER PUBLIC ENTITY

9.1 Delinquent Taxes. Any judgment, lien, levy, or outstanding amount owed to the Internal Revenue Service, State, County, City, or other public entity by the Agency may constitute an event of default or breach of this Agreement, unless previously approved by the City in writing, and may constitute sufficient reason for cancellation of this Agreement by the City according to the procedures contained in this Agreement.

9.2 Disclosure of Delinquent Taxes. Before entering into this Agreement, and during the time-period covered by this Agreement, the Agency shall disclose any information related to this Section. This shall also include the immediate reporting of breaches in payback arrangements or breaches in other Agreements related to the above. Failure to comply with any disclosure provision in this Section may also constitute sufficient reason for cancellation of this Agreement by the City according to the procedures contained in this Agreement.

10. DEFAULT/REMEDIES

In the event of any default in or breach of this Agreement or any of its terms or conditions by either party, such party shall, upon written notice from the other, proceed immediately to cure or remedy such default or breach. In any event, such breach or default shall be remedied within thirty (30) days after receipt of such notice. In case such action is not taken or not diligently pursued, or the default or breach not cured or remedied within thirty (30) days, the aggrieved party may terminate this

Agreement or institute such proceedings as may be necessary or desirable in its opinion to cure and remedy such default or breach, including, but not limited to, proceedings to compel specific performance by the party in default or breach of its obligations. Notwithstanding the foregoing, in the event of a breach of any term of this Agreement by the Agency, the City, at its sole election and in addition to any other remedy, may immediately withhold payment of funds until such default is cured and may initiate suspension or termination as set forth below.

11. INDEPENDENT AGENCY STATUS

The Agency is an independent entity in the performance of all activities and functions pursuant to this Agreement. The Agency and City are not and shall not be considered as joint ventures, partners, or agents of each other and neither shall have the power to bind or obligate the other. The Agency's officers, employees, agents, and subcontractors shall not be considered as officers, employees, agents, or subcontractors of the City. The Agency hereby agrees not to represent to anyone that the Agency is an agent of the City or has any authority to act on behalf of the City. The Agency shall be responsible for all employment compensation claims for Workers' Compensation benefits, or other claims by employees arising as a result of activities funded in whole or in part from the proceeds of this Agreement, and the Agency shall hold the City harmless for any and all such claims.

12. INDEMNIFICATION AND HOLD HARMLESS PROVISIONS

To the fullest extent permitted by law, the Agency shall defend, indemnify, and hold harmless the City, its agents, representatives, officers, directors, officials, and employees from and against all claims, damages, losses, and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or alleged to have resulted from the acts, errors, mistakes, omissions, work, or services of the Agency, its employees, agents, or any tier of subcontractors in the performance of this Agreement. The Agency's duty to defend, hold harmless, and indemnify the City, its agents, representatives, officers, directors, officials, and employees shall arise in connection with the claim, damage, loss, or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting therefrom, caused by any acts, errors, mistakes, omissions, work, or services in the performance of this Agreement including any employee of the Agency or any tier of subcontractors or any other person for whose acts, errors, mistakes, omissions, work, or services the Agency may be legally liable.

13. NONDISCRIMINATION AND AFFIRMATIVE ACTION REGARDING EMPLOYMENT

13.1 Nondiscrimination. The Agency shall not discriminate against any employee or applicant for employment or person to whom it provides services because of race, color, religion, sex, national origin, disability, genetic information, veteran's status, pregnancy, and/or familial status, and represents and warrants that it complies with all applicable federal, state, and local laws and executive orders regarding employment. In addition, if the Agency operates within City of Flagstaff limits, the Agency shall comply with the City Code, Chapter 14-02, "Civil Rights," which also prohibits discrimination based on sexual orientation, or gender identity or expression.

13.2 Incorporation of Nondiscrimination Clause into the Agency Activities. The Agency further agrees that the Section 14.1 clause will be incorporated in all supplier contracts or other agreements entered into in connection with this Agreement.

13.3 Certifications from Subcontractors and Suppliers. The Agency assures that its authorized agent will obtain all supplier and subcontractor certifications contained in the Agreement documents and that those suppliers and contractors will adhere to all affirmative action requirements.

14. COMPLIANCE WITH ALL LAWS

14.1 Federal, State, and Local Laws. The Agency shall give all notices and comply with all laws, ordinances, rules, building codes, regulations, and lawful orders of any public authority bearing on the performance of activities pursuant to this Agreement. If the Agency observes that any of the Agreement documents are in conflict with any laws, statutes, building codes, or regulations, it shall promptly notify the City, in writing, and the parties shall execute any appropriate written modification.

14.2 Liability. Should the Agency perform any work knowing it to be contrary to applicable laws, ordinances, rules, building codes, or regulations, and not give proper notice to the City, it shall assume full responsibility therefore and shall bear all cost incurred due to its negligence.

14.3 Agency Adherence to Federal Regulations and Laws. The Agency agrees to comply with the following laws related to the receipt of Recovery Funds:

14.3.1 The Agency shall comply with the Grant Provisions for the U.S Department of Treasury, American Rescue Plan Act, Coronavirus State and Local Fiscal Recovery Funds, attached as **Exhibit E** and incorporated by reference in this Agreement.

14.3.2 The Agency shall carry out its responsibilities in compliance with the requirements of Executive Order 11063, as amended by Executive Order 12259; Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d); the prohibitions against age discrimination under the Age Discrimination Act of 1975 (42 U.S.C. § 6101-07); and the prohibitions against discrimination against handicapped individuals under Section 504 of the Rehabilitation Act of 1973 (19 U.S.C. § 794).

14.3.3 The Agency shall comply, as applicable, with the requirements of the Davis-Bacon Act (40 U.S.C. § 276a-276a-5), as supplemented by Department of Labor regulations (29 C.F.R. Part 5); and comply with Sections 103 and 107 of the Agreement Work Hours and Safety Standards Act (40 U.S.C. § 327-330), as supplemented by Department of Labor regulations (29 C.F.R. Part 5).

14.3.4 The Agency shall comply with Executive Order 11246 of September 24, 1965, entitled “Equal Employment Opportunity,” as amended by Executive

Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations. (41 C.F.R. chapter 60).

14.3.5 The Agency agrees to comply with the Copeland "Anti-Kick Back" Act (18 U.S.C. § 874), as supplemented in Department of Labor regulations (29 C.F.R. part 3).

14.3.6 The Agency agrees to comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368m Executive Order 11738), and Environmental Protection Contract regulations (40 C.F.R. part 15).

14.3.7 The Agency agrees to comply with all applicable standards, orders, or regulations issued under Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352). Contractors that apply or bid for an award exceeding $100,000 must file the required certification.

14.3.8 The Agency agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act and the Federal Water Pollution Control Act as amended. Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency.

14.3.9 The Agency agrees to comply, as applicable, with 2 C.F.R. part 200, Uniform Administrative Requirements, Cost Principle, and Audit Requirement for Federal Awards.

14.4 Suspension or Debarment. Submittal of an offer or execution of a contract shall attest that the Subrecipient or contractor is not currently suspended or debarred to contract in local, state, or federal jurisdictions. If the Subrecipient or any of its contractors become suspended or debarred, the Subrecipient shall immediately notify the City. The City may, by written notice to the Subrecipient, immediately terminate this Agreement if the City determines that the Subrecipient or their contractors have been debarred, suspended, or otherwise lawfully prohibited from participating in any public procurement activity, including but not limited to, being disapproved as a subcontractor of any public procurement unit or other governmental body.

14.5 Contracts and Subawards to Debarred and Suspended Parties. Pursuant to 2 C.F.R. subpart C § 200.213, grantees and subrecipients must not make an award or permit any award (subgrant or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549, “Debarment and Suspension.” By entering into this Agreement, Subrecipient agrees to comply with all relevant codes including 2 C.F.R. subpart C, “Responsibilities of Participants Regarding Transactions.” The Agency must verify that any sub-agencies are not excluded or disqualified.

The Agency does this by:

(a) Checking the SAM Exclusions: System for Award Management (SAM) – www.sam.gov.

(b) Collecting a certification from that person.

(c) Adding a clause or condition to the covered transaction with that person.

15. DISPUTES

The laws of the State of Arizona, without regard to any otherwise applicable choice or conflict of law provisions, will govern this Agreement.

16. AVAILABILITY OF FUNDS

It is expressly understood by the parties hereto that this Agreement has been negotiated and executed in anticipation of receipt of funds by the City from the federal government, and that the terms, conditions, and sums payable under this Agreement are subject to any changes or limitations which may be required by the terms of the City's agreement with the federal government.

17. CONSULTATION

The Agency and the City hereby agree to consult one another on a timely basis regarding the applicability of this Agreement to any condition which may impact the execution of this Agreement, and which may arise during the Agreement period.

18. CONTINUING LIABILITY

The Agency shall have continuing liability after the term of this Agreement for any breach of this Agreement, including failure to perform in accordance with required Federal law, rules, and regulations until after all complaints, investigations, and sanctions, including those arising out of audits performed by Treasury, the City, or other authorized agencies are resolved. The Agency shall be liable for any sanctions or requirements imposed at any time upon the City arising out of the Agency's activities performed pursuant to this Agreement.

19. TERMINATION

19.1 Transactional Conflicts of Interest. The parties acknowledge that this Agreement is subject to cancellation by the City of Flagstaff under the provisions of A.R.S. § 38-511.

19.2 Termination. In accordance with 2 C.F.R. part 200, subpart D, the City may suspend or terminate this Agreement if the Agency materially fails to comply with any term or condition of this Agreement, or if the Agency fails to maintain a good faith effort to carry out the purpose of this Agreement. If the Agency fails to materially comply with any term of the award, whether stated in a Federal statute or regulation, an assurance, in a State plan or application, a notice of award, or elsewhere, City may

take one or more of the following actions, as appropriate in the circumstances:

19.2.1 Temporarily withhold cash payments pending correction of the deficiency by the grantee or subgrantee or more severe enforcement action by the awarding agency;

19.2.2 Disallow (that is, deny both use of funds and matching credit for) all or part of the cost of the activity or action not in compliance;

19.2.3 Wholly or partly suspend or terminate the current award for the grantee's or subgrantee's program;

19.2.4 Withhold further awards for the program; or

19.2.5 Take other remedies that may be legally available.

19.3 Termination for Convenience. The City or the Agency may terminate this Agreement for convenience in accordance with 2 C.F.R. part 200 and the Procurement Code if both parties agree upon the termination and termination conditions. The party initiating the termination shall notify the other party in writing stating the reasons for such termination. The Agency may unilaterally terminate this Agreement upon written notification to the City setting forth the reasons for such termination, the effective date, and in the case of partial termination the portion to be terminated. However, if, in the case of a partial termination, the City determines that the remaining portion of the award will not accomplish the purposes for which the award was made, the City may terminate the award in its entirety.

20. NOTICE

Notice shall be provided as follows:

City of Flagstaff
Stacey Brechler-Knaggs
Grants & Contracts Manager
211 W. Aspen Ave.
Flagstaff, AZ 86001
(928) 213-2227

Copy to:

Kristine Pavlik
Housing and Grants Administrator
2323 N. Walgreens St. Suite 2
Flagstaff, AZ 86004
(928) 213-2749

Sarah Darr
Housing Director
3481 N. Fanning Dr.
Flagstaff, AZ
(928) 213-2745

Catholic Charities Community Services
Catherine Peterson
Executive Director, Northern Arizona Region
2101 N. 4th St
Flagstaff, AZ 86004
(928) 830-4646

Copy to:

Paul Mulligan
President and CEO
4747 N 7th Avenue
Phoenix, AZ 85013
(602) 650-4835

Such written notices, demands, and communications may be sent to such other addresses as either party may from time to time designate by mail as provided in this Section.

21. LIST OF EXHIBITS

Exhibit A:	Scope of work
Exhibit B:	Payment Request
Exhibit C:	Expenditure Specific Reporting Requirements
Exhibit D:	Performance Report
Exhibit E:	Grant Provisions

(Signatures appear on following page)

IN WITNESS WHEREOF, the parties acknowledge that they have read, understand, approve, and accept all of the provisions of this Agreement and the attached Exhibits.

DATED this _____ day of _____, 20___.

City of Flagstaff	**Agency**
Greg Clifton, City Manager	Catherine Peterson, Executive Director Northern Arizona Region
Attest:	Attest:
City Clerk	Corporate Secretary
Approved as to form:	
City Attorney	

EXHIBIT A
SCOPE OF WORK
(Attached)

1. **Outreach and Housing Connections Project Scope of Work**
2. **Outreach and Housing Connections Project Budget**
3. **Outreach and Housing Connections Project Schedule of Completion**

EXHIBIT A
SCOPE OF WORK
SPECIAL CONDITIONS OF THE AGREEMENT

1. PROGRAM ELIGIBILITY CRITERIA

The Catholic Charities Community Services, Inc. ("Agency") Outreach and Housing Connections Project ("Project") will allow the Agency to directly respond to the coronavirus pandemic by expanding homeless outreach and housing services for individuals and families experiencing or at-risk for homelessness. Services may include coordinated entry, outreach, behavioral health, direct assistance, and/or housing placement.

1.1 Eligibility for the Project administered by the Agency requires that the units:

1.1.1 Serve homeless and/or low-income individuals/households, as defined by HUD.

1.2 Agency shall document and retain all client records with regards to Project eligibility.

2. SCOPE OF WORK

The Agency will provide services as set forth in detail in its December 19, 2022, proposal submitted in response to the City of Flagstaff American Rescue Plan Act (ARPA) Housing Assistance Local Recovery Funds Notice of Funding Available, hereby incorporated by reference, and as described herein.

The Agency will utilize ARPA Local Recovery Fund dollars to support the salaries of an FTE Outreach Case Manager and ½ FTE Coordinated Entry Intake Specialist and for homelessness prevention and client assistance.

2.1 The Agency agrees to serve four hundred and fifty (450) unique individuals experiencing homelessness and/or low-income.

2.2 Agency will provide the necessary personnel, equipment, office space, meeting space, supplies, and services to conduct the services as described herein.

2.3 Agency's responsibilities include:

2.3.1 Hiring and training staff involved in the program operations.
2.3.2 Providing the services as described herein.

EXHIBIT A
SCOPE OF WORK
SPECIAL CONDITIONS OF THE AGREEMENT

3. PROJECT ADMINISTRATION

The Agency will provide all of the necessary services to carry out the daily tasks of ensuring that the project progresses satisfactorily and that all of the administrative functions associated with the project are properly executed in accordance with the contract and the requirement of the Federal ARPA CLFRF program.

3.1 Agency responsibilities include:

3.1.1 Maintain project files detailing expenses, procurement, project information, and correspondence, in addition to any other necessary information.
3.1.2 Submit applicable grant reports to the Housing Section.
3.1.3 Maintain client files detailing income eligibility and back up documentation, ethnicity, age, and special needs, in addition to any other necessary information.
3.1.4 Maintain project accounting records, including documentation of expenditures and receipts.
3.1.5 Manage personnel.
3.1.6 Complete audits and other submissions.
3.1.7 Ensure a cost-effective, timely and efficient delivery of services.
3.1.8 Ensure that an open process is conducted in all outreach activities and equal opportunity is provided to all persons regardless of race, color, sex, sexual orientation, religion, handicap, familial status, or national origin.

EXHIBIT A
PROJECT BUDGET

Project Budget	
City of Flagstaff	**ARPA CLFRF**
Project Description:	Outreach and Housing Connections
Implementing Agency:	Catholic Charities
CoF Project Number:	
Persons Served:	450 individuals
Date Submitted:	8/1/2023

Item/Activity Identifier	Item/Activity Desription	Source 1	Source 2	Leverage	In-Kind	Project
		City of Flagstaff ARPA	Federal/State/	Agency Donor Funds		TOTALS
1	**Program or Project Related Expenses**					
A	Additional Outreach Staff (2 FTE) Salary/ERE	$ 82,134.00	$ 82,134.00			**$164,268**
B	Addtl Front Door Intake Specialist (1 FTE)Salary/ERE	$ 46,332.00	$ 46,332.00			**$92,664**
C	Fuel for Outreach		$ 1,800.00	$ 1,800.00		**$3,600**
D	Outreach Supplies		$ 20,000.00		$ 5,000.00	**$25,000**
E	Office Supplies		$ 1,000.00	$ 2,000.00		**$3,000**
F	network/communication		$ 3,000.00			**$3,000**
G	DAF partnership with BCBS/Client Assistance	$ 30,000.00				
H						
I						
J						
2	**Administration**					
A	Supervisor Salary/ERE		$ 22,000.00			**$22,000**
B	Admin for DAF funds	$ 2,000.00			$ 2,473.00	**$2,473**
C	Agency Indirect	$ 38,540.00	$ 45,140.00			**$83,680**
3	**Facility Value**					
A	Facilities					
B	Operating		$ 2,000.00	$ 18,000.00		**$20,000**
Totals		$ 199,006.00	$ 223,406.00	$ 21,800.00	$ 7,473.00	**$419,685**

EXHIBIT A
PROJECT SCHEDULE OF COMPLETION

Project Schedule of Completion	
City of Flagstaff	**ARPA CLFRF 2022/2023**
Project Description:	Outreach and Housing Connections
Implementing Agency:	Catholic Charities
CoF Project Number:	
Persons Served:	450 individuals
Date Submitted:	8/1/2023

Action Items:	**Item Description**	**Program Year: 2022/2023**					**1st Month Begins with the Notice to Proceed**							
			1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th
1	Outreach to ind/fam experiencing homelessness														
2	Front Door Intakes														
7	Report progress to City staff														
8	Close out report and monitoring														

GRANT PROVISIONS

Sponsor:	**City of Flagstaff**
Funding Agency:	**U.S. Department of the Treasury**
Grant Project Title:	**American Rescue Plan Act (ARPA) Coronavirus State and Local Fiscal Recovery Funds**
Grant Number:	**ARPA-LRF-6321**

FEDERAL - GRANT PROVISIONS

The Contractor and its Subcontractor shall comply with the following grant provisions;

Applicable Laws
Compliance with all applicable Federal, State, and Local laws and regulations.

Awards to debarred and suspended parties
The City will not make any award or permit any award (subgrant or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Orders 12549 and 12689, ``Debarment and Suspension."

Contracting with small and minority firms, women's business enterprise and labor surplus area firms.
(1) The Contractor will take all necessary affirmative steps to assure that minority firms,women's business enterprises, and labor surplus area firms are used when possible.
(2) Affirmative steps shall include:
(i) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;
(ii) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
(iii) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority business, and women's business enterprises;
(iv) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women's business enterprises;
(v) Using the services and assistance of the Small Business Administration, and the Minority Business Development Agency of the Department of Commerce.

Equal Employment Opportunity
Compliance with Executive Order 11246 of September 24, 1965, entitled “Equal Employment Opportunity,” as amended by Executive Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations (41 CFR chapter 60). (All construction contracts awarded in excess of $10,000 by grantees and their contractors or subgrantees)

Clean Water and Air Act
Compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15). (Contracts, subcontracts, and subgrants of amounts in excess of $100,000)

Energy Policy and Conservation Act
Mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Pub. L. 94-163, 89 Stat. 871).

Resource Conservation and Recovery Act
Compliance with the Resource Conservation and Recovery Act (RCRA) requires federal agencies to assess the impact that debris, debris removal, hazardous wastes, and hazardous waste clean-up projects will have on air and water quality and take actions to prevent degradation. RCRA gives EPA the authority to control hazardous waste from the "cradle-to-grave" to facilities that generate hazardous materials and sets forth a framework for the management of non-hazardous waste (42 USC, 6901).

Conflicts of Interest

The City (grantee) and Contractor (subgrantees) will maintain a written code of standards of conduct governing the performance of their employees engaged in the award and administration of contracts. No employee, officer or agent of the grantee or subgrantee shall participate in selection, or in the award or administration of a contract supported by Federal funds if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when:

(i) The employee, officer or agent,

(ii) Any member of his immediate family,

(iii) His or her partner, or

(iv) An organization which employs, or is about to employ, any of the above, has a financial or other interest in the firm selected for award. The grantee's or subgrantee's officers, employees or agents will neither solicit nor accept gratuities, favors or anything of monetary value from contractors, potential contractors, or parties to subagreements. Grantee and subgrantees may set minimum rules where the financial interest is not substantial or the gift is an unsolicited item of nominal intrinsic value. To the extent permitted by State or local law or regulations, such standards or conduct will provide for penalties, sanctions, or other disciplinary actions for violations of such standards by the grantee's and subgrantee's officers, employees, or agents, or by contractors or their agents. The awarding agency may in regulation provide additional prohibitions relative to real, apparent, or potential conflicts of interest.

Copyrights

Reports, maps or other documents produced in whole or in part are works for hire and shall not be the subject of any application for copyright by or on behalf of the Contractor or its Subcontractor. The Contractor shall advise the City or its designee at the time of delivery of any copyrighted or copyrightable work furnished under this Agreement, or any adversely held copyrighted or copyrightable material incorporated in any such work and of any invasion of the right of privacy therein contained.

Patent Fees and Royalties

Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device that is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in Funding Agency Contracting Provisions for Construction Projects the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by the Owner in the Contract Documents.

Responsible Contractors

The City will make awards only to responsible contractors possessing the ability to perform successfully under the terms and conditions of the proposed procurement. Consideration will be given to such matters as contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

Access and Retention of Records

Access by the grantee, the subgrantee, the Federal grantor agency, the Comptroller General of the United States, or any of their duly authorized representatives to any books, documents, papers, and records of the contractor which are directly pertinent to that specific contract for the purpose of making audit, examination, excerpts, and transcriptions.

Retention of all required records for three years after grantees or subgrantees make final payments and all other pending matters are closed.

CODE OF FEDERAL REGULATION (CFR) - Title 2: Grants and Agreements

PART 200—UNIFORM ADMINISTRATIVE REQUIREMENTS, COST PRINCIPLES, AND AUDIT REQUIREMENTS FOR FEDERAL AWARDS

Appendix II to Part 200—Contract Provisions for Non-Federal Entity Contracts Under Federal Awards

In addition to other provisions required by the Federal agency or non-Federal entity, all contracts made by the non-Federal entity under the Federal award must contain provisions covering the following, as applicable.

(A) Contracts for more than the simplified acquisition threshold currently set at $150,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

(B) All contracts in excess of $10,000 must address termination for cause and for convenience by the non-Federal entity including the manner by which it will be effected and the basis for settlement.

(C) Equal Employment Opportunity. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of “federally assisted construction contract” in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, “Equal Employment Opportunity” (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, “Amending Executive Order 11246 Relating to Equal Employment Opportunity,” and implementing regulations at 41 CFR part 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”

(D) Davis-Bacon Act, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of $2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, “Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction”). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland “Anti-Kickback” Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, “Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States”). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

(E) Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where applicable, all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of

mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

(F) Rights to Inventions Made Under a Contract or Agreement. If the Federal award meets the definition of “funding agreement” under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that “funding agreement,” the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, “Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements,” and any implementing regulations issued by the awarding agency.

(G) Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended—Contracts and subgrants of amounts in excess of $150,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

(H) Debarment and Suspension (Executive Orders 12549 and 12689)—A contract award (see 2 CFR 180.220) must not be made to parties listed on the governmentwide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), “Debarment and Suspension.” SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

(I) Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)—Contractors that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

(J) See §200.322 Procurement of recovered materials.

[78 FR 78608, Dec. 26, 2013, as amended at 79 FR 75888, Dec. 19, 2014]

AMERICAN RESCUE PLAN ACT (ARPA) – CORONAVIRUS LOCAL FISCAL RECOVERY FUNDS (CLFRF) GRANT PROVISIONS

Funds are received from the U.S. Department of Treasury, Coronavirus Local Fiscal Recovery Fund (CLFRF) respectively (referred to as "Coronavirus State and Local Fiscal Recovery Funds" or "SLFRF"), Assistance Listing, CFDA Number 21.027.

Recipients under the State and Local Fiscal Recovery Funds (SLFRF) program are the eligible entities identified in sections 602 and 603 of the Social Security Act as added by section 9901 of the American Rescue Plan Act of 2021 (the "SLFRF statute") that receive a SLFRF award. Subrecipients under the SLFRF program are entities that receive a subaward from a recipient to carry out the purposes (program or project) of the SLFRF award on behalf of the recipient.

Recipients are accountable to Treasury for oversight of their subrecipients, including ensuring their subrecipients comply with the SLFRF statute, SLFRF Award Terms and Conditions, Treasury's Interim Final Rule, and reporting requirements, as applicable.

All Subrecipients, Contractors and Subcontractors are required to comply with the statutory and regulatory requirements and the terms and conditions of the award.

Key Principles

There are several guiding principles for developing your own effective compliance regimes:
• Recipients and subrecipients are the first line of defense, and responsible for ensuring the SLFRF award funds are not used for ineligible purposes, and there is no fraud, waste, and abuse associated with their SLFRF award;
• Many SLFRF-funded projects respond to the COVID-19 public health emergency and meet urgent community needs. Swift and effective implementation is vital, and recipients must balance facilitating simple and rapid program access widely across the community and maintaining a robust documentation and compliance regime;
• SLFRF-funded projects should advance shared interests and promote equitable delivery of government benefits and opportunities to underserved communities, as outlined in Executive Order 13985, On Advancing Racial Equity and Support for Underserved Communities Through the Federal Government; and
• Transparency and public accountability for SLFRF award funds and use of such funds are critical to upholding program integrity and trust in all levels of government, and SLFRF award funds should be managed consistent with Administration guidance per Memorandum M-21-20 and Memorandum M-20-21.

Statutory Eligible Uses

As a recipient of an SLFRF award, your organization has substantial discretion to use the award funds in the ways that best suit the needs of your constituents – as long as such use fits into one of the following four statutory categories:
1. To respond to the COVID-19 public health emergency or its negative economic impacts;
2. To respond to workers performing essential work during the COVID-19 public health emergency by providing premium pay to such eligible workers of the recipient, or by providing grants to eligible employers that have eligible workers who performed essential work;

3. For the provision of government services, to the extent of the reduction in revenue of such recipient due to the COVID–19 public health emergency, relative to revenues collected in the most recent full fiscal year of the recipient prior to the emergency; and
4. To make necessary investments in water, sewer, or broadband infrastructure.

Treasury adopted an Interim Final Rule to implement these eligible use categories and other restrictions on the use of funds under the SLFRF program.[1] It is the recipient's responsibility to ensure all SLFRF award funds are used in compliance with these requirements. In addition, recipients should be mindful of any additional compliance obligations that may apply – for example, additional restrictions imposed upon other sources of funds used in conjunction with SLFRF award funds, or statutes and regulations that may independently apply to water, broadband, and sewer infrastructure projects. Recipients should ensure they maintain proper documentation supporting determinations of costs and applicable compliance requirements, and how they have been satisfied as part of their award management, internal controls, and subrecipient oversight and management.

Treasury's Rule

Treasury's Interim Final Rule details recipients' compliance responsibilities and provides additional information on eligible and restricted uses of SLFRF award funds and reporting requirements. Your organization should review and comply with the information contained in Treasury's Interim Final Rule, and any subsequent final rule when building appropriate controls for SLFRF award funds.

Eligible and Restricted Uses of SLFRF Funds

As described in the SLFRF statute and summarized above, there are four enumerated eligible uses of SLFRF award funds. As a recipient of an award under the SLFRF program, your organization is responsible for complying with requirements for the use of funds. In addition to determining a given project's eligibility, recipients are also responsible for determining subrecipient's or beneficiaries' eligibility and must monitor use of SLFRF award funds.

To help recipients build a greater understanding of eligible uses, Treasury's Interim Final Rule establishes a framework for determining whether a specific project would be eligible under the SLFRF program, including some helpful definitions. For example, Treasury's Interim Final Rule establishes:

- A framework for determining whether a project "responds to" a "negative economic impact" caused by the COVID-19 public health emergency;
- Definitions of "eligible employers", "essential work," "eligible workers", and "premium pay" for cases where premium pay is an eligible use;
- A definition of "general revenue" and a formula for calculating revenue lost due to the COVID-19 public health emergency;
- A framework for eligible water and sewer infrastructure projects that aligns eligible uses with projects that are eligible under the Environmental Protection Agency's Drinking Water and Clean Water State Revolving Funds; and
- A framework for eligible broadband projects designed to provide service to unserved or underserved households, or businesses at speeds sufficient to enable users to generally meet household needs, including the ability to support the simultaneous use of work, education, and health applications, and also sufficiently robust to meet increasing household demands for bandwidth.

Treasury's Interim Final Rule also provides more information on four important restrictions on use of SLFRF award funds: recipients may not deposit SLFRF funds into a pension fund; recipients that are States or territories may not use SLFRF funds to offset a reduction in net tax revenue caused by the recipient's change in law, regulation, or administrative interpretation; and, recipients may not use SLFRF funds as non-Federal match where prohibited. In addition, the Interim Final Rule clarifies certain uses of SLFRF funds outside the scope of eligible uses, including that recipients generally may not use SLFRF funds directly to service debt, satisfy a judgment or settlement, or contribute to a "rainy day" fund. Recipients should refer to Treasury's Interim Final Rule for more information on these restrictions.

Applicable Federal Policies

- Recipients, Subrecipients, Contractors and Subcontractors must follow the Uniform Administrative Requirement, Cost Principles, and Audit Requirements for Federal Awards (2 CFR Part 200) and the Terms and Conditions of the SLFRF assistance.
- American Rescue Plan Act (P.L. 117-2)
- U.S. Department of the Treasury
    - SLFRF Regulations (31 CFR 35)
    - Compliance and Reporting Guidance
    - Frequently Asked Questions
    - Uniform Administrative Requirements, Cost Principles and Audit Requirements (2 CFR 1000)
    - OMB "Uniform Guidance" 2 CFR 200, adopted by reference
    - Award Terms and Conditions
        - Assistance Listing Number 21.027 (Formerly CFDA Number)

SAM.gov Requirements

All eligible recipients are also required to have an active registration with the System for Award Management (SAM) (https://www.sam.gov).

Contracts and Subawards to Debarred and Suspended Parties

Pursuant to Code of Federal Regulations 2 CFR Subpart C §200.213, grantees and subrecipients must not make an award or permit any award (subgrant or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549, "Debarment and Suspension". By entering into this agreement Subrecipient agrees to comply with all relevant codes including 2 CFR Subpart C, "Responsibilities of Participants Regarding Transactions". When entering into a covered transaction with another person at the next lower tier, Subrecipient must verify that the person with whom you intend to do business is not excluded or disqualified.

Civil Rights Compliance

Recipients and Subrecipients of Federal financial assistance from the Treasury are required to meet legal requirements relating to nondiscrimination and nondiscriminatory use of Federal funds. Those requirements include ensuring that entities receiving Federal financial assistance from the Treasury do not deny benefits or services, or otherwise discriminate on the basis of

race, color, national origin (including limited English proficiency), disability, age, or sex (including sexual orientation and gender identity), in accordance with the following authorities: Title VI of the Civil Rights Act of 1964 (Title VI) Public Law 88-352, 42 U.S.C. 2000d-1 et seq., and the Department's implementing regulations, 31 CFR part 22; Section 504 of the Rehabilitation Act of 1973 (Section 504), Public Law 93-112, as amended by Public Law 93-516, 29 U.S.C. 794; Title IX of the Education Amendments of 1972 (Title IX), 20 U.S.C. 1681 et seq., and the Department's implementing regulations, 31 CFR part 28; Age Discrimination Act of 1975, Public Law 94-135, 42 U.S.C. 6101 et seq., and the Department implementing regulations at 31 CFR part 23.

Davis-Bacon Act Requirements (If Applicable)

Overview

Section 1606 of the American Recovery and Reinvestment Act (ARRA) of 2009, Pub. L. No. 111-5, 123 Stat. 115 (Feb. 17, 2009) (the "Recovery Act"), requires grant award recipients, subrecipients, contractors, and subcontractors to comply with the wage requirements of the Davis-Bacon Act (40 U.S.C. 3141 et seq.) and related acts, stating:

Notwithstanding any other provision of law and in a manner consistent with other provisions in this Act, all laborers and mechanics employed by contractors and subcontractors on projects funded directly by or assisted in whole or in part by and through the Federal Government pursuant to this Act shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code. With respect to the labor standards specified in this section, the Secretary of Labor shall have the authority and functions set forth in Reorganization Plan Numbered 14 of 1950 (64 Stat. 1267; 5 U.S.C. App.) and section 3145 of title 40, United States Code.

Scope of the Davis-Bacon Act

The Davis-Bacon Act prevailing wage requirements apply to laborers and mechanics employed under contracts or subcontracts in excess of $2,000 for construction, alteration, or repair activities (including but not limited to painting and decorating) that are funded, in whole or in part, under BTOP grant awards. In general:

- Laborers and mechanics – Are workers whose duties are manual or physical in nature, including apprentices, trainees and helpers, but do not include workers whose duties are primarily managerial, administrative, executive, or clerical. See 29 C.F.R. § 5.2(m).
- The $2,000 threshold – Pertains to the amount of the prime construction contract, not to the amount of individual subcontracts. Accordingly, if the prime construction contract exceeds $2,000, all construction work on the project (including subcontracts) is covered by the Davis-Bacon Act. See 29 C.F.R. § 5.5(a)(6).
- Construction, alteration, or repair activities – Are those occurring at the "site of the work" that involve the alteration, remodeling, or installation of items fabricated off-site; painting and decorating; manufacturing or furnishing of materials, articles, supplies, or equipment on the site of the building or work; and, in certain cases, transportation between the site of the work and other points. See 29 C.F.R. § 5.2(j).
- Site of the work – Is the physical place or places where the building or work called for in the contract will remain, and any other site where a significant portion of the building or

work is constructed, provided that such site is established specifically for the performance of the contract or project, and includes job headquarters, tool yards, batch plants, borrow pits, etc., if they are dedicated exclusively, or nearly so, to performance of the contract or project, and are adjacent or virtually adjacent to the site of the work. The site of the work does not include permanent home offices, branch plant establishments, fabrication plants, tool yards, etc., of a contractor or subcontractor whose location and continued operation are determined wholly without regard to a particular Federal or Federally-assisted contract or project. See 29 C.F.R. § 5.2(l).

- Application to Governmental Agencies – Governmental agencies, such as states or their political subdivisions, are not subject to the Davis-Bacon Act requirements when construction work is being performed by their own employees on a "force account" basis. See 29 C.F.R. § 5.2(h).

Davis-Bacon Act prevailing wage requirements are likely to apply to construction and related activities undertaken in connection with Infrastructure Round 1 and Comprehensive Community Infrastructure (CCI) Round 2 projects. In many cases, Davis-Bacon Act prevailing wage requirements will also apply to activities under BTOP grants for Sustainable Broadband Adoption (SBA) and Public Computer Centers (PCC), when construction and related activities (including minor renovation of facilities) can be segregated from the other work contemplated by the grant. See 29 C.F.R. § 4.116; F.A.R. § 22.402(b).

Davis-Bacon Act Requirements

Required contract provisions (appearing at 29 C.F.R. § 5.5) and the applicable wage determination(s) for the activities contemplated by a construction project must be included in any contract or subcontract to which the Davis-Bacon Act applies providing, among other items, that:

- Laborers and mechanics must be paid the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) at least once a week;
- No paycheck deductions or rebates are permitted, except as permitted under Department of Labor (DOL) regulations (29 C.F.R. §§ 3.5-3.6); and
- Wage and fringe benefit rates must be no less than those contained in DOL wage determination for the labor classification for the work actually performed.

The recipient is responsible for ensuring that the required contract provisions appear in all contracts and subcontracts entered into by recipients, subrecipients, contractors, and subcontractors for construction, alteration and repair activities covered by the Davis-Bacon Act and related acts. Applicable wage determinations included in the contract must be verified by the recipient within 10 days of the contract date.

In cases where state wage rates (determined under state statutes often called “Mini-Davis-Bacon Acts”) are higher than the Federal wage rates, the state wage rates take precedence and should be included in contracts in lieu of the lower, Federal wage rates. In cases of construction projects on tribal lands, the recipient should contact its assigned Federal Program Officer (FPO) for guidance on the interplay among the Davis-Bacon Act, state Mini-Davis-Bacon acts and the Tribal Employment Rights Ordinance (TERO).

Contracts for amounts over $100,000 that are covered by the Davis-Bacon Act must include additional standard clauses (also appearing in 29 C.F.R. § 5.5) providing, among other things,

that overtime for laborers and mechanics must be paid at a rate 1.5 times the basic rate of pay for time worked in excess of 40 hours per week.

In addition, the DOL Davis-Bacon poster (WH–1321) must be prominently posted at the site of the work. Refer to: www.dol.gov/whd/regs/compliance/posters/fedprojc.pdf.

Davis-Bacon Wage Rate Determinations

DOL conducts statewide surveys seeking payment data on wage and fringe benefit rates from construction contractors and other interested parties, such as labor unions. Wage determinations are issued by locality, typically on a county-by-county basis. Davis-Bacon Act wage determinations are published on DOL's Wage Determinations OnLine (WDOL) website accessible at: www.wdol.gov. The Davis-Bacon Act prevailing wages are determined by DOL based on wages paid to various classes of laborers and mechanics employed on specific types of construction projects in an area.

If DOL has not published a wage determination for work that is needed to complete a BTOP construction project, the recipient may seek a Conformance. The recipient must submit a Conformance request using Standard Form (SF) 1444. Please go to www.wdol.gov/library.aspx to obtain a copy of the form and instructions.

To complete the form, the recipient must describe the work to be done (identified with a classification that is used in the subject area in the construction industry) and propose a wage rate that bears a reasonable relationship to existing wage determinations. Typically, the rate must not be less than the wage determination for an unskilled laborer and, for a skilled craft, must be at least equal to the lowest wage determination for any other skilled craft.

Infrastructure and CCI recipients should submit the completed SF-1444 through Grants Online as an "Other Action Request." The SF-1444 will be routed to the National Oceanic and Atmospheric Administration (NOAA) Grants Officer and transmitted to the DOL Wage and Hour Division for review and approval. The Wage and Hour Division has committed to act on Conformance requests within 30 days.

SBA and PCC recipients should submit completed SF-1444 Conformance requests through the Post-Award Monitoring (PAM) System. To do so, the recipient should create a report package of the type "POR: PAM Other Request." After filling out and attaching the Request Template, the recipient should attach the completed SF-1444 form using the "Add File" button. The SF1444 will be routed to the National Institute of Standards and Technology (NIST) Grants Officer and transmitted to the DOL Wage and Hour Division for review and approval. The Wage and Hour Division has committed to act on Conformance requests within 30 days.

Recordkeeping and Monitoring Obligations

Recipients, subrecipients, contractors, and subcontractors must prepare weekly certified payroll documentation using Form WH347 (available at: www.dol.gov/whd/forms/wh347.pdf), properly completed for laborers and mechanics performing activities covered by the Davis-Bacon Act requirements of the Recovery Act. Subrecipients, contractors, and subcontractors must submit this information to the BTOP grant award recipient on a weekly basis within seven days of the regular payment date of the subrecipient's, contractor's or subcontractor's payroll period.

A recipient must review the weekly certified payroll documentation it receives from its subrecipients, contractors and subcontractors on an ongoing basis. See 29 C.F.R. §§ 3.3-3.4. If a subrecipient receives the original payroll documents, the subrecipient should review these documents and forward the original documents to the recipient on a weekly basis within the time period described above.

The recipient must maintain in its files the original Davis-Bacon Act payroll records it prepares for itself, as well as those prepared by subrecipients, contractors, and subcontractors. The recipient is not required to submit any of the payroll documents to the BTOP Grants Office unless the assigned Grants Officer makes a request for such records. The payroll records must be maintained so as to be easily accessed by BTOP Grants Officers and by other duly authorized officials. The recipient must retain these records as provided in the Department of Commerce (DOC) Uniform Administrative Requirements for Grants and Cooperative Agreements, 15 C.F.R. § 14.53 or 24.42, as applicable, generally for the later of three years after closeout of the award, or until any litigation, claim, or audit is resolved.

Enforcement and Penalties

Violation of the requirements of Section 1606 of the Recovery Act and the Davis-Bacon Act and related acts is a serious offense. Compliance is subject to audit during OMB Circular A-133 audits (including program-specific audits) of BTOP grant recipients and subrecipients, as well as audits and investigations by the DOC Office of Inspector General, the Government Accountability Office (GAO), the DOL Wage and Hour Division, and other duly authorized officials. A violation of the Davis-Bacon Act wage requirements may lead NTIA to impose appropriate enforcement action in connection with a BTOP grant award, up to and including suspension or termination of the award. In addition, contracting parties are subject to payment of back wages, and suspension or debarment from future contracts for a period of up to three years. Monetary damages may also apply. Falsification of certified payroll records or the required kickback of wages may subject a violator to civil or criminal prosecution, the penalty for which may include fines and/or imprisonment.

AGREEMENT BETWEEN THE CITY OF FLAGSTAFF
and
DNA PEOPLE'S LEGAL SERVICES
for the
HOUSING STABILITY LEGAL SERVICES PROJECT

THIS AGREEMENT (the "Agreement") is made and entered into by and between the City of Flagstaff, a political subdivision of the State of Arizona (the "City"), and DNA People's Legal Services, an Arizona nonprofit corporation with offices at 2323 E Greenlaw Lane, Suite #1, Flagstaff, AZ 86004 (the "Agency" or "Subrecipient").

RECITALS

A. Sections 602(b) and 603(b) of the Social Security Act, as added by section 9901 of the American Rescue Plan Act, Pub. L. No. 117-2 (March 11, 2021), authorizes the U.S. Department of the Treasury ("Treasury") to make payments to certain recipients from the Coronavirus Local Fiscal Recovery Fund ("Recovery Funds").

B. The City is a recipient of certain Recovery Funds and is authorized to utilize the Recovery Funds in accordance with the rules and regulations promulgated by Treasury. Specifically, the procurement for distribution of the Recovery Funds requiring compliance with the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200 ("Uniform Guidance").

C. The City desires to utilize a portion of its Recovery Funds to directly respond to the coronavirus pandemic by providing housing related legal services to improve housing stability for eligible Flagstaff residents. The Agency will provide legal services to eighty five (85) unique individuals at or below 100% of the Area Median Income with legal needs that when addressed could result in a beneficial impact on housing safety, suitability and/or stability (the "Project"). The Agency is willing and has the resources to implement the Project.

D. The Project is eligible for expenditure of the Recovery Funds under the Uniform Guidance, "Appendix 1: Expenditure Categories." The procurement of the Project complies with both the Uniform Guidance and Procurement Code provisions.

NOW, THEREFORE, it is mutually agreed by and between the parties as follows:

1. AGENCY'S SCOPE OF SERVICES

1.1 Scope of Services. The Agency agrees to be a subrecipient of the Recovery Funds and complete the Project as described in the Scope of Work attached as **Exhibit A** and incorporated by reference into this Agreement. Recovery Funds will be used to support the salaries and employee related expenses of a full time attorney and full time legal secretary, and for legal research expenses, equipment, and program outreach and marketing costs. Expenses incurred from July 1, 2022 to the expiration of this Agreement are eligible for reimbursement.

1.2 Changes in Scope of Services. No change(s) shall be made to the Scope of Services except by written Agreement amendment. To obtain an Agreement amendment, the Agency must submit a revised Scope of Services with a written request for authorization for a Scope of Services amendment. If authorized, an Agreement amendment shall be drafted pursuant to the Procurement Code and must be approved by the City Council, and executed by duly authorized signatories, before the amendment will become effective.

2. AMOUNT AND NATURE OF ASSISTANCE BY CITY

2.1 Agreement Amount. Subject to all of the terms, covenants, and conditions of this Agreement, the City will enter into an Agreement with the Agency for a subaward amount not to exceed **two hundred thousand dollars ($200,000.00)** for the services described in **Exhibit A** incurred from July 1, 2022, to the expiration of this Agreement. The City shall serve as the fiscal agent for the Recovery Funds. The Agency agrees to be responsible for all sums in excess of this amount necessary to complete the Project. The Subrecipient agrees to utilize funds available under this Agreement to supplement rather than supplant funds otherwise available. The Agency shall not use the Recovery Funds received from the City in any other manner except as provided in this Agreement. Wrongful expenditure of the Recovery Funds will constitute a breach of this Agreement and the City shall have the right to terminate this Agreement under the terms and conditions specified in this Agreement.

2.2 The City shall. Clearly identify every subaward to the Agency as a subaward and include the following information at the time of the subaward and include any changes in subsequent subaward modifications. When the information is not available, the City must provide the best information available to describe the Federal award and subaward:

2.2.1 Federal Award Identification;

- Subrecipient name (which must match Unique Entity Identifier (UEI));
- Subrecipient's UEI;
- Federal Award Identification Number (FAIN);
- Federal Award Date;
- Subaward Period of Performance Start and End date;
- Amount of Federal Funds Obligated by this action;
- Total Amount of Federal Funds Obligated to the Subrecipient;
- Total Amount of the Federal Award;
- Federal award Project description, as required to be responsive to the Federal Funding Accountability and Transparency Act (FFATA);
- Name of Federal awarding agency, pass-through entity, and contact information for awarding official;
- CFDA Number and name; the pass-through entity must identify the dollar amount made available under each Federal award and the CFDA number at

time of disbursement;

- Identification of whether the award is Research & Development; and
- Indirect cost rate for the Federal award (including if the de minimis rate is charged. All requirements imposed by the pass-through entity on the Subrecipient so that the Federal award is used in accordance with Federal statutes, regulations, and the terms and conditions of the Federal award.

2.2.2 Any additional requirements that the pass-through entity imposes on the Subrecipient in order for the pass-through entity to meet its own responsibility to the Federal awarding agency including identification of any required financial and performance reports;

2.2.3 Any approved federally recognized indirect cost rate negotiated between the Subrecipient and the Federal government or, if no such rate exists, either a rate negotiated between the pass-through entity and the Subrecipient or a de minimis indirect cost rate as defined in the Code of Federal Regulations.

2.2.4 A requirement that that Subrecipient permit the pass-through entity and auditors to have access to the Subrecipient's records and financial statements as necessary for the pass-through entity to meet the requirements of 2 C.F.R. §200.331 and § 200.300, "Statutory and national policy requirements," through 2 C.F.R. § 200.309, "Modifications to Period of performance," and Subpart F, "Audit Requirements"; and

2.2.5 Appropriate terms and conditions concerning closeout of the subaward.

2.3 Payments.

2.3.1 Payment by the City to the Agency for services and other expenses related to the administration of the Project will be provided on a reimbursement basis. Reimbursement may be requested monthly, quarterly, or a one-time/final reimbursement request. Reimbursement will be paid in dollar amounts approved by the City for completed work.

2.3.2 To request reimbursements, the Agency shall submit a Payment Request, attached as **Exhibit B** and incorporated by reference in this Agreement. The Agency must submit a final reimbursement request for expenses received and invoiced prior to the end of the termination of this Agreement no more than forty-five (45) days after the end of the Agreement. Requests for reimbursement received later than the forty-five (45) days after the Agreement termination will not be paid. The final reimbursement request as submitted shall be marked FINAL and include a copy of the Property Control Form. All reports shall be submitted to the contact persons as described in the Notice Section of this Agreement. The Agency may use funds to reimburse allowable costs of activities for expenses incurred from July 1, 2022, to the expiration of this Agreement. Final payment invoices must be received no later than sixty (60) days after completion of the Scope of Work or

Agreement time-period, whichever comes first. No payments shall be made on invoices received after that date.

2.3 Changes in Budget. Any variance from the Budget must be made through a budget amendment. To obtain a budget amendment, the Agency must submit a new budget to the City with a written request for authorization for a budget amendment. The City Housing Director or her designee is authorized to approve budget amendments as long as the amendment does not increase the total budget of the Project.

2.4 Indirect Costs. If indirect costs are charged, the Agency will develop an indirect cost allocation plan for determining the Agency's appropriate share of administrative costs and shall submit such plan to the City for approval, in a form specified by the City.

3. CERTIFICATION OF COMPLETION

Upon satisfactory completion of the Close-Out Report and submission of all required documentation, the City shall provide the Agency with a letter that certifies completion. The certification is conclusive determination that the Agency has satisfactorily completed its contractual obligations. The City shall not unreasonably withhold such certification.

4. ADMINISTRATIVE REQUIREMENTS

4.1 Accounting. The Agency shall comply with the requirements and standards of Office of Management and Budget (OMB) and guidance in subparts A through F of 2 C.F.R part 200 and shall adhere to the accounting principles and procedures required therein, utilize adequate internal controls, and maintain necessary source documentation for all costs incurred. The Agency's financial management system shall include, at a minimum, accurate, current, and complete disclosures of expenditures of the Recovery Funds; records which adequately identify the source and application of Recovery Funds provided for financially assisted activities; effective control over and accountability for Recovery Funds, real and personal property, and other assets; comparison of actual outlays with budgeted amounts; and records supported by source documentation. The Agency shall maintain Recovery Funds received under this Agreement in separate ledger accounts and not mix funds with other sources; manage funds according to applicable Federal regulations for administrative requirements, cost principles, and audits; and maintain adequate business systems to comply with Federal requirements. The business systems that must be maintained are: Financial Managements, Procurement, Personnel, Property, and Travel. A system is adequate if it is written, followed consistently (it applies to similar items), and consistently applied (it applies to all sources of funds).

4.2 Procurement. The Agency shall procure all materials, property, or services in accordance with the requirements of the Uniform Guidance and 2 C.F.R. § 200.317 through 2 C.F.R. § 200.327. The Agency’s procurement outreach and documentation shall be governed by the price limits set forth in the Procurement Code, notwithstanding OMB Circular A-110. All procurement undertakings must make an

effort to utilize Minority and Women Owned Business Enterprises. The Agency shall maintain an inventory of all equipment, furniture, and non-expendable personal property purchased with Recovery Funds.

4.3 Internal Controls. The City will evaluate the Agency to determine if there is a risk that the Agency will not comply with Federal statutes, regulations, and the terms and conditions of the subaward for purposes of determining the appropriate Subrecipient monitoring including the factors listed in 2 C.F.R. § 200.331(b)(1-4). The Agency will operate according to a written set of policies and procedures that define staff qualifications and duties, lines of authority, separation of functions, and access to assets and sensitive documents. Included in these policies and procedures will be written accounting procedures for approving and recording transactions and the control of cash receipts, disbursements, and cash balances. The Agency's financial policies and lines of authority shall be reviewed during monitoring visits defined in this Agreement.

4.4 Monitoring. The City shall monitor the use of the Recovery Funds, including reviewing the Payment Requests and Performance Reports provided by the Agency. The City shall follow-up and ensure that the Agency takes timely and appropriate action on all deficiencies pertaining to the Federal award detected through audits, on-site reviews, and other means. The City shall issue a management decision for audit findings pertaining to the Recovery Funds provided to the Agency from the City as required by 2 C.F.R. § 200.521, "Management decision." The Agency agrees to cooperate and provide all information necessary for the City to monitor the Agency periodically to ensure compliance with this Agreement, compliance with federal regulations and laws, fiscal responsibility, adequate performance, and any other item of concern relating to the use of Recovery Funds and the provisions defined in this Agreement, including by permitting the pass-through entity and auditors to have access to the Subrecipient's records and financial statements as necessary for the pass-through entity to meet the requirements of 2 C.F.R. § 200.300, "Statutory and national policy requirements," 2 C.F.R. § 200.309, "Modifications to period of performance," 2 C.F.R. § 200.331, "Subrecipient and contractor determinations," and Subpart F, "Audit Requirements." The monitoring will take the form of at least one site visit of the Agency's place of business and/or construction site and other various requests for information. During the term of this Agreement, the Agency shall be monitored periodically by the City, both programmatically and financially, to ensure that the program's goals, objectives, performance requirements, timelines, milestone completion, budgets, and other related program criteria, are being met. Monitoring will be accomplished through a combination of office-based reviews and onsite monitoring visits. Monitoring can involve aspects of the work involved under this contract including but not limited to the review and analysis of the financial, programmatic, performance, and administrative issues relative to each program, and will identify areas where technical assistance and other support may be needed. All on-site monitoring shall take place during normal business hours, upon advance written notice, on dates and at times as mutually agreed upon by the Agency and the City.

4.5 Documentation, Record-Keeping and Other Requirements Specific to Expenditure Categories. The Agency shall maintain all records required by federal and state law that are pertinent to the activities to be funded under this Agreement. Such records shall include but not be limited to:

4.5.1 All additional reporting requirements specific to expenditure categories as identified by Treasury attached as **Exhibit C** and incorporated by reference in this Agreement.

4.5.2 Records providing a full description of each activity undertaken;

4.5.3 Records demonstrating that each activity undertaken meets one of the Expenditure Categories identified in the U.S. Department of Treasury Compliance and Reporting Guidance, Appendix 1: Expenditure Categories;

4.5.4 Records required to determine the eligibility of activities;

4.5.5 Records required to document the acquisition, improvement, use, or disposition of real property acquired or improved with Recovery Funds;

4.5.6 Financial records as required by 2 C.F.R. Part 200 Performance and Financial Monitoring and Reporting, Sections 200.328, 329, and 331; and

4.5.7 Other records necessary to document compliance with 2 C.F.R. Part 200 Performance and Financial Monitoring and Reporting, Sections 200.328, 329, and 331.

4.6 Records Retention. The Agency will retain all records pursuant to the City's record retention policy and Federal requirements, whichever period is longer. Records must be retained longer if any litigation, claim, or audit is started before the expiration of the record retention period. Other extensions to the record retention period may apply as specified in 2 C.F.R. § 200.333.

4.7 Client Data. The Agency shall maintain client data demonstrating client eligibility for services provided. Such data shall include, but not be limited to, client identifier, income level or other basis for determining eligibility, ethnicity, special needs, family size, elderly status, and description of service provided. Such information shall be made available to City monitors or their designees for review upon request.

4.8 Disclosure. The Agency understands that client information collected under this Agreement is private and the use or disclosure of such information, when not directly connected with the administration of the City's or the Agency's responsibilities with respect to services provided under this Agreement, is prohibited by Arizona State law unless written consent is obtained from such person receiving service and, in the case of a minor, that of a responsible parent or guardian.

4.9 Audits and Inspections. All of the Agency's records with respect to any matters covered by this Agreement shall be made available to the City, grantor agency, their

designees, or the Federal Government (including but not limited to Treasury, the Comptroller General of the United States, or any of their duly authorized representatives), unless otherwise protected by law, at any time during normal business hours, as often as the City or grantor agency deems necessary until all required records are turned over to the City of Flagstaff to audit, examine, and make excerpts or transcripts of all relevant data, provided. Any deficiencies noted in audit reports must be fully cleared by the Agency within thirty (30) days after receipt by the Agency. Failure of the Agency to comply with the above audit requirements will constitute a violation of this Agreement and may result in the withholding of future payments. The Agency agrees to have an annual Agency financial audit conducted in accordance with current City policy and, as applicable, subject to the Single Audit act of 1984 and all relevant OMB guidance, including, 2 C.F.R. § 200, Subpart F, "Audit requirements." The Agency will conduct an annual audit conducted in accordance with 2 C.F.R. 200, Subpart F, "Audit requirements," if the Agency expends more than seven-hundred fifty thousand dollars ($750,000) from Federal awards, in compliance with the Federal Single Audit Act (31 U.S.C. par. 7501-7507), as amended by the Single Audit Act Amendments of 1996 (P.L. 104 to 156).

4.10 Monthly Reports to City. During the entire Agreement period, the Agency shall prepare and submit to the City by the second (2nd) Friday of each month a Performance Report, attached as **Exhibit D** and incorporated by reference in this Agreement. If the scope of the Project has been fully completed and implemented, and there will be no further updates, then the monthly Performance Report for the month in which the Project was completed will be sufficient as the final report. The report should be marked as final and should be inclusive of all necessary and pertinent information regarding the Project as deemed necessary by the City. Notwithstanding anything to the contrary, the Agency shall not be required to provide any of the Agency's confidential or proprietary information in reports provided to the City, including without limitation, any information regarding research collaborators, research plans, or any data, results, or other information resulting from the Agency's performance of research or any other activities relating thereto. The Agency agrees to submit other reports and records as may be required by the City from time to time, which are related to the implementation of the Project, adherence to the Agreement, and adherence to federal, state, and local laws and regulations.

4.11 Close-Out Report. The Agency is responsible for the close out of the Recovery Funds. The Agency's obligation to the City shall not end until all close-out requirements are completed. Activities during this close-out period shall include, but are not limited to: making final payments, disposing of program assets (including the return of all unused materials, equipment, unspent cash advances, program income balances, and accounts receivable to the City), and determining the custodianship of records. The City will send the Agency written notification that a Close-Out Report is due when one of the following contractual obligations have been met, and the Agency shall submit the Close-Out Report attached in that letter within sixty (60) days of receiving this notification:

4.11.1 The Recovery Funds have been expended and the Scope of Work has been completed;

4.11.2 The Agreement period has expired; or

4.11.3 The Scope of Work has been completed.

4.12 Subrecipient Obligations. The Agency shall perform all obligations required of subrecipients under the rules governing Recovery Funds.

5. ACKNOWLEDGEMENT

The Agency shall acknowledge during the term of the Agreement the contribution of the City of Flagstaff Recovery Funds toward the Project in all instances where the Project is advertised. All activities, facilities, and items utilized pursuant to this Agreement shall be prominently labeled as receiving Recovery Funds. In addition, the Agency will include a reference to the support provided herein in all publications made possible with Recovery Funds made available under this Agreement.

6. PROJECT IMPLEMENTATION

The Agency shall have responsibility for day-to-day management and implementation of the Project.

7. UNFORESEEN DELAY IN PERFORMANCE

Neither the Agency nor the City shall be considered in breach or default of its obligations to make satisfactory progress toward the completion of the Project in the event of unforeseen delay in the performance of such obligations due to unforeseeable causes beyond its control and without its fault or negligence. The time for performance of the obligations and length of period of restriction on use shall be extended for the period of the unforeseen delay, as determined by the City, if the party seeking the extension shall request it in writing of the other party within ten (10) days after the beginning of the unforeseen delay.

8. INSURANCE

The Agency and its sub-agencies shall procure and maintain insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Agency, its agents, representatives, employees, or sub-agencies, until all of their obligations have been discharged, including satisfaction of any warranty periods under this Agreement.

The insurance requirements herein are minimum requirements for this Agreement and in no way limit the indemnity covenants contained in this Agreement. The City in no way warrants that the minimum limits contained herein are sufficient to protect the Agency from liabilities that might arise out of the performance of the work under this Agreement by the Agency, its agents, representatives, employees, or sub-agencies, and the Agency is free to purchase additional insurance as may be determined necessary.

8.1 Minimum Scope and Limits of Insurance. The Agency shall provide coverage at least as broad and with limits of liability not less than those stated below.

8.1.1 Commercial General Liability - Occurrence Form

General Aggregate	$ 2,000,000
Products-Completed Operations Aggregate	$ 1,000,000
Each Occurrence	$ 1,000,000

8.1.2 Umbrella Coverage ..... $ 2,000,000

8.1.3 Automobile Liability - Any Auto or Owned, Hired, and Non-Owned Vehicles

Combined Single Limit Per Accident or Bodily Injury and Property Damage	$ 1,000,000

8.1.4 Workers' Compensation and Employer's Liability

Workers' Compensation	Statutory
Employer's Liability: Each Accident	$ 1,000,000
Disease-Each Employee	$ 1,000,000
Disease-Policy Limit	$ 1,000,000

8.2 Self-Insured Retentions/Deductibles. Any self-insured retentions and deductibles shall be declared to and approved by the City. If not approved, the City may require that the insurer reduce or eliminate such self-insured retentions with respect to the City, its officers, agents, employees, and volunteers. The Agency shall be solely responsible for any self-insured retention amounts. City at its option may require the Agency to secure payment of such self-insured retention by a surety bond or irrevocable and unconditional letter of credit.

8.3 Other Insurance Requirements. The policies are to contain, or be endorsed to contain, the following provisions:

8.3.1 Commercial General Liability and Automobile Liability Coverages

8.3.1.1 The City of Flagstaff, its officers, officials, agents, employees, and volunteers are to be listed as additional insureds with respect to liability arising out of: activities performed by, or on behalf of, the Agency, including the City's general supervision of the Agency; products and completed operations of the Agency; and automobiles owned, leased, hired, or borrowed by the Agency.

8.3.1.2 The Agency's insurance shall contain broad form contractual liability coverage.

8.3.1.3 The Agency's insurance coverage shall be primary insurance with respect to the City, its officers, officials, agents, employees, and

volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, agents, employees, or volunteers shall be in excess to the coverage of the Agency's insurance and shall not contribute to it.

8.3.1.4 The Agency's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

8.3.1.5 Coverage provided by the Agency shall not be limited to the liability assumed under the indemnification provisions of this Agreement.

8.3.1.6 The policies shall contain a waiver of subrogation against the City, its officers, officials, agents, employees, and volunteers for losses arising from work performed by the Agency for the City.

8.3.2 Workers' Compensation and Employer's Liability Coverage. The insurer shall agree to waive all rights of subrogation against the City, its officers, officials, agents, employees, and volunteers for losses arising from work performed by the Agency for the City.

8.3.3 Notice of Cancellation. Each insurance policy required by the insurance provisions of this Agreement shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice has been given to the City. Such notice shall be sent directly to: Risk Manager, 211 W. Aspen Avenue, Flagstaff, AZ, 86001, and shall be sent by certified mail, return receipt requested.

8.3.4 Acceptability of Insurers. Insurance shall be placed with insurers duly licensed or approved unlicensed companies in the State of Arizona and with a "Best's" rating of not less than A-: VII. The City in no way warrants that the above-required minimum insurer rating is sufficient to protect the Agency from potential insurer insolvency.

8.3.5 Verification of Coverage. The Agency shall furnish the City with Certificates of Insurance as required by this Agreement. The certificates for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf. Any policy endorsements that restrict or limit coverage shall be clearly noted on the Certificate of Insurance. The Project name/description and City contract number shall be noted on the certificates of insurance. The City must receive and approve all certificates of insurance and endorsements before the Agency commences work.

8.3.5.1 Each insurance policy required by this Agreement shall be in effect at or prior to commencement of work under this Agreement and remain in effect for the duration of this Agreement. Failure to maintain the insurance policies as required by this Agreement or to

provide evidence of renewal shall be a material breach of Agreement.

8.3.5.2 All Certificates of Insurance required by this Agreement shall be sent directly to: Stacey Brechler-Knaggs, Grants & Contracts Manager, 211 West Aspen Avenue, Flagstaff, Arizona, 86001. The City reserves the right to require complete, certified copies of all insurance policies and endorsements required by this Agreement, at any time.

8.3.6 Sub-agencies. The Agency's Certificates of Insurance shall include all sub-agencies as insureds under its policies, or the Agency shall furnish to the City separate Certificates of Insurance for each sub-agency. All coverages for sub-agencies shall be subject to the minimum requirements identified above.

8.3.7 Approval. Any modification or variation from the insurance requirements in this Agreement shall have prior approval from the Flagstaff City Attorney's Office and the Risk Manager, whose decision shall be final. Such action shall not require a formal Agreement Amendment but may be made by administrative action.

9. INDEBTEDNESS TO INTERNAL REVENUE SERVICE OR OTHER PUBLIC ENTITY

9.1 Delinquent Taxes. Any judgment, lien, levy, or outstanding amount owed to the Internal Revenue Service, State, County, City, or other public entity by the Agency may constitute an event of default or breach of this Agreement, unless previously approved by the City in writing, and may constitute sufficient reason for cancellation of this Agreement by the City according to the procedures contained in this Agreement.

9.2 Disclosure of Delinquent Taxes. Before entering into this Agreement, and during the time-period covered by this Agreement, the Agency shall disclose any information related to this Section. This shall also include the immediate reporting of breaches in payback arrangements or breaches in other Agreements related to the above. Failure to comply with any disclosure provision in this Section may also constitute sufficient reason for cancellation of this Agreement by the City according to the procedures contained in this Agreement.

10. DEFAULT/REMEDIES

In the event of any default in or breach of this Agreement or any of its terms or conditions by either party, such party shall, upon written notice from the other, proceed immediately to cure or remedy such default or breach. In any event, such breach or default shall be remedied within thirty (30) days after receipt of such notice. In case such action is not taken or not diligently pursued, or the default or breach not cured or remedied within thirty (30) days, the aggrieved party may terminate this Agreement or institute such proceedings as may be necessary or desirable in its opinion to cure and remedy such default or breach, including, but not limited to, proceedings to compel specific

performance by the party in default or breach of its obligations. Notwithstanding the foregoing, in the event of a breach of any term of this Agreement by the Agency, the City, at its sole election and in addition to any other remedy, may immediately withhold payment of funds until such default is cured and may initiate suspension or termination as set forth below.

11. INDEPENDENT AGENCY STATUS

The Agency is an independent entity in the performance of all activities and functions pursuant to this Agreement. The Agency and City are not and shall not be considered as joint ventures, partners, or agents of each other and neither shall have the power to bind or obligate the other. The Agency's officers, employees, agents, and subcontractors shall not be considered as officers, employees, agents, or subcontractors of the City. The Agency hereby agrees not to represent to anyone that the Agency is an agent of the City or has any authority to act on behalf of the City. The Agency shall be responsible for all employment compensation claims for Workers' Compensation benefits, or other claims by employees arising as a result of activities funded in whole or in part from the proceeds of this Agreement, and the Agency shall hold the City harmless for any and all such claims.

12. INDEMNIFICATION AND HOLD HARMLESS PROVISIONS

To the fullest extent permitted by law, the Agency shall defend, indemnify, and hold harmless the City, its agents, representatives, officers, directors, officials, and employees from and against all claims, damages, losses, and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or alleged to have resulted from the acts, errors, mistakes, omissions, work, or services of the Agency, its employees, agents, or any tier of subcontractors in the performance of this Agreement. The Agency's duty to defend, hold harmless, and indemnify the City, its agents, representatives, officers, directors, officials, and employees shall arise in connection with the claim, damage, loss, or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting therefrom, caused by any acts, errors, mistakes, omissions, work, or services in the performance of this Agreement including any employee of the Agency or any tier of subcontractors or any other person for whose acts, errors, mistakes, omissions, work, or services the Agency may be legally liable.

13. NONDISCRIMINATION AND AFFIRMATIVE ACTION REGARDING EMPLOYMENT

13.1 Nondiscrimination. The Agency shall not discriminate against any employee or applicant for employment or person to whom it provides services because of race, color, religion, sex, national origin, disability, genetic information, veteran's status, pregnancy, and/or familial status, and represents and warrants that it complies with all applicable federal, state, and local laws and executive orders regarding employment. In addition, if the Agency operates within City of Flagstaff limits, the Agency shall comply with the City Code, Chapter 14-02, "Civil Rights," which also prohibits discrimination based on sexual orientation, or gender identity or expression.

13.2 Incorporation of Nondiscrimination Clause into the Agency Activities. The Agency

further agrees that the Section 14.1 clause will be incorporated in all supplier contracts or other agreements entered into in connection with this Agreement.

13.3 Certifications from Subcontractors and Suppliers. The Agency assures that its authorized agent will obtain all supplier and subcontractor certifications contained in the Agreement documents and that those suppliers and contractors will adhere to all affirmative action requirements.

14. COMPLIANCE WITH ALL LAWS

14.1 Federal, State, and Local Laws. The Agency shall give all notices and comply with all laws, ordinances, rules, building codes, regulations, and lawful orders of any public authority bearing on the performance of activities pursuant to this Agreement. If the Agency observes that any of the Agreement documents are in conflict with any laws, statutes, building codes, or regulations, it shall promptly notify the City, in writing, and the parties shall execute any appropriate written modification.

14.2 Liability. Should the Agency perform any work knowing it to be contrary to applicable laws, ordinances, rules, building codes, or regulations, and not give proper notice to the City, it shall assume full responsibility therefore and shall bear all cost incurred due to its negligence.

14.3 Agency Adherence to Federal Regulations and Laws. The Agency agrees to comply with the following laws related to the receipt of Recovery Funds:

14.3.1 The Agency shall comply with the Grant Provisions for the U.S Department of Treasury, American Rescue Plan Act, Coronavirus State and Local Fiscal Recovery Funds, attached as **Exhibit E** and incorporated by reference in this Agreement.

14.3.2 The Agency shall carry out its responsibilities in compliance with the requirements of Executive Order 11063, as amended by Executive Order 12259; Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d); the prohibitions against age discrimination under the Age Discrimination Act of 1975 (42 U.S.C. § 6101-07); and the prohibitions against discrimination against handicapped individuals under Section 504 of the Rehabilitation Act of 1973 (19 U.S.C. § 794).

14.3.3 The Agency shall comply, as applicable, with the requirements of the Davis-Bacon Act (40 U.S.C. § 276a-276a-5), as supplemented by Department of Labor regulations (29 C.F.R. Part 5); and comply with Sections 103 and 107 of the Agreement Work Hours and Safety Standards Act (40 U.S.C. § 327-330), as supplemented by Department of Labor regulations (29 C.F.R. Part 5).

14.3.4 The Agency shall comply with Executive Order 11246 of September 24, 1965, entitled “Equal Employment Opportunity,” as amended by Executive

Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations. (41 C.F.R. chapter 60).

14.3.5 The Agency agrees to comply with the Copeland "Anti-Kick Back" Act (18 U.S.C. § 874), as supplemented in Department of Labor regulations (29 C.F.R. part 3).

14.3.6 The Agency agrees to comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368m Executive Order 11738), and Environmental Protection Contract regulations (40 C.F.R. part 15).

14.3.7 The Agency agrees to comply with all applicable standards, orders, or regulations issued under Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352). Contractors that apply or bid for an award exceeding $100,000 must file the required certification.

14.3.8 The Agency agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act and the Federal Water Pollution Control Act as amended. Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency.

14.3.9 The Agency agrees to comply, as applicable, with 2 C.F.R. part 200, Uniform Administrative Requirements, Cost Principle, and Audit Requirement for Federal Awards.

14.4 Suspension or Debarment. Submittal of an offer or execution of a contract shall attest that the Subrecipient or contractor is not currently suspended or debarred to contract in local, state, or federal jurisdictions. If the Subrecipient or any of its contractors become suspended or debarred, the Subrecipient shall immediately notify the City. The City may, by written notice to the Subrecipient, immediately terminate this Agreement if the City determines that the Subrecipient or their contractors have been debarred, suspended, or otherwise lawfully prohibited from participating in any public procurement activity, including but not limited to, being disapproved as a subcontractor of any public procurement unit or other governmental body.

14.5 Contracts and Subawards to Debarred and Suspended Parties. Pursuant to 2 C.F.R. subpart C § 200.213, grantees and subrecipients must not make an award or permit any award (subgrant or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549, “Debarment and Suspension.” By entering into this Agreement, Subrecipient agrees to comply with all relevant codes including 2 C.F.R. subpart C, “Responsibilities of Participants Regarding Transactions.” The Agency must verify that any sub-agencies are not excluded or disqualified.

The Agency does this by:

(a) Checking the SAM Exclusions: System for Award Management (SAM) – www.sam.gov.

(b) Collecting a certification from that person.

(c) Adding a clause or condition to the covered transaction with that person.

15. DISPUTES

The laws of the State of Arizona, without regard to any otherwise applicable choice or conflict of law provisions, will govern this Agreement.

16. AVAILABILITY OF FUNDS

It is expressly understood by the parties hereto that this Agreement has been negotiated and executed in anticipation of receipt of funds by the City from the federal government, and that the terms, conditions, and sums payable under this Agreement are subject to any changes or limitations which may be required by the terms of the City's agreement with the federal government.

17. CONSULTATION

The Agency and the City hereby agree to consult one another on a timely basis regarding the applicability of this Agreement to any condition which may impact the execution of this Agreement, and which may arise during the Agreement period.

18. CONTINUING LIABILITY

The Agency shall have continuing liability after the term of this Agreement for any breach of this Agreement, including failure to perform in accordance with required Federal law, rules, and regulations until after all complaints, investigations, and sanctions, including those arising out of audits performed by Treasury, the City, or other authorized agencies are resolved. The Agency shall be liable for any sanctions or requirements imposed at any time upon the City arising out of the Agency's activities performed pursuant to this Agreement.

19. TERMINATION

19.1 Transactional Conflicts of Interest. The parties acknowledge that this Agreement is subject to cancellation by the City of Flagstaff under the provisions of A.R.S. § 38-511.

19.2 Termination. In accordance with 2 C.F.R. part 200, subpart D, the City may suspend or terminate this Agreement if the Agency materially fails to comply with any term or condition of this Agreement, or if the Agency fails to maintain a good faith effort to carry out the purpose of this Agreement. If the Agency fails to materially comply with any term of the award, whether stated in a Federal statute or regulation, an assurance, in a State plan or application, a notice of award, or elsewhere, City may

take one or more of the following actions, as appropriate in the circumstances:

19.2.1 Temporarily withhold cash payments pending correction of the deficiency by the grantee or subgrantee or more severe enforcement action by the awarding agency;

19.2.2 Disallow (that is, deny both use of funds and matching credit for) all or part of the cost of the activity or action not in compliance;

19.2.3 Wholly or partly suspend or terminate the current award for the grantee's or subgrantee's program;

19.2.4 Withhold further awards for the program; or

19.2.5 Take other remedies that may be legally available.

19.3 Termination for Convenience. The City or the Agency may terminate this Agreement for convenience in accordance with 2 C.F.R. part 200 and the Procurement Code if both parties agree upon the termination and termination conditions. The party initiating the termination shall notify the other party in writing stating the reasons for such termination. The Agency may unilaterally terminate this Agreement upon written notification to the City setting forth the reasons for such termination, the effective date, and in the case of partial termination the portion to be terminated. However, if, in the case of a partial termination, the City determines that the remaining portion of the award will not accomplish the purposes for which the award was made, the City may terminate the award in its entirety.

20. NOTICE

Notice shall be provided as follows:

City of Flagstaff
Stacey Brechler-Knaggs
Grants & Contracts Manager
211 W. Aspen Ave.
Flagstaff, AZ 86001
(928) 213-2227

Copy to:

Kristine Pavlik
Housing and Grants Administrator
2323 N. Walgreens St. Suite 2
Flagstaff, AZ 86004
(928) 213-2749

Sarah Darr
Housing Director
3481 N. Fanning Dr.
Flagstaff, AZ
(928) 213-2745

DNA People's Legal Services
Rodolfo D. Sanchez (Rudy)
Executive Director
PO Box 306
Window Rock, AZ 86515
(928) 871-4151, ext. 5630

Copy to:

Faith Van Horn
Managing Attorney
2323 E Greenlaw Lane, Suite #1
Flagstaff, AZ 86004
(928) 774-0653, ext. 4804

Such written notices, demands, and communications may be sent to such other addresses as either party may from time to time designate by mail as provided in this Section.

21. LIST OF EXHIBITS

Exhibit A: Scope of work
Exhibit B: Payment Request
Exhibit C: Expenditure Specific Reporting Requirements
Exhibit D: Performance Report
Exhibit E: Grant Provisions

(Signatures appear on following page)

IN WITNESS WHEREOF, the parties acknowledge that they have read, understand, approve, and accept all of the provisions of this Agreement and the attached Exhibits.

DATED this _____ day of _____, 20___.

City of Flagstaff	**DNA People's Legal Services**
Greg Clifton, City Manager	Rodolfo D. Sanchez, Executive Director
Attest:	Attest:
City Clerk	Corporate Secretary
Approved as to form:	
City Attorney	

EXHIBIT A
SCOPE OF WORK
(Attached)

1. **Housing Stability Legal Services Project Scope of Work**
2. **Housing Stability Legal Services Project Budget**
3. **Housing Stability Legal Services Project Schedule of Completion**

EXHIBIT A
SCOPE OF WORK
SPECIAL CONDITIONS OF THE AGREEMENT

1. PROGRAM ELIGIBILITY CRITERIA

The DNA People's Legal Services ("Agency") Housing Stability Legal Services Project ("Project") will allow the Agency to directly respond to the coronavirus pandemic by providing housing related legal services to improve housing stability for eligible Flagstaff residents.

1.1 Eligibility for the Project administered by the Agency requires that the client:
1.1.1 Have an annual household income below 100% Area Median Income.

1.2 Agency shall document and retain all client records with regards to Project eligibility.

2. SCOPE OF WORK

The Agency will provide services as set forth in detail in its December 19, 2022, proposal submitted in response to the City of Flagstaff American Rescue Plan Act (ARPA) Housing Assistance Local Recovery Funds Notice of Funding Available, hereby incorporated by reference, and as described herein.

The Agency will utilize ARPA Local Recovery Fund dollars to support the salaries and employee related expenses of a full time attorney and full time legal secretary, and for legal research expenses, equipment, and program outreach and marketing costs.

2.1 The Agency agrees to serve eighty five (85) unique individuals at or below 100% of the Area Median Income and with legal needs that when addressed could result in a beneficial impact on housing safety, suitability and/or stability.

2.2 Agency will provide the necessary personnel, equipment, office space, meeting space, supplies, and services to conduct the services as described herein.

2.3 Agency's responsibilities include:

2.3.1 Hiring and training staff involved in the program operations.
2.3.2 Providing the services as described herein.

EXHIBIT A
SCOPE OF WORK
SPECIAL CONDITIONS OF THE AGREEMENT

3. PROJECT ADMINISTRATION

The Agency will provide all of the necessary services to carry out the daily tasks of ensuring that the project progresses satisfactorily and that all of the administrative functions associated with the project are properly executed in accordance with the contract and the requirement of the Federal ARPA CLFRF program.

3.1 Agency responsibilities include:

3.1.1 Maintain project files detailing expenses, procurement, project information, and correspondence, in addition to any other necessary information.
3.1.2 Submit applicable grant reports to the Housing Section.
3.1.3 Maintain client files detailing income eligibility and back up documentation, ethnicity, age, and special needs, in addition to any other necessary information.
3.1.4 Maintain project accounting records, including documentation of expenditures and receipts.
3.1.5 Manage personnel.
3.1.6 Complete audits and other submissions.
3.1.7 Ensure a cost-effective, timely and efficient delivery of services.
3.1.8 Ensure that an open process is conducted in all outreach activities and equal opportunity is provided to all persons regardless of race, color, sex, sexual orientation, religion, handicap, familial status, or national origin.

EXHIBIT A
PROJECT BUDGET

Project Budget	**$522,519**
City of Flagstaff	**ARPA Local Recovery Funds**
Project Description:	**Housing Stability through Legal**
Implementing Agency:	**DNA People's Legal Services**
CoF Project Number:	
Persons Served:	**85 indiv/households; 10k+ tenant**
Date Submitted:	**08/01/2023**

Item/Activity	Item/Activity Description	Source 1	Source 2	Leverage	In-Kind	Project
		City of Flagstaff ARPA LRF	Federal/State/ Local Funding	Agency Financing	Donations	TOTALS
1	**Program or Project Related Expenses**					
A	Housing Attorney Pool (2 FTE x	$ 105,896.00	$ 111,064.00	$ 112,380.00		**$ 329,340.00**
B	Legal Secretary/Paralegal @ 1 FTE (.5	$ 52,322.00	$ 59,090.00	$ -		**$ 111,412.00**
C	Westlaw (legal research, 21 mo.)	$ 6,000.00	$ -	$ 6,000.00		**$ 12,000.00**
D	Litigation expenses	$ 3,000.00	$ -	$ 3,000.00		**$ 6,000.00**
E	Computers and related peripherals (1	$ 5,600.00	$ -	$ -		**$ 5,600.00**
F	Bar Dues	$ 600.00		$ 600.00		**$ 1,200.00**
G	Tenant outreach (radio, brochures,	$ 8,400.00		$ 2,000.00		**$ 10,400.00**
H						$ -
2	**Administration**					
A	Indirect Costs @ 10% of direct	$ 18,182.00	$ 17,147.00	$ 11,238.00		**$ 46,567.00**
B						$ -
Totals		**$ 200,000.00**	**$ 187,301.00**	**$ 135,218.00**	$ -	**$ 522,519.00**

EXHIBIT A
PROJECT SCHEDULE OF COMPLETION

Project Schedule of Completion	
City of Flagstaff	ARPA Local Recovery Funds
Project Description:	Legal Services for Housing Stability
Implementing Agency:	DNA People's Legal Services
CoF Project Number:	
Persons Served:	85 indiv/households; 10k+ tenant outreach
Date Submitted:	08/01/2023

Action Items:	Item Description	Program Year: 2022-2024																				
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	21st
1	Legal advice/representation																					
2	Outreach to tenants radio																					
3	Outreach to tenants Zoom presentations, brochures, flyers																					
4	Reporting to City of Flagstaff/Invoicing																					
5	Contract Monitoring																					
6	Close Out																					

AGREEMENT BETWEEN THE CITY OF FLAGSTAFF
and
HOMELESS YOUTH CONNECTION
for the
FLAGSTAFF TRANSTIONAL LIVING PROJECT

THIS AGREEMENT (the "Agreement") is made and entered into by and between the City of Flagstaff, a political subdivision of the State of Arizona (the "City"), and Homeless Youth Connection, an Arizona nonprofit corporation with offices at 3096 E Kokopelli Lane, Flagstaff, AZ 86004 (the "Agency" or "Subrecipient").

RECITALS

A. Sections 602(b) and 603(b) of the Social Security Act, as added by section 9901 of the American Rescue Plan Act, Pub. L. No. 117-2 (March 11, 2021), authorizes the U.S. Department of the Treasury ("Treasury") to make payments to certain recipients from the Coronavirus Local Fiscal Recovery Fund ("Recovery Funds").

B. The City is a recipient of certain Recovery Funds and is authorized to utilize the Recovery Funds in accordance with the rules and regulations promulgated by Treasury. Specifically, the procurement for distribution of the Recovery Funds requiring compliance with the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200 ("Uniform Guidance").

C. The City desires to utilize a portion of its Recovery Funds to directly respond to the coronavirus pandemic by providing transitional housing to youth experiencing homelessness. The Agency will provide transitional housing and supportive services to seven (7) unique individuals aged 18-21 and enrolled in high school or college (the "Project"). The Agency is willing and has the resources to implement the Project.

D. The Project is eligible for expenditure of the Recovery Funds under the Uniform Guidance, "Appendix 1: Expenditure Categories." The procurement of the Project complies with both the Uniform Guidance and Procurement Code provisions.

NOW, THEREFORE, it is mutually agreed by and between the parties as follows:

1. AGENCY'S SCOPE OF SERVICES

1.1 Scope of Services. The Agency agrees to be a subrecipient of the Recovery Funds and complete the Project as described in the Scope of Work attached as **Exhibit A** and incorporated by reference into this Agreement. Recovery Funds will be used to support the salaries and employee related expenses of overnight staff providing supervision and caseworkers providing supportive services. Expenses incurred from July 1, 2022 to the expiration of this Agreement are eligible for reimbursement.

1.2 Changes in Scope of Services. No change(s) shall be made to the Scope of Services

except by written Agreement amendment. To obtain an Agreement amendment, the Agency must submit a revised Scope of Services with a written request for authorization for a Scope of Services amendment. If authorized, an Agreement amendment shall be drafted pursuant to the Procurement Code and must be approved by the City Council, and executed by duly authorized signatories, before the amendment will become effective.

2. AMOUNT AND NATURE OF ASSISTANCE BY CITY

2.1 Agreement Amount. Subject to all of the terms, covenants, and conditions of this Agreement, the City will enter into an Agreement with the Agency for a subaward amount not to exceed **forty six thousand two hundred and fifty dollars ($46,250.00)** for the services described in **Exhibit A** incurred from July 1, 2022, to the expiration of this Agreement. The City shall serve as the fiscal agent for the Recovery Funds. The Agency agrees to be responsible for all sums in excess of this amount necessary to complete the Project. The Subrecipient agrees to utilize funds available under this Agreement to supplement rather than supplant funds otherwise available. The Agency shall not use the Recovery Funds received from the City in any other manner except as provided in this Agreement. Wrongful expenditure of the Recovery Funds will constitute a breach of this Agreement and the City shall have the right to terminate this Agreement under the terms and conditions specified in this Agreement.

2.2 The City shall. Clearly identify every subaward to the Agency as a subaward and include the following information at the time of the subaward and include any changes in subsequent subaward modifications. When the information is not available, the City must provide the best information available to describe the Federal award and subaward:

2.2.1 Federal Award Identification;

- Subrecipient name (which must match Unique Entity Identifier (UEI));
- Subrecipient's UEI;
- Federal Award Identification Number (FAIN);
- Federal Award Date;
- Subaward Period of Performance Start and End date;
- Amount of Federal Funds Obligated by this action;
- Total Amount of Federal Funds Obligated to the Subrecipient;
- Total Amount of the Federal Award;
- Federal award Project description, as required to be responsive to the Federal Funding Accountability and Transparency Act (FFATA);
- Name of Federal awarding agency, pass-through entity, and contact information for awarding official;
- CFDA Number and name; the pass-through entity must identify the dollar amount made available under each Federal award and the CFDA number at time of disbursement;

- Identification of whether the award is Research & Development; and
- Indirect cost rate for the Federal award (including if the de minimis rate is charged. All requirements imposed by the pass-through entity on the Subrecipient so that the Federal award is used in accordance with Federal statutes, regulations, and the terms and conditions of the Federal award.

2.2.2 Any additional requirements that the pass-through entity imposes on the Subrecipient in order for the pass-through entity to meet its own responsibility to the Federal awarding agency including identification of any required financial and performance reports;

2.2.3 Any approved federally recognized indirect cost rate negotiated between the Subrecipient and the Federal government or, if no such rate exists, either a rate negotiated between the pass-through entity and the Subrecipient or a de minimis indirect cost rate as defined in the Code of Federal Regulations.

2.2.4 A requirement that that Subrecipient permit the pass-through entity and auditors to have access to the Subrecipient's records and financial statements as necessary for the pass-through entity to meet the requirements of 2 C.F.R. §200.331 and § 200.300, "Statutory and national policy requirements," through 2 C.F.R. § 200.309, "Modifications to Period of performance," and Subpart F, "Audit Requirements"; and

2.2.5 Appropriate terms and conditions concerning closeout of the subaward.

2.3 Payments.

2.3.1 Payment by the City to the Agency for services and other expenses related to the administration of the Project will be provided on a reimbursement basis. Reimbursement may be requested monthly, quarterly, or a one-time/final reimbursement request. Reimbursement will be paid in dollar amounts approved by the City for completed work.

2.3.2 To request reimbursements, the Agency shall submit a Payment Request, attached as **Exhibit B** and incorporated by reference in this Agreement. The Agency must submit a final reimbursement request for expenses received and invoiced prior to the end of the termination of this Agreement no more than forty-five (45) days after the end of the Agreement. Requests for reimbursement received later than the forty-five (45) days after the Agreement termination will not be paid. The final reimbursement request as submitted shall be marked FINAL and include a copy of the Property Control Form. All reports shall be submitted to the contact persons as described in the Notice Section of this Agreement. The Agency may use funds to reimburse allowable costs of activities for expenses incurred from July 1, 2022, to the expiration of this Agreement. Final payment invoices must be received no later than sixty (60) days after completion of the Scope of Work or Agreement time-period, whichever comes first. No payments shall be made

on invoices received after that date.

2.3 Changes in Budget. Any variance from the Budget must be made through a budget amendment. To obtain a budget amendment, the Agency must submit a new budget to the City with a written request for authorization for a budget amendment. The City Housing Director or her designee is authorized to approve budget amendments as long as the amendment does not increase the total budget of the Project.

2.4 Indirect Costs. If indirect costs are charged, the Agency will develop an indirect cost allocation plan for determining the Agency's appropriate share of administrative costs and shall submit such plan to the City for approval, in a form specified by the City.

3. CERTIFICATION OF COMPLETION

Upon satisfactory completion of the Close-Out Report and submission of all required documentation, the City shall provide the Agency with a letter that certifies completion. The certification is conclusive determination that the Agency has satisfactorily completed its contractual obligations. The City shall not unreasonably withhold such certification.

4. ADMINISTRATIVE REQUIREMENTS

4.1 Accounting. The Agency shall comply with the requirements and standards of Office of Management and Budget (OMB) and guidance in subparts A through F of 2 C.F.R part 200 and shall adhere to the accounting principles and procedures required therein, utilize adequate internal controls, and maintain necessary source documentation for all costs incurred. The Agency's financial management system shall include, at a minimum, accurate, current, and complete disclosures of expenditures of the Recovery Funds; records which adequately identify the source and application of Recovery Funds provided for financially assisted activities; effective control over and accountability for Recovery Funds, real and personal property, and other assets; comparison of actual outlays with budgeted amounts; and records supported by source documentation. The Agency shall maintain Recovery Funds received under this Agreement in separate ledger accounts and not mix funds with other sources; manage funds according to applicable Federal regulations for administrative requirements, cost principles, and audits; and maintain adequate business systems to comply with Federal requirements. The business systems that must be maintained are: Financial Managements, Procurement, Personnel, Property, and Travel. A system is adequate if it is written, followed consistently (it applies to similar items), and consistently applied (it applies to all sources of funds).

4.2 Procurement. The Agency shall procure all materials, property, or services in accordance with the requirements of the Uniform Guidance and 2 C.F.R. § 200.317 through 2 C.F.R. § 200.327. The Agency’s procurement outreach and documentation shall be governed by the price limits set forth in the Procurement Code, notwithstanding OMB Circular A-110. All procurement undertakings must make an effort to utilize Minority and Women Owned Business Enterprises. The Agency shall

maintain an inventory of all equipment, furniture, and non-expendable personal property purchased with Recovery Funds.

4.3 Internal Controls. The City will evaluate the Agency to determine if there is a risk that the Agency will not comply with Federal statutes, regulations, and the terms and conditions of the subaward for purposes of determining the appropriate Subrecipient monitoring including the factors listed in 2 C.F.R. § 200.331(b)(1-4). The Agency will operate according to a written set of policies and procedures that define staff qualifications and duties, lines of authority, separation of functions, and access to assets and sensitive documents. Included in these policies and procedures will be written accounting procedures for approving and recording transactions and the control of cash receipts, disbursements, and cash balances. The Agency's financial policies and lines of authority shall be reviewed during monitoring visits defined in this Agreement.

4.4 Monitoring. The City shall monitor the use of the Recovery Funds, including reviewing the Payment Requests and Performance Reports provided by the Agency. The City shall follow-up and ensure that the Agency takes timely and appropriate action on all deficiencies pertaining to the Federal award detected through audits, on-site reviews, and other means. The City shall issue a management decision for audit findings pertaining to the Recovery Funds provided to the Agency from the City as required by 2 C.F.R. § 200.521, "Management decision." The Agency agrees to cooperate and provide all information necessary for the City to monitor the Agency periodically to ensure compliance with this Agreement, compliance with federal regulations and laws, fiscal responsibility, adequate performance, and any other item of concern relating to the use of Recovery Funds and the provisions defined in this Agreement, including by permitting the pass-through entity and auditors to have access to the Subrecipient's records and financial statements as necessary for the pass-through entity to meet the requirements of 2 C.F.R. § 200.300, "Statutory and national policy requirements," 2 C.F.R. § 200.309, "Modifications to period of performance," 2 C.F.R. § 200.331, "Subrecipient and contractor determinations," and Subpart F, "Audit Requirements." The monitoring will take the form of at least one site visit of the Agency's place of business and/or construction site and other various requests for information. During the term of this Agreement, the Agency shall be monitored periodically by the City, both programmatically and financially, to ensure that the program's goals, objectives, performance requirements, timelines, milestone completion, budgets, and other related program criteria, are being met. Monitoring will be accomplished through a combination of office-based reviews and onsite monitoring visits. Monitoring can involve aspects of the work involved under this contract including but not limited to the review and analysis of the financial, programmatic, performance, and administrative issues relative to each program, and will identify areas where technical assistance and other support may be needed. All on-site monitoring shall take place during normal business hours, upon advance written notice, on dates and at times as mutually agreed upon by the Agency and the City.

4.5 Documentation, Record-Keeping and Other Requirements Specific to Expenditure

Categories. The Agency shall maintain all records required by federal and state law that are pertinent to the activities to be funded under this Agreement. Such records shall include but not be limited to:

4.5.1 All additional reporting requirements specific to expenditure categories as identified by Treasury attached as **Exhibit C** and incorporated by reference in this Agreement.

4.5.2 Records providing a full description of each activity undertaken;

4.5.3 Records demonstrating that each activity undertaken meets one of the Expenditure Categories identified in the U.S. Department of Treasury Compliance and Reporting Guidance, Appendix 1: Expenditure Categories;

4.5.4 Records required to determine the eligibility of activities;

4.5.5 Records required to document the acquisition, improvement, use, or disposition of real property acquired or improved with Recovery Funds;

4.5.6 Financial records as required by 2 C.F.R. Part 200 Performance and Financial Monitoring and Reporting, Sections 200.328, 329, and 331; and

4.5.7 Other records necessary to document compliance with 2 C.F.R. Part 200 Performance and Financial Monitoring and Reporting, Sections 200.328, 329, and 331.

4.6 Records Retention. The Agency will retain all records pursuant to the City's record retention policy and Federal requirements, whichever period is longer. Records must be retained longer if any litigation, claim, or audit is started before the expiration of the record retention period. Other extensions to the record retention period may apply as specified in 2 C.F.R. § 200.333.

4.7 Client Data. The Agency shall maintain client data demonstrating client eligibility for services provided. Such data shall include, but not be limited to, client identifier, income level or other basis for determining eligibility, ethnicity, special needs, family size, elderly status, and description of service provided. Such information shall be made available to City monitors or their designees for review upon request.

4.8 Disclosure. The Agency understands that client information collected under this Agreement is private and the use or disclosure of such information, when not directly connected with the administration of the City's or the Agency's responsibilities with respect to services provided under this Agreement, is prohibited by Arizona State law unless written consent is obtained from such person receiving service and, in the case of a minor, that of a responsible parent or guardian.

4.9 Audits and Inspections. All of the Agency's records with respect to any matters covered by this Agreement shall be made available to the City, grantor agency, their designees, or the Federal Government (including but not limited to Treasury, the

Comptroller General of the United States, or any of their duly authorized representatives), unless otherwise protected by law, at any time during normal business hours, as often as the City or grantor agency deems necessary until all required records are turned over to the City of Flagstaff to audit, examine, and make excerpts or transcripts of all relevant data, provided. Any deficiencies noted in audit reports must be fully cleared by the Agency within thirty (30) days after receipt by the Agency. Failure of the Agency to comply with the above audit requirements will constitute a violation of this Agreement and may result in the withholding of future payments. The Agency agrees to have an annual Agency financial audit conducted in accordance with current City policy and, as applicable, subject to the Single Audit act of 1984 and all relevant OMB guidance, including, 2 C.F.R. § 200, Subpart F, "Audit requirements." The Agency will conduct an annual audit conducted in accordance with 2 C.F.R. 200, Subpart F, "Audit requirements," if the Agency expends more than seven-hundred fifty thousand dollars ($750,000) from Federal awards, in compliance with the Federal Single Audit Act (31 U.S.C. par. 7501-7507), as amended by the Single Audit Act Amendments of 1996 (P.L. 104 to 156).

4.10 Monthly Reports to City. During the entire Agreement period, the Agency shall prepare and submit to the City by the second (2nd) Friday of each month a Performance Report, attached as **Exhibit D** and incorporated by reference in this Agreement. If the scope of the Project has been fully completed and implemented, and there will be no further updates, then the monthly Performance Report for the month in which the Project was completed will be sufficient as the final report. The report should be marked as final and should be inclusive of all necessary and pertinent information regarding the Project as deemed necessary by the City. Notwithstanding anything to the contrary, the Agency shall not be required to provide any of the Agency's confidential or proprietary information in reports provided to the City, including without limitation, any information regarding research collaborators, research plans, or any data, results, or other information resulting from the Agency's performance of research or any other activities relating thereto. The Agency agrees to submit other reports and records as may be required by the City from time to time, which are related to the implementation of the Project, adherence to the Agreement, and adherence to federal, state, and local laws and regulations.

4.11 Close-Out Report. The Agency is responsible for the close out of the Recovery Funds. The Agency's obligation to the City shall not end until all close-out requirements are completed. Activities during this close-out period shall include, but are not limited to: making final payments, disposing of program assets (including the return of all unused materials, equipment, unspent cash advances, program income balances, and accounts receivable to the City), and determining the custodianship of records. The City will send the Agency written notification that a Close-Out Report is due when one of the following contractual obligations have been met, and the Agency shall submit the Close-Out Report attached in that letter within sixty (60) days of receiving this notification:

4.11.1 The Recovery Funds have been expended and the Scope of Work has been

completed;

4.11.2 The Agreement period has expired; or

4.11.3 The Scope of Work has been completed.

4.12 Subrecipient Obligations. The Agency shall perform all obligations required of subrecipients under the rules governing Recovery Funds.

5. ACKNOWLEDGEMENT

The Agency shall acknowledge during the term of the Agreement the contribution of the City of Flagstaff Recovery Funds toward the Project in all instances where the Project is advertised. All activities, facilities, and items utilized pursuant to this Agreement shall be prominently labeled as receiving Recovery Funds. In addition, the Agency will include a reference to the support provided herein in all publications made possible with Recovery Funds made available under this Agreement.

6. PROJECT IMPLEMENTATION

The Agency shall have responsibility for day-to-day management and implementation of the Project.

7. UNFORESEEN DELAY IN PERFORMANCE

Neither the Agency nor the City shall be considered in breach or default of its obligations to make satisfactory progress toward the completion of the Project in the event of unforeseen delay in the performance of such obligations due to unforeseeable causes beyond its control and without its fault or negligence. The time for performance of the obligations and length of period of restriction on use shall be extended for the period of the unforeseen delay, as determined by the City, if the party seeking the extension shall request it in writing of the other party within ten (10) days after the beginning of the unforeseen delay.

8. INSURANCE

The Agency and its sub-agencies shall procure and maintain insurance against claims for injury to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the Agency, its agents, representatives, employees, or sub-agencies, until all of their obligations have been discharged, including satisfaction of any warranty periods under this Agreement.

The insurance requirements herein are minimum requirements for this Agreement and in no way limit the indemnity covenants contained in this Agreement. The City in no way warrants that the minimum limits contained herein are sufficient to protect the Agency from liabilities that might arise out of the performance of the work under this Agreement by the Agency, its agents, representatives, employees, or sub-agencies, and the Agency is free to purchase additional insurance as may be determined necessary.

8.1 Minimum Scope and Limits of Insurance. The Agency shall provide coverage at least as broad and with limits of liability not less than those stated below.

8.1.1 Commercial General Liability - Occurrence Form

General Aggregate	$ 2,000,000
Products-Completed Operations Aggregate	$ 1,000,000
Each Occurrence	$ 1,000,000

8.1.2 Umbrella Coverage ..... $ 2,000,000

8.1.3 Automobile Liability - Any Auto or Owned, Hired, and Non-Owned Vehicles

Combined Single Limit Per Accident or Bodily Injury and Property Damage	$ 1,000,000

8.1.4 Workers' Compensation and Employer's Liability

Workers' Compensation	Statutory
Employer's Liability: Each Accident	$ 1,000,000
Disease-Each Employee	$ 1,000,000
Disease-Policy Limit	$ 1,000,000

8.2 Self-Insured Retentions/Deductibles. Any self-insured retentions and deductibles shall be declared to and approved by the City. If not approved, the City may require that the insurer reduce or eliminate such self-insured retentions with respect to the City, its officers, agents, employees, and volunteers. The Agency shall be solely responsible for any self-insured retention amounts. City at its option may require the Agency to secure payment of such self-insured retention by a surety bond or irrevocable and unconditional letter of credit.

8.3 Other Insurance Requirements. The policies are to contain, or be endorsed to contain, the following provisions:

8.3.1 Commercial General Liability and Automobile Liability Coverages

8.3.1.1 The City of Flagstaff, its officers, officials, agents, employees, and volunteers are to be listed as additional insureds with respect to liability arising out of: activities performed by, or on behalf of, the Agency, including the City's general supervision of the Agency; products and completed operations of the Agency; and automobiles owned, leased, hired, or borrowed by the Agency.

8.3.1.2 The Agency's insurance shall contain broad form contractual liability coverage.

8.3.1.3 The Agency's insurance coverage shall be primary insurance with respect to the City, its officers, officials, agents, employees, and

volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, agents, employees, or volunteers shall be in excess to the coverage of the Agency's insurance and shall not contribute to it.

8.3.1.4 The Agency's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

8.3.1.5 Coverage provided by the Agency shall not be limited to the liability assumed under the indemnification provisions of this Agreement.

8.3.1.6 The policies shall contain a waiver of subrogation against the City, its officers, officials, agents, employees, and volunteers for losses arising from work performed by the Agency for the City.

8.3.2 Workers' Compensation and Employer's Liability Coverage. The insurer shall agree to waive all rights of subrogation against the City, its officers, officials, agents, employees, and volunteers for losses arising from work performed by the Agency for the City.

8.3.3 Notice of Cancellation. Each insurance policy required by the insurance provisions of this Agreement shall not be suspended, voided, canceled, reduced in coverage or in limits except after thirty (30) days prior written notice has been given to the City. Such notice shall be sent directly to: Risk Manager, 211 W. Aspen Avenue, Flagstaff, AZ, 86001, and shall be sent by certified mail, return receipt requested.

8.3.4 Acceptability of Insurers. Insurance shall be placed with insurers duly licensed or approved unlicensed companies in the State of Arizona and with a "Best's" rating of not less than A-: VII. The City in no way warrants that the above-required minimum insurer rating is sufficient to protect the Agency from potential insurer insolvency.

8.3.5 Verification of Coverage. The Agency shall furnish the City with Certificates of Insurance as required by this Agreement. The certificates for each insurance policy shall be signed by a person authorized by that insurer to bind coverage on its behalf. Any policy endorsements that restrict or limit coverage shall be clearly noted on the Certificate of Insurance. The Project name/description and City contract number shall be noted on the certificates of insurance. The City must receive and approve all certificates of insurance and endorsements before the Agency commences work.

8.3.5.1 Each insurance policy required by this Agreement shall be in effect at or prior to commencement of work under this Agreement and remain in effect for the duration of this Agreement. Failure to maintain the insurance policies as required by this Agreement or to

provide evidence of renewal shall be a material breach of Agreement.

8.3.5.2 All Certificates of Insurance required by this Agreement shall be sent directly to: Stacey Brechler-Knaggs, Grants & Contracts Manager, 211 West Aspen Avenue, Flagstaff, Arizona, 86001. The City reserves the right to require complete, certified copies of all insurance policies and endorsements required by this Agreement, at any time.

8.3.6 Sub-agencies. The Agency's Certificates of Insurance shall include all sub-agencies as insureds under its policies, or the Agency shall furnish to the City separate Certificates of Insurance for each sub-agency. All coverages for sub-agencies shall be subject to the minimum requirements identified above.

8.3.7 Approval. Any modification or variation from the insurance requirements in this Agreement shall have prior approval from the Flagstaff City Attorney's Office and the Risk Manager, whose decision shall be final. Such action shall not require a formal Agreement Amendment but may be made by administrative action.

9. INDEBTEDNESS TO INTERNAL REVENUE SERVICE OR OTHER PUBLIC ENTITY

9.1 Delinquent Taxes. Any judgment, lien, levy, or outstanding amount owed to the Internal Revenue Service, State, County, City, or other public entity by the Agency may constitute an event of default or breach of this Agreement, unless previously approved by the City in writing, and may constitute sufficient reason for cancellation of this Agreement by the City according to the procedures contained in this Agreement.

9.2 Disclosure of Delinquent Taxes. Before entering into this Agreement, and during the time-period covered by this Agreement, the Agency shall disclose any information related to this Section. This shall also include the immediate reporting of breaches in payback arrangements or breaches in other Agreements related to the above. Failure to comply with any disclosure provision in this Section may also constitute sufficient reason for cancellation of this Agreement by the City according to the procedures contained in this Agreement.

10. DEFAULT/REMEDIES

In the event of any default in or breach of this Agreement or any of its terms or conditions by either party, such party shall, upon written notice from the other, proceed immediately to cure or remedy such default or breach. In any event, such breach or default shall be remedied within thirty (30) days after receipt of such notice. In case such action is not taken or not diligently pursued, or the default or breach not cured or remedied within thirty (30) days, the aggrieved party may terminate this Agreement or institute such proceedings as may be necessary or desirable in its opinion to cure and remedy such default or breach, including, but not limited to, proceedings to compel specific

performance by the party in default or breach of its obligations. Notwithstanding the foregoing, in the event of a breach of any term of this Agreement by the Agency, the City, at its sole election and in addition to any other remedy, may immediately withhold payment of funds until such default is cured and may initiate suspension or termination as set forth below.

11. INDEPENDENT AGENCY STATUS

The Agency is an independent entity in the performance of all activities and functions pursuant to this Agreement. The Agency and City are not and shall not be considered as joint ventures, partners, or agents of each other and neither shall have the power to bind or obligate the other. The Agency's officers, employees, agents, and subcontractors shall not be considered as officers, employees, agents, or subcontractors of the City. The Agency hereby agrees not to represent to anyone that the Agency is an agent of the City or has any authority to act on behalf of the City. The Agency shall be responsible for all employment compensation claims for Workers' Compensation benefits, or other claims by employees arising as a result of activities funded in whole or in part from the proceeds of this Agreement, and the Agency shall hold the City harmless for any and all such claims.

12. INDEMNIFICATION AND HOLD HARMLESS PROVISIONS

To the fullest extent permitted by law, the Agency shall defend, indemnify, and hold harmless the City, its agents, representatives, officers, directors, officials, and employees from and against all claims, damages, losses, and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or alleged to have resulted from the acts, errors, mistakes, omissions, work, or services of the Agency, its employees, agents, or any tier of subcontractors in the performance of this Agreement. The Agency's duty to defend, hold harmless, and indemnify the City, its agents, representatives, officers, directors, officials, and employees shall arise in connection with the claim, damage, loss, or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting therefrom, caused by any acts, errors, mistakes, omissions, work, or services in the performance of this Agreement including any employee of the Agency or any tier of subcontractors or any other person for whose acts, errors, mistakes, omissions, work, or services the Agency may be legally liable.

13. NONDISCRIMINATION AND AFFIRMATIVE ACTION REGARDING EMPLOYMENT

13.1 Nondiscrimination. The Agency shall not discriminate against any employee or applicant for employment or person to whom it provides services because of race, color, religion, sex, national origin, disability, genetic information, veteran's status, pregnancy, and/or familial status, and represents and warrants that it complies with all applicable federal, state, and local laws and executive orders regarding employment. In addition, if the Agency operates within City of Flagstaff limits, the Agency shall comply with the City Code, Chapter 14-02, "Civil Rights," which also prohibits discrimination based on sexual orientation, or gender identity or expression.

13.2 Incorporation of Nondiscrimination Clause into the Agency Activities. The Agency

further agrees that the Section 14.1 clause will be incorporated in all supplier contracts or other agreements entered into in connection with this Agreement.

13.3 Certifications from Subcontractors and Suppliers. The Agency assures that its authorized agent will obtain all supplier and subcontractor certifications contained in the Agreement documents and that those suppliers and contractors will adhere to all affirmative action requirements.

14. COMPLIANCE WITH ALL LAWS

14.1 Federal, State, and Local Laws. The Agency shall give all notices and comply with all laws, ordinances, rules, building codes, regulations, and lawful orders of any public authority bearing on the performance of activities pursuant to this Agreement. If the Agency observes that any of the Agreement documents are in conflict with any laws, statutes, building codes, or regulations, it shall promptly notify the City, in writing, and the parties shall execute any appropriate written modification.

14.2 Liability. Should the Agency perform any work knowing it to be contrary to applicable laws, ordinances, rules, building codes, or regulations, and not give proper notice to the City, it shall assume full responsibility therefore and shall bear all cost incurred due to its negligence.

14.3 Agency Adherence to Federal Regulations and Laws. The Agency agrees to comply with the following laws related to the receipt of Recovery Funds:

14.3.1 The Agency shall comply with the Grant Provisions for the U.S Department of Treasury, American Rescue Plan Act, Coronavirus State and Local Fiscal Recovery Funds, attached as **Exhibit E** and incorporated by reference in this Agreement.

14.3.2 The Agency shall carry out its responsibilities in compliance with the requirements of Executive Order 11063, as amended by Executive Order 12259; Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d); the prohibitions against age discrimination under the Age Discrimination Act of 1975 (42 U.S.C. § 6101-07); and the prohibitions against discrimination against handicapped individuals under Section 504 of the Rehabilitation Act of 1973 (19 U.S.C. § 794).

14.3.3 The Agency shall comply, as applicable, with the requirements of the Davis-Bacon Act (40 U.S.C. § 276a-276a-5), as supplemented by Department of Labor regulations (29 C.F.R. Part 5); and comply with Sections 103 and 107 of the Agreement Work Hours and Safety Standards Act (40 U.S.C. § 327-330), as supplemented by Department of Labor regulations (29 C.F.R. Part 5).

14.3.4 The Agency shall comply with Executive Order 11246 of September 24, 1965, entitled “Equal Employment Opportunity,” as amended by Executive

Order 11375 of October 13, 1967, and as supplemented in Department of Labor regulations. (41 C.F.R. chapter 60).

14.3.5 The Agency agrees to comply with the Copeland "Anti-Kick Back" Act (18 U.S.C. § 874), as supplemented in Department of Labor regulations (29 C.F.R. part 3).

14.3.6 The Agency agrees to comply with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368m Executive Order 11738), and Environmental Protection Contract regulations (40 C.F.R. part 15).

14.3.7 The Agency agrees to comply with all applicable standards, orders, or regulations issued under Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352). Contractors that apply or bid for an award exceeding $100,000 must file the required certification.

14.3.8 The Agency agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act and the Federal Water Pollution Control Act as amended. Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency.

14.3.9 The Agency agrees to comply, as applicable, with 2 C.F.R. part 200, Uniform Administrative Requirements, Cost Principle, and Audit Requirement for Federal Awards.

14.4 Suspension or Debarment. Submittal of an offer or execution of a contract shall attest that the Subrecipient or contractor is not currently suspended or debarred to contract in local, state, or federal jurisdictions. If the Subrecipient or any of its contractors become suspended or debarred, the Subrecipient shall immediately notify the City. The City may, by written notice to the Subrecipient, immediately terminate this Agreement if the City determines that the Subrecipient or their contractors have been debarred, suspended, or otherwise lawfully prohibited from participating in any public procurement activity, including but not limited to, being disapproved as a subcontractor of any public procurement unit or other governmental body.

14.5 Contracts and Subawards to Debarred and Suspended Parties. Pursuant to 2 C.F.R. subpart C § 200.213, grantees and subrecipients must not make an award or permit any award (subgrant or contract) at any tier to any party which is debarred or suspended or is otherwise excluded from or ineligible for participation in Federal assistance programs under Executive Order 12549, “Debarment and Suspension.” By entering into this Agreement, Subrecipient agrees to comply with all relevant codes including 2 C.F.R. subpart C, “Responsibilities of Participants Regarding Transactions.” The Agency must verify that any sub-agencies are not excluded or disqualified.

The Agency does this by:

(a) Checking the SAM Exclusions: System for Award Management (SAM) – www.sam.gov.

(b) Collecting a certification from that person.

(c) Adding a clause or condition to the covered transaction with that person.

15. DISPUTES

The laws of the State of Arizona, without regard to any otherwise applicable choice or conflict of law provisions, will govern this Agreement.

16. AVAILABILITY OF FUNDS

It is expressly understood by the parties hereto that this Agreement has been negotiated and executed in anticipation of receipt of funds by the City from the federal government, and that the terms, conditions, and sums payable under this Agreement are subject to any changes or limitations which may be required by the terms of the City's agreement with the federal government.

17. CONSULTATION

The Agency and the City hereby agree to consult one another on a timely basis regarding the applicability of this Agreement to any condition which may impact the execution of this Agreement, and which may arise during the Agreement period.

18. CONTINUING LIABILITY

The Agency shall have continuing liability after the term of this Agreement for any breach of this Agreement, including failure to perform in accordance with required Federal law, rules, and regulations until after all complaints, investigations, and sanctions, including those arising out of audits performed by Treasury, the City, or other authorized agencies are resolved. The Agency shall be liable for any sanctions or requirements imposed at any time upon the City arising out of the Agency's activities performed pursuant to this Agreement.

19. TERMINATION

19.1 Transactional Conflicts of Interest. The parties acknowledge that this Agreement is subject to cancellation by the City of Flagstaff under the provisions of A.R.S. § 38-511.

19.2 Termination. In accordance with 2 C.F.R. part 200, subpart D, the City may suspend or terminate this Agreement if the Agency materially fails to comply with any term or condition of this Agreement, or if the Agency fails to maintain a good faith effort to carry out the purpose of this Agreement. If the Agency fails to materially comply with any term of the award, whether stated in a Federal statute or regulation, an assurance, in a State plan or application, a notice of award, or elsewhere, City may

take one or more of the following actions, as appropriate in the circumstances:

19.2.1 Temporarily withhold cash payments pending correction of the deficiency by the grantee or subgrantee or more severe enforcement action by the awarding agency;

19.2.2 Disallow (that is, deny both use of funds and matching credit for) all or part of the cost of the activity or action not in compliance;

19.2.3 Wholly or partly suspend or terminate the current award for the grantee's or subgrantee's program;

19.2.4 Withhold further awards for the program; or

19.2.5 Take other remedies that may be legally available.

19.3 Termination for Convenience. The City or the Agency may terminate this Agreement for convenience in accordance with 2 C.F.R. part 200 and the Procurement Code if both parties agree upon the termination and termination conditions. The party initiating the termination shall notify the other party in writing stating the reasons for such termination. The Agency may unilaterally terminate this Agreement upon written notification to the City setting forth the reasons for such termination, the effective date, and in the case of partial termination the portion to be terminated. However, if, in the case of a partial termination, the City determines that the remaining portion of the award will not accomplish the purposes for which the award was made, the City may terminate the award in its entirety.

20. NOTICE

Notice shall be provided as follows:

City of Flagstaff
Stacey Brechler-Knaggs
Grants & Contracts Manager
211 W. Aspen Ave.
Flagstaff, AZ 86001
(928) 213-2227

Homeless Youth Connection
Dawn Bogart
Co-CEO
224 East Hatcher Road
Phoenix, AZ 85020
(602) 565-3218
dbogart@hycaz.org

Copy to:

Kristine Pavlik
Housing and Grants Administrator
2323 N. Walgreens St. Suite 2
Flagstaff, AZ 86004
(928) 213-2749

Sarah Darr
Housing Director
3481 N. Fanning Dr.
Flagstaff, AZ
(928) 213-2745

Such written notices, demands, and communications may be sent to such other addresses as either party may from time to time designate by mail as provided in this Section.

21. LIST OF EXHIBITS

Exhibit A:	Scope of work
Exhibit B:	Payment Request
Exhibit C:	Expenditure Specific Reporting Requirements
Exhibit D:	Performance Report
Exhibit E:	Grant Provisions

(Signatures appear on following page)

IN WITNESS WHEREOF, the parties acknowledge that they have read, understand, approve, and accept all of the provisions of this Agreement and the attached Exhibits.

DATED this _____ day of _____, 20___.

City of Flagstaff	**Homeless Youth Connection**
Greg Clifton, City Manager	Dawn Bogart, Co-CEO
Attest:	Attest:
City Clerk	Corporate Secretary
Approved as to form:	
City Attorney	

EXHIBIT A
SCOPE OF WORK
(Attached)

1. **Flagstaff Transitional Living Project Scope of Work**
2. **Flagstaff Transitional Living Project Budget**
3. **Flagstaff Transitional Living Project Schedule of Completion**

EXHIBIT A
SCOPE OF WORK
SPECIAL CONDITIONS OF THE AGREEMENT

1. PROGRAM ELIGIBILITY CRITERIA

The Homeless Youth Connection ("Agency") Flagstaff Transitional Living Project ("Project") will allow the Agency to directly respond to the coronavirus pandemic by providing transitional housing to youth experiencing homelessness. The Agency will provide transitional housing and supportive services to seven (7) unique individuals aged 18-21 and enrolled in high school or college.

1.1 Eligibility for the Project administered by the Agency requires that the client:

1.1.1 Be an individual experiencing homelessness as defined by HUD and/or the McKinney Vento Homeless Assistance Act; and

1.1.2 Enrolled in a public, charter or accommodation high school, college or other vocational program.

1.2 Agency shall document and retain all client records with regards to Project eligibility.

2. SCOPE OF WORK

The Agency will provide services as set forth in detail in its December 19, 2022, proposal submitted in response to the City of Flagstaff American Rescue Plan Act (ARPA) Housing Assistance Local Recovery Funds Notice of Funding Available, hereby incorporated by reference, and as described herein.

The Agency will utilize ARPA Local Recovery Fund dollars to support the salaries and employee related expenses of overnight staff providing supervision and caseworkers providing supportive services.

2.1 The Agency agrees to serve seven (7) unique individuals aged 18-21 and experiencing homelessness.

2.2 Agency will provide the necessary personnel, equipment, office space, meeting space, supplies, and services to conduct the services as described herein.

2.3 Agency's responsibilities include:

2.3.1 Hiring and training staff involved in the program operations.
2.3.2 Providing the services as described herein.

EXHIBIT A
SCOPE OF WORK
SPECIAL CONDITIONS OF THE AGREEMENT

3. PROJECT ADMINISTRATION

The Agency will provide all of the necessary services to carry out the daily tasks of ensuring that the project progresses satisfactorily and that all of the administrative functions associated with the project are properly executed in accordance with the contract and the requirement of the Federal ARPA CLFRF program.

3.1 Agency responsibilities include:

3.1.1 Maintain project files detailing expenses, procurement, project information, and correspondence, in addition to any other necessary information.
3.1.2 Submit applicable grant reports to the Housing Section.
3.1.3 Maintain client files detailing income eligibility and back up documentation, ethnicity, age, and special needs, in addition to any other necessary information.
3.1.4 Maintain project accounting records, including documentation of expenditures and receipts.
3.1.5 Manage personnel.
3.1.6 Complete audits and other submissions.
3.1.7 Ensure a cost-effective, timely and efficient delivery of services.
3.1.8 Ensure that an open process is conducted in all outreach activities and equal opportunity is provided to all persons regardless of race, color, sex, sexual orientation, religion, handicap, familial status, or national origin.

EXHIBIT A
PROJECT BUDGET

Project Budget						
City of Flagstaff						
roject Description	Homeless Services					
Implementing Agency:	Homeless Youth Connection					
Persons Served:	7 youth in Flagstaff					
Date Submitted:	08/01/2023					
Identifier	**Item/Activity Desription**	**Source 1**	**Source 2**	**Leverage**	**In-Kind**	**Project**
		City of Flagstaff ARPA	**Federal/State/ Local Funding**	**Agency Financing**	**Donations**	**TOTALS**
1	**Program or Project Related Expenses**					
A	Staff training			5,000		**5,000**
B	$400 x 30 families x 9 months)			84,000		**84,000**
C	Counseling			40,000		**40,000**
D	documents, hotspots, computers, wi-fi,			50,000		**50,000**
E	Emergency/Transitional Host Home Goodyear			42,281		**42,281**
F	Emergency/Transitional Host Home Flagstaff			42,281		**42,281**
G	x 26			29,000		**29,000**
H	5 interns			10,000		**10,000**
I	Program Supplies			5,000		**5,000**
J	Youth Advisory Council			5,000		**5,000**
J	Hatcher furnishings			60,000		**60,000**
K	In kind donations and gift cards distributed				100,000	**100,000**
L	Youth Coaches 12 FTE		50,350	517,260		**567,610**
M	Program Manager 3FTE		59,940	102,060		**162,000**
N	Director of Youth Services 1 FTE			86,400		**86,400**
O	Community Outreach Manager 2 FTE		48,681	48,681		**97,362**
P	Residential Manager THH 2 FTE	31,000		31,000		**62,000**
Q	Residential Assistants 12 Part-time	15,250	86,349	153,267		**254,592**
2	**Administration**					
A	Payroll and EREs			185,552		**185,552**
B	phone, hotspots,wifc)			62,100		**62,100**
C	office suppliesprinting, postage, IT, advertising, etc.			57,400		**57,400**
3	**Facility Value**					
A	Rent, utilies, maintenance		36,000	57,597		**93,597**
Total		**46,250**	**281,320**	**1,673,879**	**100,000**	**2,101,175**

EXHIBIT A
PROJECT SCHEDULE OF COMPLETION

SCHEDULE OF COMPLETION

Project Schedule of Completion	
City of Flagstaff	
Project Description:	Empowering Youth For The Future/Flagstaff Transitional Living Program
Implementing Agency:	Homeless Youth Connection
CoF Project Number:	
Persons Served:	7 unaccompanied homeless youth
Date Submitted:	08/01/2023

Action Items:	**Item Description**	**Program Year: 2022/2023**			**1st Month Begins with the Notice to Proceed**			
		1st	2nd	3rd	4th	5th	6th	7th
1	Furnish Flagstaff home							
2	Hire residential manager and residential assistants							
3	Identify youth experiencing homeless who are enrolled in the FUSD and Ponderosa High School							
4	Assess homeless youth for housing needs							
5	Move unaccompanied homeless youth into Flagstaff Transitional Living Program.							
7	Report progress to City staff							

7. G.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Neil Chapman, Forest Health Supervisor
Co-Submitter:	Dylan Guffey
Co-Submitter:	Dylan Guffey
Date:	08/31/2023
Meeting Date:	09/05/2023

TITLE:

Consideration and Approval of Contract: Supplemental Project Agreement with Coconino National Forest in the amount of $409,995.63 for fire control feature preparations via tree thinning on the Flagstaff Ranger District of the Coconino National Forest.

STAFF RECOMMENDED ACTION:

Approve the supplemental project agreement with the Coconino National Forest in the amount of $409,995.63.

Executive Summary:

This agreement provides for tree cutting and slash treatment on the Flagstaff Ranger District of the Coconino National Forest to prepare fire control features, for example roads, so they can be used to more effectively manage wildfires.

- These planned fire control features are called Potential Operational Delineations (POD's.)
- This project meets wildlife habitat improvement, ecosystem restoration, and fuels reduction objectives, as described in the Four Forest Restoration Imitative (4FRI) Project Environmental Impact Statement (EIS).
- The City will cut Ponderosa Pine and other conifer species according to diameter and spacing guidelines in the prescription, which will be provided prior to the start of work.
- Slash treatment will generally consist of hand-piling, though some larger tree boles may be moved to roads using a tool such as log arch to facilitate public firewood gathering. High concentrations of existing dead/down logs will also be piled.

The Rocky Mountain Research Station Wildfire Risk Management Science (WRMS) Team co-developed Potential Operational Delineations (PODs) to pre-plan for fire using a risk management approach, and to give land managers a formal process for developing landscape-scale wildfire response options before fires start. PODs are spatial units or containers defined by potential control features, such as roads and ridge tops, within which relevant information on forest conditions, ecology, and fire potential can be summarized. PODs combine local fire knowledge with advanced spatial analytics to help managers develop a common understanding of risks, management opportunities, and desired outcomes to determine fire management objectives. The PODs pre-planning framework has been applied on over 40 national forests and counting, often including adjacent landowners and jurisdictions for cross-boundary planning. Sometimes, fires resulting from natural ignitions can be strategically managed to achieve goals similar to a prescribed fire: ecological restoration, watershed health, reduced risk of catastrophic wildfire,

and reduced future fire suppression costs. When values are likely to benefit, the right kind of fire can be managed for risk reduction and restoration objectives rather than immediately suppressed. Collaborative pre-planning during the PODs process helps to identify these opportunities, as well as conditions and locations where rapid initial attack may still be the best option to protect sensitive resources and assets. Where and when possible, leveraging natural ignitions for non-suppression objectives can reduce fire risk to adjacent high-value PODs over the near term, with benefits for maintaining lower risk conditions with future actions. The PODs framework naturally lends itself to planning and prioritizing other fuel and vegetation projects, as well as outreach and communication efforts. One key aspect of PODs is the physical cross-boundary, i.e., the recognition that fire readily crosses boundaries and assessment of risks and control opportunities irrespective of ownership boundaries. Another key aspect of PODs is the social cross-boundary, i.e., the recognition of the need to bring multiple partners, cooperators, and stakeholders to the table to develop a shared understanding of values, opportunities, and challenges, to foster collaborative, cross-boundary planning and prioritization, and to support "shared stewardship for fire."

Financial Impact:

Total Project Budget: $409,995.63 (financial plan is attached)

Coconino National Forest is providing $379,670 in cash to the City of Flagstaff for project implementation (staff time and contracts.)
The City of Flagstaff is providing $30,325.32 in matching funds. The Flagstaff Fire Department Wildfire Management (WFM) section has budgeted for this agreement in FY2023-24. This agreement is budgeted in Fire Grant section of budget and the match will be covered within the budgeted staffing costs.

Policy Impact:

Connection to PBB Priorities/Objectives, Carbon Neutrality Plan & Regional Plan:

Priority Based Budget Key Community Priorities and Objectives

- High Performing Governance: Implement innovative local government programs
- Safe and Healthy Community: Ensure built environment is safe through the use of consistent standards, rules and regulations, & land use practices
- Environmental Stewardship: Promote, protect & enhance a healthy, sustainable environment & its natural resources
- Environmental Stewardship: Strengthen Flagstaff's resilience to climate change impacts on built, natural, economic, health, & social systems

Carbon Neutrality Plan

- CR-1: Ensure all mitigation actions improve Flagstaff's ability to adapt to the future.
- CR-2: Strengthen existing community systems to create resilience to both short-term shocks and long-term change.

Consolidating carbon stocks in fewer, larger trees reduces the risk of carbon loss from fire. The pre-suppression forest structure provides the best target for maintaining sustainable carbon stocks and ecological function. Implementing prescribed fire after mechanical thinning treatments supports the maintenance of the restored natural tree structure and pattern.

Regional Plan

- Environmental Planning & Conservation – Vision for the Future: In 2013, the long-term health and viability of our natural resource environment is maintained through strategic planning for resource conservation and protection.

- Policy E&C.3.3 – Invest in forest health and watershed protection measures.
- Policy E&C.6.1 – Encourage public awareness that the region's ponderosa pine forest is a fire-dependent ecosystem and strive to restore more natural and sustainable forest composition, structure, and processes.
- Policy E&C.6.3 – Promote protection, conservation, and ecological restoration of the region's diverse ecosystem type and associated animals.
- Policy E&C.6.6 – Support collaborative efforts for forest health initiatives or practices, such as the Four Forest Restoration Initiative (4FRI), to support healthy forests and protect our water system.
- Policy E&C.10.2 – Protect, conserve, and when possible, enhance and restore wildlife habitat on public land.

Has There Been Previous Council Decision on This:

Council has not previously discussed this specific Supplemental Project Agreement.
This Supplemental Project Agreement is housed under the Master Participating Agreement that Council approved on April 19th, 2022.

Options and Alternatives:

Approving this agreement will allow this important work to begin in a timely manner. Not approving the agreement will delay this work and possibly allow the funds to be diverted to USFS projects outside of the Coconino National Forest.

Background/History:

Severe and destructive wildfire is an annual and ever-present threat to our forests and the community. Areas that have undergone science based fuel reduction treatments are healthier, more fire adapted, and enhance public safety and infrastructure protection.

Key Considerations:

Completion of forest treatments within the FWPP footprint have proven highly effective in reducing occurrence and severity of wildfire and post-fire flood events.

The planned location of this project is along Forest Rd 535 just west of highway 89A south of Flagstaff. Prepping POD's south and west of Flagstaff is a priority for wildfire risk reduction efforts.

Expanded Financial Considerations:

Wildland Fire Management staff time contributions are budgeted within the Watershed Resource and Infrastructure Protection fee. USFS contributions are budgeted within Fire Department grants.

This agreement includes funds to cover the City indirect cost rate.

Community Benefits and Considerations:

The Flagstaff community will experience improved forest management due to this agreement. Approval of this Agreement, and the forest treatment work which will result, will reduce wildfire risk to adjacent neighborhoods, recreational opportunities, and wildlife habitat, while promoting forest health and long-term ecological sustainability.

This agreement will also support forest management objectives that consolidate forest carbon stocks in fewer, larger trees, reducing the risk of carbon loss from catastrophic fire.

Community Involvement:

Inform: Following the success of the 2012 bond election, FFD has continued to work at keeping the community informed of what we are doing, and why.

Involve: Project outreach efforts will go directly to the Flagstaff community. FFD staff are available to the public to address any concerns.

Attachments: Agreement
Financial Plan
Staff legal and agreements approval

FS Agreement No. 23-PA-11030400-218

Cooperator Agreement No. _____

PARTICIPATING AGREEMENT SUPPLEMENTAL PROJECT AGREEMENT
To
MASTER PARTICIPATING AGREEMENT # 22-PA-11030400-043
Between
THE CITY OF FLAGSTAFF
And The
USDA, FOREST SERVICE
COCONINO NATIONAL FOREST

This Supplemental Project Agreement (SPA) is hereby made and entered into by and between the City of Flagstaff, hereinafter referred to as "The City," and the United States Department of Agriculture (USDA), Forest Service, Coconino National Forest, hereinafter referred to as the "U.S. Forest Service," as specified under the provisions of Master Participating Agreement #22-PA-11030400-043.

Title: Potential Operational Delineations Boundary Fuels Treatment

I. GENERAL PROJECT DESCRIPTION: This agreement provides for tree cutting and slash treatment on National Forest System (NFS) lands on the Flagstaff Ranger District of the Coconino National Forest to treat Potential Operational Delineations (POD) boundaries. This project meets wildlife habitat improvement, ecosystem restoration, and fuels reduction objectives, as discribed in the Four Forest Restoration Initative (4FRI) Project Environmental Impact Statement (EIS). The City will cut Ponderosa Pine and other conifer species according to diameter and spacing guidelines in the prescription, which will be provided prior to the start of work. Slash treatment will generally consist of hand-piling, though some larger tree boles may be moved to roads using a tool such as log arch to facilitate public firewood gathering. High concentrations of existing dead/down logs will also be piled.

II. RESPONSIBILITIES:

A. The The City shall:

1. Ensure The City personnel, volunteers, partners, and/or contractors have all necessary training, personal protective equipment (PPE), first aid supplies, and necessary tools and supplies to fall, buck, lop, pile, and remove trees as specified by the U.S. Forest Service.

2. Meet with U.S. Forest Service prior to the beginning of work to discuss project specifications and safety, including a Job Hazard Analysis (JHA). Ensure compliance of The City employees, partners, contractors, and/or volunteers with

JHA.

3. Supervise and regularly inspect work completed by The City personnel, partners, contractors, and/or volunteers, and promptly report any issues to U.S. Forest Service Program Manager.

4. Complete a Sponsored Volunteer Agreement to bring The City volunteers for projects on NFS lands. A list of all participants must be included on the agreement or an attachment to the agreement and must be listed as volunteers for specific projects and/or dates.

5. Perform in accordance with attached Financial Plan (Attachment A) and Statement of Work (Attachment B).

B. The U.S. Forest Service shall:

1. PAYMENT/REIMBURSEMENT. The U.S. Forest Service shall reimburse the The City for the U.S. Forest Service's share of actual expenses incurred, not to exceed $379,670.00, as shown in the Financial Plan. In order to approve a Request for Reimbursement, the U.S. Forest Service shall review such requests to ensure payments for reimbursement are in compliance and otherwise consistent with the terms of the agreement. The U.S. Forest Service shall make payment upon receipt of the The City's quarterly invoice. Each invoice from the The City must display the total project costs for the billing period, separated by U.S. Forest Service and the The City's share. In-kind contributions must be displayed as a separate line item and must not be included in the total project costs available for reimbursement. The final invoice must display the The City's full match towards the project, as shown in the financial plan, and be submitted no later than 120 days from the expiration date.

   Each invoice must include, at a minimum:

   1. The The City's name, address, and telephone number.
   2. U.S. Forest Service agreement number.
   3. Invoice date.
   4. Performance dates of the work completed (start & end).
   5. Total invoice amount for the billing period, separated by U.S. Forest Service and The City share with in-kind contributions displayed as a separate line item.
   6. Display all costs, both cumulative and for the billing period, by separate cost elements as shown on the financial plan.
   7. Cumulative amount of U.S. Forest Service payments to date.
   8. Statement that the invoice is a request for payment by "reimbursement".
   9. If using SF-270, a signature is required.
   10. Invoice Number, if applicable.

   The invoice must be forwarded to:

EMAIL: SM.FS.ASC_GA@USDA.GOV

FAX: 877-687-4894

POSTAL: USDA Forest Service
Albuquerque Service Center
Payments – Grants & Agreements
101B Sun Ave NE
Albuquerque, NM 87109

Send a copy to: Preston Mercer, preston.mercer@usda.gov

3. TEXT MESSAGING WHILE DRIVING. In accordance with Executive Order (EO) 13513, "Federal Leadership on Reducing Text Messaging While Driving," any and all text messaging by Federal employees is banned: a) while driving a Government owned vehicle (GOV) or driving a privately owned vehicle (POV) while on official Government business; or b) using any electronic equipment supplied by the Government when driving any vehicle at any time. All Cooperators, their Employees, Volunteers, and Contractors are encouraged to adopt and enforce policies that ban text messaging when driving company owned, leased or rented vehicles, POVs or GOVs when driving while on official Government business or when performing any work for or on behalf of the Government.

4. The U.S. Forest Service will provide on-site guidance and direction, including a silvicultural prescription, periodically inspect work, and provide and present a Job Hazard Analysis (JHA) for work to be performed under this project prior to the start of work.

III. CONTACTS & TIME LIMITS:

A. PRINCIPAL CONTACTS. Individuals listed below are authorized to act in their respective areas for matters related to this agreement.

Principal Cooperator Contacts:

Cooperator Program Contact	Cooperator Administrative Contact
Name: Neil Chapman Forest Health Supervisor Address: 211 W Aspen City, State, Zip: Flagstaff, AZ 86001 Telephone: 928-606-9840 Email: neil.chapman@flagstaffaz.gov	Name: Stacey Brechler-Knaggs Grants, Contracts, & Emergency Management Director Address: 211 W Aspen City, State, Zip: Flagstaff, AZ 86001 Telephone: 928-213-2227 Email: sknaggs@flagstaffaz.gov

Principal U.S. Forest Service Contacts:

U.S. Forest Service Program Manager Contact	U.S. Forest Service Administrative Contact
Name: Preston Mercer Fire Management Specialist Address: 5075 N Hwy 89 City, State, Zip: Flagstaff, AZ 86004 Telephone: 928-526-0866 Cell: 928-606-3843 Email: preston.mercer@usda.gov	Name: Mindy Howe Grants Management Specialist Address: 333 Broadway Blvd SE City, State, Zip: Albuquerque, NM 87102 Email: mindy.howe@usda.gov

B. SYSTEM FOR AWARD MANAGEMENT REGISTRATION REQUIREMENT (SAM). The City shall maintain current information in the System for Award Management (SAM) until receipt of final payment. This requires review and update to the information at least annually after the initial registration, and more frequently if required by changes in information or agreement term(s). For purposes of this agreement, System for Award Management (SAM) means the Federal repository into which an entity must provide information required for the conduct of business as a Cooperative. Additional information about registration procedures may be found at the SAM Internet site at www.sam.gov.

C. AVAILABILITY FOR CONSULTATION. Both parties will make themselves available at mutually agreeable times, for continuing consultation to discuss the conditions covered by this agreement and agree to actions essential to fulfill its purposes.

D. MODIFICATIONS. Modifications within the scope of this SPA shall be made by mutual consent of the parties, by the issuance of a written modification signed and dated by all properly authorized, signatory officials, prior to any changes being performed. Requests for modification should be made in writing, at least 30 days prior to implementation of the requested change. The U.S. Forest Service is not obligated to fund any changes not properly approved in advance.

E. JUSTICE 40 INITIATIVE. Executive Order (EO) 14008, Tackling the Climate Crisis at Home and Abroad, was signed on January 27, 2021. This EO commits federal agencies to providing 40% of federal benefits to disadvantaged communities. When the cooperator is considering a subaward or contract to be executed under this agreement, the cooperator may consider the requirements of EO 14008, section 223, OMB M-21-28 and OMB-23-09.

F. PROGRAM MONITORING AND PROGRAM PERFORMANCE REPORTS. The parties to this agreement shall monitor the performance of the agreement activities to ensure that performance goals are being achieved.

Performance reports must contain information on the following:

- A comparison of actual accomplishments to the goals established for the period. Where the output of the project can be readily expressed in numbers, a computation of the cost per unit of output, if applicable.
- Reason(s) for delay if established goals were not met.
- Additional pertinent information.

The Cooperator shall submit quarterly performance reports to the U.S. Forest Service Program Manager. These reports are due 30 days after the reporting period. The final performance report must be submitted either with Cooperator's final payment request, or separately, but not later than 120 days from the expiration date of the agreement.

G. FINANCIAL STATUS REPORTS. A Federal Financial Report, form SF-425, must be submitted quarterly. The report is due 30 days after the reporting period ending March 31, June 30, September 30, December 31. The final SF-425 must be submitted either with the final payment request or no later than 120 days from the expiration date of the agreement. The form may be found at https://www.grants.gov/forms/post-award-reporting-forms.html.

H. COMMENCEMENT/EXPIRATION DATE. This agreement is executed as of the date of the last signature and is effective through 5/3/2027 at which time it will expire. The expiration date is the final date for completion of all work activities under this agreement.

I. AUTHORIZED REPRESENTATIVES. By signature below, each party certifies that the individuals listed in this document as representatives of the individual parties are authorized to act in their respective areas for matters related to this agreement. In witness whereof, the parties hereto have executed this agreement as of the last date written below.

STACEY BRECHLER-KNAGGS, Grants, Contracts, & Emergency Management Director City of Flagstaff	Date
BECKY DAGGETT, Mayor City of Flagstaff	Date
AARON MAYVILLE, Forest Supervisor U.S. Forest Service, Coconino National Forest	Date

The authority and format of this agreement have been reviewed and approved for signature.

MINDY HOWE Date
U.S. Forest Service Grants Management Specialist

Burden Statement

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0217. The time required to complete this information collection is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

U.S. Forest Service

OMB 0596-0217
FS-1500-17B

Attachment: B

USFS Agreement No.: **23-PA-11030400-218** Mod. No.:

Cooperator Agreement No.:

Note: This Financial Plan may be used when:
(1) No program income is expected and
(2) The Cooperator is not giving cash to the FS and
(3) There is no other Federal funding

Agreements Financial Plan (Short Form)

Financial Plan Matrix: Note: All columns may not be used. Use depends on source and type of contribution(s).

	FOREST SERVICE CONTRIBUTIONS		COOPERATOR CONTRIBUTIONS		
	(a)	(b)	(c)	(d)	
COST ELEMENTS	Noncash	Cash to Cooperator	Noncash	In-Kind	(e) Total
Direct Costs					
Salaries/Labor	$6,750.00	$91,500.00	$14,660.00	$0.00	$112,910.00
Travel	$1,356.00	$0.00	$9,500.00	$0.00	$10,856.00
Equipment	$0.00	$0.00	$9,500.00	$0.00	$9,500.00
Supplies/Materials	$0.00	$0.00	$0.00	$0.00	$0.00
Printing	$0.00	$0.00	$0.00	$0.00	$0.00
Other	$0.00	$265,500.00	$0.00	$0.00	$265,500.00
Other					$0.00
Subtotal	$8,106.00	$357,000.00	$33,660.00	$0.00	$398,766.00
Coop Indirect Costs		$22,670.00	$4,594.59		$27,264.59
FS Overhead Costs	$1,215.90				$1,215.90
Total	$9,321.90	$379,670.00	$38,254.59	$0.00	
Total Project Value:					$427,246.49

Matching Costs Determination	
Total Forest Service Share = (a+b) ÷ (e) = (f)	(f) 91.05%
Total Cooperator Share (c+d) ÷ (e) = (g)	(g) 8.95%
Total (f+g) = (h)	(h) 100.00%

WORKSHEET FOR

FS Non-Cash Contribution Cost Analysis, Column (a)

Salaries/Labor

Standard Calculation

Job Description		Cost/Day	# of Days		Total
Fuels AFMO time on project		$450.00	20.00		$6,750.00
Total Salaries/Labor					**$6,750.00**

Travel

Standard Calculation

Vehicles	Cost/Mile	# of Miles	Cost/Month	# of Months	Total
FS Vehicle trips	$0.65	40.00	$156.00	6.00	$936.00
Portion of Monthly FOS			$70.00	6.00	$420.00
Total Travel					**$1,356.00**

Subtotal Direct Costs	$8,106.00

Forest Service Overhead Costs

Current Overhead Rate	Subtotal Direct Costs			Total
15.00%	$8,106.00			$1,215.90
Total FS Overhead Costs				**$1,215.90**

TOTAL COST	**$9,321.90**

WORKSHEET FOR

FS Cash to the Cooperator Cost Analysis, Column (b)

Other Expenses

Standard Calculation

Item		# of Acres	Cost/Unit		Total
Thinning Contract		177.00	$1,500.00		$265,500.00
Fuel Break Construction		61.00	$1,500.00		$91,500.50
Total Other					**$357,000.50**

Subtotal Direct Costs	$357,000.50

Cooperator Indirect Costs

Current Overhead Rate	Subtotal Direct Costs			Total
6.35%	$357,000.00			$22,669.50
Total Coop. Indirect Costs				**$22,669.50**

Rate shown is proposed FY23. Final FY23 NICRA is still pending. The actual NICRA rate at the time an expense is incurred is what will be used.

*Actual rate is 10%, difference is captured on non-cash tab.

TOTAL COST	**$379,670.00**

WORKSHEET FOR

Cooperator Non-Cash Contribution Cost Analysis, Column (c)

Salaries/Labor

Standard Calculation

Job Description		Cost/Day	# of Days		Total
Widlland Fire Captain (Chapman)		$453.00	20.00		$9,060.00
Wildland Fire Battalion Chief (Oltrogge)		$560.00	10.00		$5,600.00
Total Salaries/Labor					**$14,660.00**

Travel

Standard Calculation

Travel Expense	Employees	Cost/Trip	# of Trips		Total
Crew Truck	1.00	$190.00	50.00		$9,500.00
Total Travel					**$9,500.00**

Subtotal Direct Costs	$33,660.00

Cooperator Indirect Costs

Current Overhead Rate*	Subtotal Direct Costs			Total
13.65%	$33,660.00			$4,594.59
Total Coop. Indirect Costs				**$4,594.59**

Rate shown is proposed FY23. Final FY23 NICRA is still pending. The actual NICRA rate at the time an expense is incurred is what will be used.

*10% plus the 3.65% not captured on cash to cooperator

TOTAL COST	**$38,254.59**

STATEMENT OF WORK

PODs Boundaries Fuels Treatment Project



Background

Management of the public lands for forest and watershed health is key to protecting The City from flooding and sedimentation, increasing public safety, and providing high quality water for municipal uses. In the Organic Administration Act of 1897, a principal purpose for establishment of the Forest Reserves (predecessor to the National Forest System) was to "secure favorable conditions for water flows." In the fall of 2021 USDA Forest Service Chief Randy Moore pledged $54 million dollars for forest restoration work in northern Arizona. The U.S. Forest Service is initiating several projects with that support to accelerate several local high-priority projects over ten years. The projects will include mechanical treatments, hand thinning, prescribed fire, and more. Collectively, they are aimed at protecting communities and watersheds from catastrophic wildfires and the devasting after-effects such as uncontrollable flooding and associated damage.

The Coconino National Forest, Flagstaff Ranger District is initiating a collaborative project to conduct hand thinning and piling with the City of Flagstaff. The project will include projects along various Potential Operational Delineations (POD) boundaries around the City of Flagstaff and watersheds critical to The City. This project is directly in line with the City of Flagstaff Wildland Fire Management Program Mission and through it, the U.S. Forest Service and the City are moving forward with all necessary activities to proactively improve the health and resiliency of the U.S. Forest Service lands and watersheds for the mutual benefit watershed protection, decreased risk from additional flooding and

sedimentation, improved public safety, and reduced negative social and economic outcomes from wildfires.

Scope of Agreement

This agreement provides for hand crew tree cutting and slash hand piling along POD boundaries on National Forest System (NFS) lands on the Flagstaff Ranger District of the Coconino National Forest, with the actual amount scalable depending on contract prices. This project meets wildlife habitat improvement, ecosystem restoration and fuel reduction objectives.

Project would involve the cutting of conifers up to 12" diameter at breast height (dbh) across up to 590 acres within a 300-foot buffer of FR 535-536. This project runs along the boundary between PODs 812-813. Tops, limbs, and small boles would be piled. Larger boles may be made available for fuelwood gathering. Exact acreage will likely be somewhat lower, depending on funding.

Resource reviews and heritage survey are already completed for the project area. Specific requirements for work around identified heritage sites and timing restrictions for work in close proximity to Mexican Spotted Owl habitat will be shared with the City by the Forest Service Project Manager prior to the commencement of work activities.

The partner will cut conifers and dispose of slash according to the specifications of the thinning prescription to be provided by the U.S. Forest Service prior to the commencement of work.

Work is anticipated to be completed by hand crews. An ATV/log arch or similar piece of equipment may be used to move logs close to roadways for firewood collection where appropriate, provided all necessary resource protection measures are followed (see below).

Location Description

The work to be accomplished under this agreement is located on the along POD boundaries on the Flagstaff Ranger District (RD) of the Coconino Forest in the State of Arizona. Priority boundaries will be set through cooperation and consultation with U.S. Forest Service Program Manager. See attached map (Attachment 1).

Accessibility

See attached map (Attachment 1) for road and travel routes for access to the cutting unit.

Under normal weather conditions, Forest Roads are accessible by a standard pickup or a similar type of vehicle during the normal operating season (April 15 through December 15). Should roads become inaccessible due to rain, snow, fallen trees, or Forest fire closure orders, the Government may direct the Partner to suspend operations until road conditions improve, or the fire closure is rescinded. The Government assumes no obligation to do special maintenance to keep roads open and reserves the right to deny any request where road damage is likely.

Boundaries

See attached map showing the location of cutting unit boundaries and attached prescriptions for the method of cutting unit boundary designation.

Treatment unit boundaries were established by Forest Service personnel and traversed using Global Positioning Systems (GPS). A Geographic Information System (GIS) was used to compute acreage and generate maps.

Partner Representative

The Partner shall provide an on the ground representative for the performance of the work. The name of this person shall be designated in writing to the U.S. Forest Service Program Manager. The Partner representative shall have full authority to act for the Partner on all matters relating to daily operation of this agreement. The Partner representative must be able to read, write, speak, and understand English.

Camping

The following criteria will be applied if permission to camp is authorized:

(a) Before any camp is opened or operated on National Forest System (NFS) lands or lands administered by the USDA, the Partner shall obtain written permission from the U.S. Forest Service Program Manager via a District camp permit. A camp is interpreted to include a campsite or trailer parking area used by the Partner or employee working on the project for the Partner.

(c) Unless accepted elsewhere in the agreement, the Partner shall provide and maintain sanitation facilities and housing suitable for the workforce at the site (the Partner is required to observe all applicable state and federal laws regarding work camps and housing of employees and/or sub partners).

(d) Permission to camp is a privilege and subject to revocation at any time should the Partner: not maintain a clean and orderly camp; not maintain compliance with District camp permit regulations; or should the camp location be needed for other purposes by the Forest Service.

(e) All structures shall be removed, and the site restored to its original condition by the Partner upon completion of the agreement. Combustible refuse may be burned only if authorized in advance. All noncombustible materials, cans, bottles, equipment, vehicles, etc., shall be removed from National Forest System land and disposed of in a lawful manner. Final payment will not be processed until the camp clean-up and equipment removal has been accomplished. The Government will clean camps left in an un-restored state and the full cost will be assessed against the Partner. Equipment left on National Forest lands will be removed and the full cost assessed against the partner.

(e) The partner and/or sub partners must follow all current fire restrictions while camping.

Adherence to Fire Restrictions Requirements

The Partner must follow all restrictions on the use of chainsaws and other internal combustion powered equipment during the implementation of Stage 2 and 3 Fire Restrictions encompassing the project area.

Government-Furnished Property, Materials, Services

Government will provide silvicultural prescriptions and maps for each unit to be treated.

Partner Furnished Items/Services

The Partner and/or sub partners shall furnish everything required to perform the work associated with this agreement.

The Partner and/or sub partners shall furnish all necessary personal protective equipment (PPE) for its employees.

Safety/Personal Protective Equipment

The Partner and/or sub partners shall train workers in the safe operation and use of equipment that the worker may use before the worker begins using such equipment.

Personal protective equipment for eyes, face, head, and extremities shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards or processes encountered which may cause injury or impairment in the function of any part of the body. Defective or damaged personal protective equipment shall not be used.

The Partner and/or sub partners shall provide chain saw chaps to each employee who operates a chain saw, at no cost to the employee. These chaps must be approved by an Underwriters Laboratory or meet Forest Service specification 6170-47. The chaps shall cover the full length of the thigh and shall extend to the top of the boot on each leg.

The Partner and/or sub partners shall assure that each employee wears foot protection that provides adequate traction and ankle support. Employees operating chain saws shall wear foot protection that is constructed with cut-resistant material which will protect the employee against contact with a running chain saw.

In any area where the worker is exposed to the potential for flying or falling objects, the Partner and/or sub partners shall provide a hard hat, at no cost to the employee, and the Partner and/or sub partners shall assure that the employee wears the hard hat. The hard hat must meet the minimum requirements of American National Standards Institute (ANSI) standard Z89.1-1997.

The Partner and/or sub partners shall provide, at no cost to the employee, eye protection where there is potential for eye injury due to flying objects. This eye protection must meet the minimum requirements of ANSI standard Z87.1-2003.

The Partner and/or sub partners shall provide, at no cost to the employee, hearing protection where there is a potential for hearing loss due to high intensity noise for example, chain saw operation.

On or prior to the first day of work, Forest Service personnel will review applicable Job Hazard Analyses (JHA) with the Partner's crew. These JHAs will cover, at a minimum, chain saw work.

Partner Quality Control

A. Quality Control Plan. The Partner shall provide a Quality Control Plan (QCP) prior to the start of work. The Plan must demonstrate how the Partner will assure that quality of performance meets the objectives and requirements of the agreement. The QCP shall specify:

1. How quality will be monitored to assure performance standards are met.
2. How the work will be supervised.
3. How results of the monitoring will result in quality performance.
4. Identify the personnel responsible for performing quality control.

B. Partner Quality Control Inspection. The Partner shall assure that performance meets specifications, in accordance with this agreement, prior to requesting the Government to inspect for payment or acceptance. The Partner shall contact the U.S. Forest Service Program Manager to set a mutually agreed upon date for inspection of completed work.

Government Quality Assurance Surveillance Plan and Acceptance Requirements

A. Government Quality Assurance Inspection. The Government will make periodic inspections of the work to assure itself of partner compliance and to perform Quality Assurance Inspections to confirm that the Partner is performing quality control in accordance with its QCP and that Partner monitoring results in quality performance of objectives.

B. Acceptance. Acceptance of the work will be made after steps in (A) above have been taken and the U.S. Forest Service Program Manager or a designated inspector has made the determination of satisfactory compliance with the specifications.

Inspection, Re-inspection and Acceptance

A. Compliance Inspection

The U.S. Forest Service Program Manager or a designated inspector may, by visual or formal inspection, determine if the specified methods of work have been used. Failure to use specified methods shall require prompt corrective action. Failure to take prompt and satisfactory corrective action may be cause for termination of Partner's right to proceed and the partner considered in default.

B. Inspection Procedures

Tree cutting and slash disposal will be accepted on the basis of visual and/or formal inspection by the Forest Service Agreement Representative. If a formal inspection is deemed necessary at either stage, the Partner's representative is encouraged to observe the inspection and will receive inspection summaries upon request. The following procedure will be used for a formal inspection:

(1) A series of 1/20th-acre (¼-acre for pile inspection) circular plots will be randomly distributed across each unit to sufficiently show representation of the treatment. The following table shows the required amount of plots to be utilized for each unit:

UNIT ACREAGE	NUMBER OF PLOTS
0-39	1 plot per 2 acres
40-80	20 plots
81+	1 plot per 4 acres

(2) ***Cutting/Slash Treatment Inspection***

(a) Each plot will be examined to record findings on the items listed below:

i. # Satisfactory Leave Trees – trees left that should have been left according to prescription
ii. # Trees Cut – trees that were cut
iii. # Satisfactory Cut Trees – trees cut that should have been cut according to prescription
iv. # Stumps – stumps found within plot
v. # Satisfactory Stumps – stumps that met prescription
vi. # Satisfactory Piles – piles that met prescription

(b) Each unit will be inspected separately and inspection results on one unit will not be averaged with those of other units. Upon inspection of all plots for a unit the quality of thinning/slash treatment shall be calculated as follows:

i. **Cut Quality**: To determine the cut quality percentage:

$$\text{Cut Quality \%} = \frac{\text{\# Satisfactory Cut Trees X 100}}{\text{\# Trees Cut}}$$

ii. **Stump Quality**: To determine the stump quality percentage:

$$\text{Stump Quality \%} = \frac{\text{\# Satisfactory Stumps x 100}}{\text{\# Stumps}}$$

iii. **Pile Quality**: To determine pile quality percentage:

$$\text{Pile quality \%} = \frac{\text{\# Satisfactory Piles} \times 100}{\text{\# Piles}}$$

C. Acceptance

Acceptable work – The acceptable standard for leave quality, cut quality, stump quality, is 90% or greater. The acceptable standard for pile quality is 95% or greater.

Unacceptable work – When work quality falls below the acceptable levels described above, work is considered unacceptable and must be reworked if possible. Inspections after rework shall be made in the same manner as the first inspection but on different plots. Unacceptable work that cannot be reworked and rework that is still unacceptable are both grounds for considering termination of the agreement.

Washing of Equipment

The Partner shall wash all equipment except for hauling vehicles prior to entering National Forest Land. Remove all soil which could contain noxious weed seed. Remove grease and oil from drive mechanisms which would be discharged into the stream when equipment is operating. Prior to transporting equipment to the site, assure that the equipment's hydraulic, lubrication and fuel systems are free from leaks.

Resource Protection Standards

A. Soil Quality

Soil erosion is directly related to the amount of cover that is left intact to reduce the impact of rainfall. Logs, litter, duff and rock are effective in reducing soil displacement from raindrop impact.

The Partner's activities shall be executed in a manner to retain the natural contour of the ground. Any mounding up of soil should be returned to the natural contour as part of the work process.

The Partner's activities shall be executed to minimize disturbing the duff layer.

Soil compaction also has a direct effect on soil erosion and site productivity. Soil moisture content, equipment ground pressure and number of passes are related to soil compaction. For soil productivity, a minimum of 80% of an activity area will be in a non-compacted, non-puddled, and/or non-displaced condition.

B. Water Quality

The following measures shall be observed to protect stream courses:

(a) Partner's operations shall be conducted to prevent debris from entering stream courses. Partner shall remove such debris as soon as practicable, but not to exceed 48 hours, and in an agreed manner that will cause the least disturbance to stream courses.
(b) Wheeled or track-laying equipment shall not be operated in stream courses except at crossings designated by Forest Service.

Partner shall:

- Protect permanent and seasonal wet areas from mechanical disturbance.
- Minimize disturbance of surface vegetation.
- Not operate wheeled or track-laying equipment in meadows.

C. Erosion Control

Adequate erosion control measures (i.e., placement of slash) will be taken as directed by the Forest Service. Erosion control measures must be in place before seasonal periods of precipitation or run-off, or Partner must cease of operations in the project area.

D. Other Resource Protection

All of the activities associated with this project shall be conducted in such a manner that there shall not be any adverse impact to the following resources listed.

Partner, in all phases of operations, shall protect insofar as practicable all land survey corners, post markers, bearing trees, aboveground utility lines, underground utility lines, ditches, fences, and other improvements. If such improvements are damaged by Partner's operations under this contract, Partner shall restore them immediately to condition existing immediately prior to operations. All roads and trails, designated by Forest Service as needed for fire protection or other purposes, shall at all times be kept free of logs, brush, and debris resulting from Partner's operations. Partner shall promptly restore roads or trails damaged through such use. Partner's use of existing roads may be restricted as indicated on unit maps.

Protection of Protected Species - The location of areas needing special measures for protection of plants or animals listed as threatened or endangered under the Endangered Species Act of 1973, 16 U.S.C. 1531, et seq., or a sensitive species identified by the Regional Forester have been identified on-the-ground by the Forest Service prior to award of this contract and these locations are shown on the project area map. If the Contracting Officer determines that protection measures are inadequate, if other such areas are discovered, or if new species are listed on the Endangered Species List, Contracting Officer may either cancel, in whole or in part, or unilaterally modify this contract to provide additional protection regardless of when such facts become known. Discovery of such areas by either party shall be promptly reported to the other party. This provision and any protections listed pursuant to this provision do not constitute a warranty of any kind, either express or implied, including, but not limited to, implied

warranties of merchantability or fitness for a particular purpose. Partner is on notice that special protection measures not currently listed may be required at any time.

Protection of Cultural Resources - Locations of known historic or prehistoric sites, buildings, objects, and properties related to American history, architecture, archaeology, and culture, such as settler or Indian artifacts, protected by American Antiquities Act of 1906 (16 U.S.C. 431-433), National Historic Preservation Act of 1966 (16 U.S.C. 470), and the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-ll) (36 CFR 296.4 and 36 CFR 261.9(g)), shall be identified on the ground by Forest Service. Forest Service may unilaterally modify or cancel this contract to protect an area, object of antiquity, artifact, or similar object that is or may be entitled to protection under these acts, regardless of when the area, object, or artifact is discovered or identified. Discovery of such areas by either party shall be promptly reported to the other party and operations will be suspended at that location until the significance or potential significance of the site is determined.

Partner shall protect all known and identified historic or prehistoric sites, buildings, objects, and properties related to American history, architecture, archaeology, and culture against destruction, obliteration, removal, or damage during Purchaser's Operations. Partner shall immediately notify the Forest Service if disturbance occurs to any known site and shall immediately halt operations in the vicinity of the site until Forest Service authorizes the Partner to proceed. Partner shall bear costs of evaluation and restoration in accordance with 36 CFR 296.14(c), provided that such payment shall not relieve Partner from civil or criminal remedies otherwise provided by law.

Wheeled or track-laying equipment shall not be operated within such areas. Unless agreed otherwise, trees will not be felled into such areas.

Submittals

The partner shall deliver the following submittals prior to the start of work:

A. Quality Control Plan

The Partner shall provide a Quality Control Plan (QCP) demonstrating how the Partner will assure that quality of performance meets the objectives and requirements of the agreement.

B. Schedules of Work

The Partner shall prepare and submit a practical schedule showing the order in which the partner will perform the work and the dates on which the partner contemplates starting and completing and inspecting each task (delivery order).

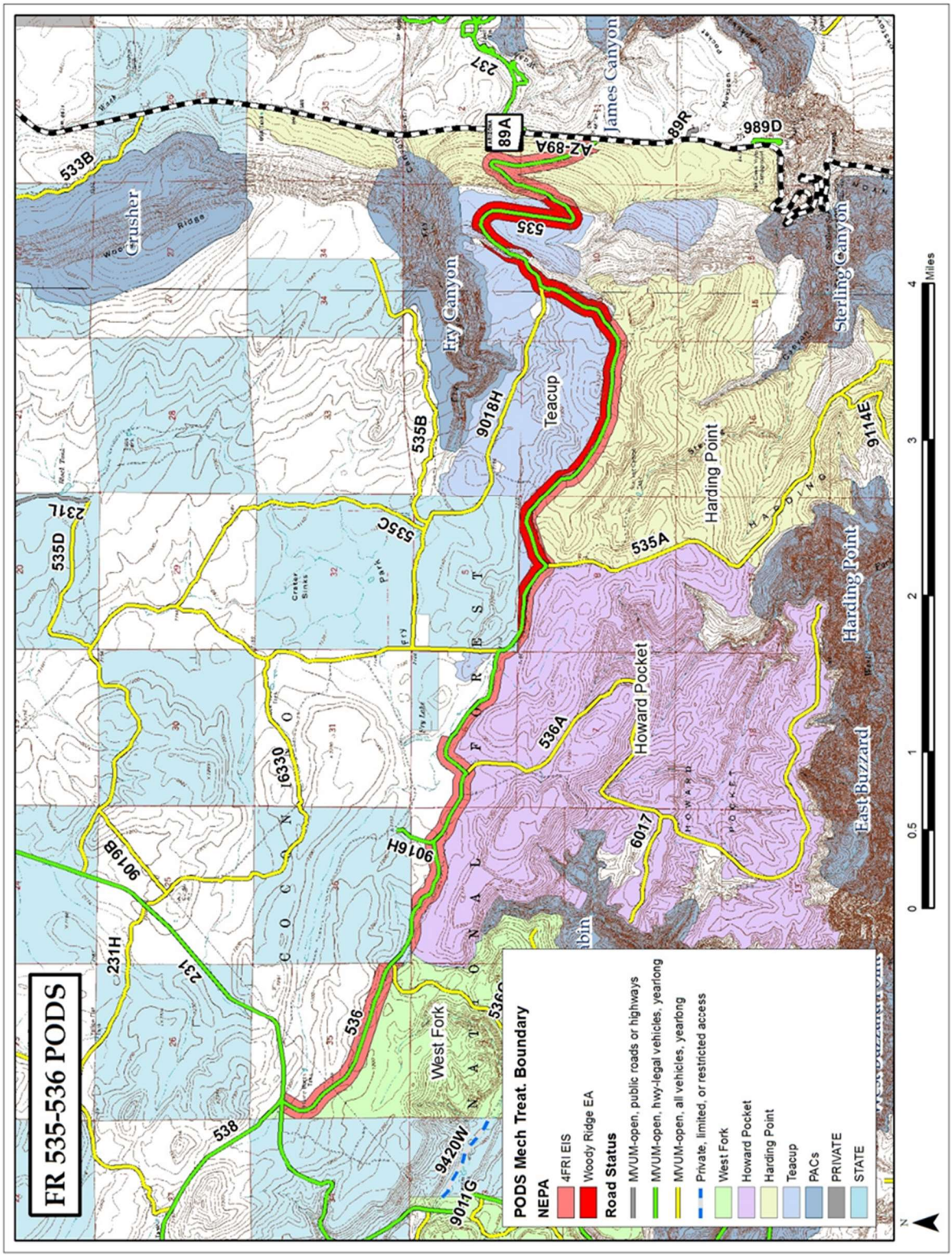
C. Safety Plan

The partner shall prepare and submit a safety plan to provide for worker and public safety.

LIST OF ATTACHMENTS

ATTACHMENT 1 -- PROJECT AREA MAP

ATTACHMENT 1 – Project Area Map



Instructions: Use this form in conjunction with Forest Service Handbook (FSH) 1509.11, Ch. 70, Financial Planning Requirements, for participating, challenge cost-share, joint venture, and cost-reimbursable agreements. This form may be used for other types of Forest Service Manual 1580 agreements, when useful. Choose one of the three (3) financial plan versions and complete. Each version requires identical information and result in calculations and cost analysis that are the same. Version 1 cost analysis data values are automatically entered into the financial plan matrix. Version 2 requires manual entry of the cost analysis data values into the financial plan matrix. Version 3 should be used if there are multiple Cooperators. Users do not have to use or print versions/sheets that are not applicable to their agreement.

The purpose of this form is to capture the total estimated value of the proposed agreement. Once the agreement is approved, in writing, by the parties, then this financial plan becomes the financial estimates for the agreement. This financial plan must display the parties' expected contributions to the agreement. These contributions should be broken down by party contribution type (e.g., non-cash, in-kind, cash to cooperator), see below for definitions, and cost elements (e.g., salaries, supplies, travel). Cost element values should be the result of documented cost analysis on this form. Each financial plan version provides samples of cost analysis calculations, see associated Excel comment balloons. Additional instructions are located on version 1 cost analysis tabs.

Definitions for the Matrix Column Headings:

(a) Forest Service Noncash Contribution: Forest Service noncash contributions may consist of employee salaries, overhead (indirect), travel provided, and/or equipment and supplies purchased and provided to the Cooperator for use in the project. These costs are an expense to the Forest Service, but do not include funding for reimbursement of Cooperator expenses.

(b) Forest Service Cash to Cooperator: This is the maximum amount of funding that will be reimbursed or advanced by the Forest Service to the Cooperator. This is an expense to the Forest Service.

(c) Cooperator Noncash Contribution: These are expenses the Cooperator incurs that are contributed to the project in lieu of cash, but for which costs are incurred, such as employee salaries, overhead (indirect costs), travel, equipment, supplies, and so forth. These do not include in-kind contributions from third parties, such as donations from other entities or volunteer labor. All the costs listed here are an expense to the Cooperator.

(d) Cooperator In-Kind Contribution: In-kind contribution provided to the Cooperator from a third party organization(s) for use in the project for which the Cooperator has incurred no expense. Value assessed for volunteer labor and donated materials, equipment and supplies should be valued based on FSH 1509.11, Ch. 70. These values are not reimbursable and can only be used to satisfy the Cooperator's matching requirement. Display these contributions by Cost Element Expenditures.

(e) Total Project Value: The sum of all the values provided toward the project. This figure reflects the true estimated cost of the project.

Definitions for Cost Allowability

(a) Allowable Cost: A cost, as recorded on the Agreements Financial Plan (Long, Medium, and Short) forms, associated with an agreement, which meets the criteria for authorized expenditures specific in a cost principle methodology. Generally, it meets the cost principle methodology, and is a cost the parties to an agreement intend to charge, and must be: Reasonable for the performance of the award; Necessary and reasonable for proper and efficient performance and administration of the agreement; Consistently treated as either a direct or indirect cost; Generally, determined in accordance with generally accepted accounting principles (GAAP);
Net of all applicable credits (that is, less any future rebates from the purchase of goods or services); Separate from a cost or from a cost-sharing/matching requirement of another Federal award or agreement, unless otherwise permitted by Federal law or regulation; Adequately documented; Authorized or not prohibited by Federal, State, or local laws and regulations; Compliant with limits or exclusions on types or amounts of costs, as set forth in relevant Federal laws, agreement terms and conditions, or other governing regulations (examples of such costs include: entertainment, alcohol, and taxes); and,Consistent with the agency's and cooperator's internal policies, regulations, and procedures that apply to both Federal awards or agreements and other cooperator activities.

(b) Allocable Cost: A cost, as recorded on the Agreements Financial Plan (Long, Medium, and Short) forms, associated with an agreement, which in accordance with the relative benefit received by either party for the award, is treated consistently with other costs incurred for the same purpose and in like circumstances, and if it: Is incurred specifically for the award; Benefits both the award and other ancillary work, and the cost may be distributed in reasonable proportion to the benefits received (an example of this type of cost is a piece of equipment that is used for multiple projects); or Necessary to the overall operation of the organization, although a direct relationship to any particular cost objective may not be shown.

(c) Reasonable Cost: A cost, as recorded on the Agreements Financial Plan (Long, Medium, and Short) forms, associated with an agreement, that, in its nature and amount, does not exceed an amount that a prudent person, under the circumstances prevailing at the time the decision was made, would incur. Other factors to consider are: Whether the cost is of a type generally recognized as ordinary and necessary for the entity's operation or agreement performance; The restraints or requirements imposed by factors such as generally accepted, sound, business practices; arms-length bargaining; Federal and State laws and regulations; and the terms and conditions of the agreement; Market prices or industry standard costs for similar goods and services (that is, is the cooperator offering goods or services for an amount that exceeds what is readily available in the marketplace); Whether individuals concerned acted with prudence under the circumstances, considering their responsibilities to the entity; its members, employees, and clients; the public; and the government; and Significant deviations from established practices of the governmental entity that might unjustifiably increase costs charged to the agreement.

Burden Statement

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0217. The time required to complete this information collection is estimated to average 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

U.S. Forest Service

Attachment: B

USFS Agreement No.: **22-PA-11030408-xxx** Mod. No.:

Cooperator Agreement No.:

Note: This Financial Plan may be used when:
(1) No program income is expected and
(2) The Cooperator is not giving cash to the FS and
(3) There is no other Federal funding

Agreements Financial Plan (Short Form)

Financial Plan Matrix: Note: All columns may not be used. Use depends on source and type of contribution(s).

	FOREST SERVICE CONTRIBUTIONS		COOPERATOR CONTRIBUTIONS		
	(a)	(b)	(c)	(d)	
COST ELEMENTS	Noncash	Cash to Cooperator	Noncash	In-Kind	
Direct Costs					
Salaries/Labor		$91,500.00	$14,660.00	$0.00	
Travel		$0.00	$0.00	$0.00	
Equipment		$0.00	$9,500.00	$0.00	
Supplies/Materials		$0.00	$0.00	$0.00	
Printing		$0.00	$0.00	$0.00	
Other		$265,500.00	$0.00	$0.00	
Other					
Subtotal	$0.00	$357,000.00	$24,160.00	$0.00	
Coop Indirect Costs		$22,670.00	$6,165.63		
FS Overhead Costs	$0.00				
Total	$0.00	$379,670.00	$30,325.63	$0.00	
Total Project Value:					

Matching Costs Determination	
Total Forest Service Share = (a+b) ÷ (e) = (f)	(f) 92.60%
Total Cooperator Share (c+d) ÷ (e) = (g)	(g) 7.40%
Total (f+g) = (h)	(h) 100.00%

WORKSHEET FOR

FS Non-Cash Contribution Cost Analysis, Column (a)

Use this worksheet to perform the cost analysis that supports the lump sum figures provided in the matrix. NOTE: This worksheet auto populates the relevant and applicable matrix cells.

Cost element sections may be deleted or lines may be hidden, if not applicable. Line items may be added or deleted as needed. The Standard Calculation sections provide a standardized formula for determing a line item's cost, e.g. cost/day x # of days=total, where the total is calculated automatically. The Non-Standard Calculation sections provide a write-in area for line items that require a calculation formula that is other than the standardized formules, e.g. instead of salaries being calculated by cost/day x # of days, costs may be calculated simply by a contracted value that is not dependent on days worked, such as 1 employee x $1,200/contract= $1,200. Be sure to review your calculations when entering in a Non-Standard Calculation, and provide a brief explanation of units used to make calculation, e.g. '1 month contract,' on a line below the figures.

Salaries/Labor

Standard Calculation

Job Description		Cost/Day	# of Days		Total
					$0.00
					$0.00
					$0.00

Non-Standard Calculation

Total Salaries/Labor		**$0.00**

Travel

Standard Calculation

Vehicles	Cost/Mile	# of Miles	Cost/Month	# of Months	Total
					$0.00
					$0.00
					$0.00
					$0.00

Non-Standard Calculation

Total Travel		**$0.00**

Equipment

Standard Calculation

Piece of Equipment	# of Units	Cost/Day	# of Days		Total
					$0.00
					$0.00
					$0.00
					$0.00

Non-Standard Calculation

Total Equipment		**$0.00**

Supplies/Materials

Standard Calculation

Supplies/Materials		# of Items	Cost/Item	Total

$0.00

Non-Standard Calculation

Total Supplies/Materials		**$0.00**

Printing

Standard Calculation

Paper Material		# of Units	Cost/Unit		Total

$0.00

Non-Standard Calculation

Total Printing		**$0.00**

Other Expenses

Standard Calculation

Item		# of Units	Cost/Unit		Total

$0.00
$0.00
$0.00
$0.00

Non-Standard Calculation

Total Other		**$0.00**

Subtotal Direct Costs	$0.00

Forest Service Overhead Costs

Current Overhead Rate	Subtotal Direct Costs			Total
8.00%	$0.00			$0.00
Total FS Overhead Costs				**$0.00**

TOTAL COST	**$0.00**

WORKSHEET FOR

FS Cash to the Cooperator Cost Analysis, Column (b)

Use this worksheet to perform the cost analysis that supports the lump sum figures provided in the matrix. NOTE: This worksheet auto populates the relevant and applicable matrix cells.

Cost element sections may be deleted or lines may be hidden, if not applicable. Line items may be added or deleted as needed. The Standard Calculation sections provide a standardized formula for determing a line item's cost, e.g. cost/day x # of days=total, where the total is calculated automatically. The Non-Standard Calculation sections provide a write-in area for line items that require a calculation formula that is other than the standardized formules, e.g. instead of salaries being calculated by cost/day x # of days, costs may be calculated simply by a contracted value that is not dependent on days worked, such as 1 employee x $1,200/contract= $1,200. Be sure to review your calculations when entering in a Non-Standard Calculation, and provide a brief explanation of units used to make calculation, e.g. '1 month contract,' on a line below the figures.

Salaries/Labor

Standard Calculation

Job Description		Cost/Acre	# of Acres		Total
Fuel Break Construction		$1,500.00	61.00		$91,500.00
					$0.00
					$0.00
					$0.00
					$0.00

Non-Standard Calculation

Total Salaries/Labor					**$91,500.00**

Travel

Standard Calculation

Travel Expense	Employees	Cost/Trip	# of Trips		Total
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00

Non-Standard Calculation

Total Travel					**$0.00**

Equipment

Standard Calculation

Piece of Equipment	# of Units	Cost/Day	# of Days		Total
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00

Non-Standard Calculation					

Total Equipment					$0.00

Supplies/Materials					
Standard Calculation					
Supplies/Materials		# of Items	Cost/Item		Total
					$0.00
					$0.00
					$0.00
					$0.00
Non-Standard Calculation					

Total Supplies/Materials					$0.00

Printing					
Standard Calculation					
Paper Material		# of Units	Cost/Unit		Total
					$0.00
Non-Standard Calculation					
					$0.00
Total Printing					$0.00

Other Expenses					
Standard Calculation					
Item		# of Acres	Cost/Unit		Total
Thinning Contract		177.00	$1,500.00		$265,500.00
					$0.00
					$0.00
					$0.00
Non-Standard Calculation					

Total Other					$265,500.00

Subtotal Direct Costs	$357,000.00

Cooperator Indirect Costs				
Current Overhead Rate	Subtotal Direct Costs			Total
6.35%				$22,670.00
Total Coop. Indirect Costs				$22,670.00

Rate shown is proposed FY23. Final FY23 NICRA is still pending. The actual NICRA rate at the time an expense is incurred is what will be used.

TOTAL COST	$379,670.00

WORKSHEET FOR

Cooperator Non-Cash Contribution Cost Analysis, C

Use this worksheet to perform the cost analysis that supports the lump sum figures provided in the m
worksheet auto populates the relevant and applicable matrix cells.

Cost element sections may be deleted or lines may be hidden, if not applicable. Line items may be a
needed. The Standard Calculation sections provide a standardized formula for determing a line item'
days=total, where the total is calculated automatically. The Non-Standard Calculation sections provid
items that require a calculation formula that is other than the standardized formules, e.g. instead of sa
cost/day x # of days, costs may be calculated simply by a contracted value that is not dependent on d
employee x $1,200/contract= $1,200. Be sure to review your calculations when entering in a Non-Sta
provide a brief explanation of units used to make calculation, e.g. '1 month contract,' on a line below t

Salaries/Labor				
Standard Calculation				
Job Description		Cost/Day	# of Days	
Widlland Fire Captain (Chapman)		$453.00	20.00	
Wildland Fire Battalion Chief (Oltrogge)		$560.00	10.00	
Non-Standard Calculation				
Total Salaries/Labor				

Travel				
Standard Calculation				
Travel Expense	Employees	Cost/Trip	# of Trips	
Non-Standard Calculation				
Total Travel				

Equipment				
Standard Calculation				
Piece of Equipment	# of Units	Cost/Day	# of Days	
Crew Truck	1.00	$190.00	50.00	
Non-Standard Calculation				
Total Equipment				

Supplies/Materials			
Standard Calculation			
Supplies/Materials		# of Items	Cost/Item

Non-Standard Calculation				

Total Supplies/Materials	

Printing				
Standard Calculation				
Paper Material		# of Units	Cost/Unit	

Non-Standard Calculation				

Total Printing	

Other Expenses				
Standard Calculation				
Item		# of Units	Cost/Unit	

Non-Standard Calculation				

Total Other	

Subtotal Direct Costs	$24,1

Cooperator Indirect Costs			
Current Overhead Rate	Subtotal Direct Costs		
25.52%	$24,160.00		
Total Coop. Indirect Costs			

Rate shown is proposed FY23. Final FY23 NICRA is still pending. The actual NICRA rate at the time a
what will be used.

TOTAL COST	**$30,325.6**

olumn (c)

atrix. NOTE: This

dded or deleted as
s cost, e.g. cost/day x # of
le a write-in area for line
alaries being calculated by
lays worked, such as 1
ndard Calculation, and
he figures.

Total
$9,060.00
$5,600.00

$14,660.00

Total
$0.00

$0.00

Total
$9,500.00
$0.00

$9,500.00

Total
$0.00

$0.00

$0.00

Total

$0.00

$0.00

$0.00

Total

$0.00

$0.00

60.00

Total

$6,165.63

$6,165.63

an expense is incurred is

3

WORKSHEET FOR

Cooperator In-Kind Contribution Cost Analysis, Column (d)

Use this worksheet to perform the cost analysis that supports the lump sum figures provided in the matrix.
NOTE: This worksheet auto populates the relevant and applicable matrix cells.

Cost element sections may be deleted or lines may be hidden, if not applicable. Line items may be added or deleted as needed. The Standard Calculation sections provide a standardized formula for determing a line item's cost, e.g. cost/day x # of days=total, where the total is calculated automatically. The Non-Standard Calculation sections provide a write-in area for line items that require a calculation formula that is other than the standardized formules, e.g. instead of salaries being calculated by cost/day x # of days, costs may be calculated simply by a contracted value that is not dependent on days worked, such as 1 employee x $1,200/contract= $1,200. Be sure to review your calculations when entering in a Non-Standard Calculation, and provide a brief explanation of units used to make calculation, e.g. '1 month contract,' on a line below the figures.

Salaries/Labor

Standard Calculation

Job Description		Cost/Day	# of Days		Total
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00

Non-Standard Calculation

Total Salaries/Labor		**$0.00**

Travel

Standard Calculation

Travel Expense	Employees	Cost/Trip	# of Trips		Total
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00

Non-Standard Calculation

Total Travel		**$0.00**

Equipment

Standard Calculation

Piece of Equipment	# of Units	Cost/Day	# of Days		Total
					$0.00
					$0.00
					$0.00
					$0.00
					$0.00

Non-Standard Calculation

Total Equipment	$0.00

Supplies/Materials				
Standard Calculation				
Supplies/Materials		# of Items	Cost/Item	Total
				$0.00
				$0.00
				$0.00
				$0.00
Non-Standard Calculation				

Total Supplies/Materials	$0.00

Printing					
Standard Calculation					
Paper Material		# of Units	Cost/Unit		Total
					$0.00
Non-Standard Calculation					

Total Printing	$0.00

Other Expenses					
Standard Calculation					
Item		# of Units	Cost/Unit		Total
					$0.00
					$0.00
					$0.00
					$0.00
Non-Standard Calculation					

Total Other	$0.00

Subtotal Direct Costs	$0.00

TOTAL COST	$0.00

U.S. Forest Service

Attachment:

USFS Agreement No.:

Cooperator Agreement No.:

Mod. No.:

Note: This Financial Plan may be used when:
(1) No program income is expected and
(2) The Cooperator is not giving cash to the FS and
(3) There is no other Federal funding

Agreements Financial Plan (Short Form)

Financial Plan Matrix: Note: All columns may not be used. Use depends on source and type of contribution(s)

	FOREST SERVICE CONTRIBUTIONS		COOPERATOR CONTRIBUTIONS		
	(a)	(b)	(c)	(d)	
COST ELEMENTS	Noncash	Cash to Cooperator	Noncash	In-Kind	(e) To
Direct Costs					
Salaries/Labor					
Travel					
Equipment					
Supplies/Materials					
Printing					
Other					
Other					
Subtotal	$0.00	$0.00	$0.00	$0.00	
Coop Indirect Costs					
FS Overhead Costs					
Total	$0.00	$0.00	$0.00	$0.00	
Total Project Value:					

Matching Costs Determination	
Total Forest Service Share =	(f)
(a+b) ÷ (e) = (f)	#DIV/0!
Total Cooperator Share	(g)
(c+d) ÷ (e) = (g)	#DIV/0!
Total (f+g) = (h)	(h)
	#DIV/0!

U.S. Forest Service

2. Cost Analysis:

Use the following section to show additional information that supports the lump sum figures provided ab
Cost Analysis boxes, (a)-(d), should provide a cost analysis of the corresponding matrix columns, (a)-(d), above,
(a) *FS Non-Cash Contribution* should be analyzed under block (a), below, and matrix column (b) *FS In-Kind Cor*
analyzed under block (b), below, etc. Furthermore, each cost analysis box, below, should have clear labels indic
element, above, is being analyzed, e.g. Salary/Labor = hrs or days x rate; Travel = miles x rate, or months x FOR
per diem rate; Equipment Use = hrs or days x rate; Supplies & Materials--list of items and estimated cost; Printin
per item; Indirect Cost = Direct cost x current indirect rate.

If necessary, add additional sheets for cost analysis. To compress any unwanted portion(s) of this sectio
section to be hidden, then select "Format", "Row", and "Hide" from the toolbar.

Column (a)
Forest Service Noncash Contribution

Column (b)
Forest Service Cash to Cooperator

Column (c)
Cooperator Noncash Contribution

Column (d)
Cooperator Third Party In-Kind Contribution

U.S. Forest Service

Attachment:

USFS Agreement No.:

Cooperator Agreement No.:

Mod. No.:

Note: This Financial Plan may be used when:
(1) No program income is expected and
(2) The Cooperator is not giving cash to the FS and
(3) There is no other Federal funding

Agreements Financial Plan (Short Form)

Financial Plan Matrix: Note: All columns may not be used. Use depends on source and type of contribution(s).

	FOREST SERVICE CONTRIBUTIONS		COOPERATOR 1 CONTRIBUTIONS		COOPERATOR 2 CONTRIBU	
	(a)	(b)	(c)	(d)	(e)	(f
COST ELEMENTS	Noncash	Cash to Cooperator	Noncash	In-Kind	Noncash	In-K
Direct Costs						
Salaries/Labor						
Travel						
Equipment						
Supplies/Materials						
Printing						
Other						
Other						
Subtotal	$0.00	$0.00	$0.00	$0.00	$0.00	
Coop Indirect Costs						
FS Overhead Costs						
Total	$0.00	$0.00	$0.00	$0.00	$0.00	
Total Project Value:						

Matching Costs Determination	
Total Forest Service Share =	(h)
(a+b) ÷ (g) = (h)	#DIV/0!
Total Cooperator Share	(i)
(c+d+e+f) ÷ (g) = (i)	#DIV/0!
Total (h+i) = (j)	(j)
	#DIV/0!

U.S. Forest Service

2. Cost Analysis:

Use the following section to show additional information that supports the lump sum figures provided above. The followir provide a cost analysis of the corresponding matrix columns, (a)-(d), above, e.g. matrix column (a) *FS Non-Cash Contribution* shou and matrix column (b) *FS In-Kind Contribution* should be analyzed under block (b), below, etc. Furthermore, each cost analysis bo indicating which cost element, above, is being analyzed, e.g. Salary/Labor = hrs or days x rate; Travel = miles x rate, or months x F Equipment Use = hrs or days x rate; Supplies & Materials--list of items and estimated cost; Printing = estimated cost per item; Indir rate.

If necessary, add additional sheets for cost analysis. To compress any unwanted portion(s) of this section, highlight the "Format", "Row", and "Hide" from the toolbar.

Column (a)
Forest Service Noncash Contribution

Column (b)
Forest Service Cash to Cooperator

Column (c)
Cooperator Noncash Contribution

Column (d)
Cooperator Third Party In-Kind Contribution

Column (e)	Column (f)
Cooperator Noncash Contribution	Cooperator Third Party In-Kind Contribution

From: Megan R. Dales
To: Neil Chapman
Subject: RE: 23-PA-11030400-218 - Initial Review
Date: Tuesday, August 8, 2023 11:27:37 AM
Attachments: image001.png
image002.png

Hi Neil – based on this I believe we are ready to move forward with adding this to Agenda Quick. To my understanding, that is something you would do. Do you need my assistance in any additional pieces?

From: Marianne Sullivan <MSullivan@flagstaffaz.gov>
Sent: Friday, August 4, 2023 11:53 AM
To: Megan R. Dales <megan.dales@flagstaffaz.gov>
Cc: Keith Chamberlain <Keith.Chamberlain@flagstaffaz.gov>; Stacey Brechler-Knaggs <sknaggs@flagstaffaz.gov>; Neil Chapman <Neil.Chapman@flagstaffaz.gov>
Subject: RE: 23-PA-11030400-218 - Initial Review

The contract language looks good to me.

Marianne

From: Megan R. Dales <megan.dales@flagstaffaz.gov>
Sent: Monday, July 31, 2023 1:34 PM
To: Marianne Sullivan <MSullivan@flagstaffaz.gov>
Cc: Keith Chamberlain <Keith.Chamberlain@flagstaffaz.gov>; Stacey Brechler-Knaggs <sknaggs@flagstaffaz.gov>; Neil Chapman <Neil.Chapman@flagstaffaz.gov>
Subject: 23-PA-11030400-218 - Initial Review

Hi Marianne,
We received the attached SPA which is ready for your initial review prior to being sent to council for approval. The Master Participating Agreement that this SPA is tied to is here.

Megan Dales
Grants and Contracts Manager
City of Flagstaff|211 West Aspen|Flagstaff, AZ 86001
(E): megan.dales@flagstaffaz.gov
(P): 928-213-2204



CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Neil Chapman, Forest Health Supervisor
Co-Submitter:	Mark Reavis
Date:	08/31/2023
Meeting Date:	09/05/2023

TITLE:

Consideration and Approval of Contract: This Supplemental Project Agreement is between the City of Flagstaff and the U.S. Department of Agriculture,Coconino National Forest for the implementation of cultural resource surveys.

STAFF RECOMMENDED ACTION:

Approve the Supplemental Project Agreement with the Coconino National Forest in the amount of $1,153,736.50.

Executive Summary:

This agreement is for the Coconino National Forest Supplemental Project Agreement Award 263-PA-11030400-261 which provides for cultural surveys, site revisits, reporting, data entry and management of Natural Resource Manager (NRM) cultural resource database of record, and other cultural resources work as needed in order to prepare priority areas across the Flagstaff Ranger District for prescribed fire operations.

Financial Impact:

The Supplemental Project Agreement is for a total project cost of $1,153,736.50. The Federal contribution is $1,081,604 and the City of Flagstaff is contributing $72,132.50 in non-cash staff and equipment time. This is a multiple year agreement/project. The agreement includes the USFS covering the indirect cost rate of 10% ($90,909.09). None of the reimbursable funds will be spent this FY. The Flagstaff Fire Department Wildfire Management (WFM) section has not budgeted for this agreement in FY2023-24. This agreement came together after the FY2023-24 budget was finalized. We will not be spending any funds related to this agreement until FY2024-25 and will budget accordingly moving forward.

Policy Impact:

This agreement allows the City of Flagstaff to add significant capacity for wildfire risk reduction based cultural resource survey clearance work across the Flagstaff Ranger District. In addition, this agreement creates new partnership opportunities with the US Forest Service as we will be supporting prescribed fire planning in addition to operations.

Connection to PBB Priorities/Objectives, Carbon Neutrality Plan & Regional Plan:

Priority Based Budget Key Community Priorities and Objectives

- High Performing Governance: Implement innovative local government programs
- Safe and Healthy Community: Ensure built environment is safe through the use of consistent standards, rules and regulations, & land use practices
- Environmental Stewardship: Promote, protect & enhance a healthy, sustainable environment & its natural resources
- Environmental Stewardship: Strengthen Flagstaff's resilience to climate change impacts on built, natural, economic, health, & social systems

Carbon Neutrality Plan

- CR-1: Ensure all mitigation actions improve Flagstaff's ability to adapt to the future.
- CR-2: Strengthen existing community systems to create resilience to both short-term shocks and long-term change.

Consolidating carbon stocks in fewer, larger trees reduces the risk of carbon loss from fire. The pre-suppression forest structure provides the best target for maintaining sustainable carbon stocks and ecological function. Implementing prescribed fire after mechanical thinning treatments supports the maintenance of the restored natural tree structure and pattern.

Regional Plan

- Environmental Planning & Conservation – Vision for the Future: In 2013, the long-term health and viability of our natural resource environment is maintained through strategic planning for resource conservation and protection.
- Policy E&C.3.3 – Invest in forest health and watershed protection measures.
- Policy E&C.6.1 – Encourage public awareness that the region’s ponderosa pine forest is a fire-dependent ecosystem and strive to restore more natural and sustainable forest composition, structure, and processes.
- Policy E&C.6.3 – Promote protection, conservation, and ecological restoration of the region’s diverse ecosystem type and associated animals.
- Policy E&C.6.6 – Support collaborative efforts for forest health initiatives or practices, such as the Four Forest Restoration Initiative (4FRI), to support healthy forests and protect our water system.
- Policy E&C.10.2 – Protect, conserve, and when possible, enhance and restore wildlife habitat on public land.

Has There Been Previous Council Decision on This:

Council has not previously discussed this specific Supplemental Project Agreement.
This Supplemental Project Agreement is housed under the Master Participating Agreement that Council approved on April 19th, 2022.
A similar Supplemental Project Agreement for cultural resource surveys was approved by Council on January 3rd, 2023.

Options and Alternatives:

Approving this agreement will allow this important work to begin in a timely manner. Not approving the agreement will delay this work and possibly allow the funds to be diverted to USFS projects outside of the Coconino National Forest.

Background/History:

Severe and destructive wildfire is an annual and ever-present threat to our forests and the community. Forested areas that have undergone science based ecological restoration treatments are healthier, more fire adapted, at a lower risk of carbon loss, and enhance public safety and infrastructure protection. A Master Participating Agreement (MPA) between the U.S. Department of Agriculture, Forest Service, Coconino National Forest, and the City of Flagstaff was approved by Council on April 19, 2022. This
MPA allows for Supplemental Project Agreements based on watershed protection.

Before prescribed fires can be implemented on National Forest System lands, a thorough planning and clearance process must be completed. This Supplemental Project Agreement agreement will allow the City to add needed capacity to the USFS and manage contract to complete cultural resource surveys across the Flagstaff Watershed Protection Project footprint and surrounding Flagstaff Ranger District priority areas.

Key Considerations:

Completion of ecological forest treatments within the Flagstaff Watershed Protection Project (FWPP) footprint and Flagstaff Ranger District have proven highly effective in supporting the control of undesirable fire, while reducing the severity of fire and post-fire flood events.

Expanded Financial Considerations:

All cultural survey contracts managed by the City will be fully reimbursed by the USFS.
This agreement includes a 10.0% indirect cost rate for the City ($6,557.50).

Community Benefits and Considerations:

The Flagstaff community will experience improved forest management due to this agreement. Approval of this Agreement, and the forest treatment work which will result, will reduce wildfire risk to adjacent neighborhoods, recreational opportunities, and wildlife habitat, while promoting forest health and long-term ecological sustainability.

This agreement will also support forest management objectives that consolidate forest carbon stocks in fewer, larger trees, reducing the risk of carbon loss from catastrophic fire.

Community Involvement:

Inform: Following the success of the 2012 bond election, FFD has continued to work at keeping the community informed of what we are doing, and why.

Involve: Project outreach efforts will go directly to the Flagstaff community. FFD staff are available to the public to address any concerns.

Attachments: Supplemental Project Agreement

FS Agreement No. 23-PA-11030400-261

Cooperator Agreement No. _____

PARTICIPATING AGREEMENT SUPPLEMENTAL PROJECT AGREEMENT
To
MASTER PARTICIPATING AGREEMENT # 22-PA-11030400-043
Between
CITY OF FLAGSTAFF
And The
USDA, FOREST SERVICE
COCONINO NATIONAL FOREST

This Supplemental Project Agreement (SPA) is hereby made and entered into by and between the City of Flagstaff, hereinafter referred to as "the City," and the United States Department of Agriculture (USDA), Forest Service, Coconino National Forest, hereinafter referred to as the "U.S. Forest Service," as specified under the provisions of Master Participating Agreement #22-PA-11030400-043.

FINAL

Title: Four Forest Restoration Initiative Heritage Support

DRAFT

I. GENERAL PROJECT DESCRIPTION: This agreement provides for cultural surveys, site revisits, reporting, data entry and management of Natural Resource Manager (NRM) cultural resource database of record, and other cultural resources work as needed. Cultural survey project efforts will be documented for submission to the U.S. Forest Service and the Arizona State Historic Preservation Office for concurrence, as needed. Project work will include heritage inventory and management in support of erosion control and hazardous fuel reduction work.

The City will coordinate cultural surveys, site revisits, reporting, data entry and management of the NRM cultural resource database of record, as well as additional heritage work such as monitoring.

All project work undertaken in this agreement will occur on National Forest System (NFS) lands and are within the 4FRI a Wildfire Crisis Strategy Landscape (WCS). With regard to the City's contributed labor, the City is responsible for the daily administration and supervision of its employees, contractors, and/or volunteers; the U.S. Forest Service is responsible for the oversight of the City's fulfillment of agreement tasks outlined in this agreement. The U.S. Forest Service and the City will work as collaborators in the management and oversight of the project. The CFDA# for this agreement is 10.724. By completing heritage inventory surveys within the 4FRI WCS footprint, the U.S. Forest Service supports all the on-the-ground work of hazardous fuels reduction. Through completing this heritage inventory work and consultation on fuels reduction projects, the agency is investing in compliance needed for treatments. Working on heritage inventory supports a more efficient process for project work, with updated heritage data to use in

4FRI WCS implementation efforts. This work greatly improves the efficiency of the District. In consideration of the above premises, the parties agree as follows:

II. RESPONSIBILITIES:

A. The the City shall:

1. BUILDING AND COMPUTER ACCESS BY NON-U.S. FOREST SERVICE PERSONNEL. The City may be granted access to U.S. Forest Service facilities and/or computer systems to accomplish work described in the Operating Plan or Statement of Work. All non-Government employees with unescorted access to U.S. Forest Service facilities and computer systems shall have background checks following the procedures established by USDA Directives 3800 series. Those granted computer access must fulfill all U.S. Forest Service requirements for mandatory security awareness and role-base advanced security training, and sign all applicable U.S. Forest Service statements of responsibilities.

2. Designate a program manager that will consistently communicate with the designated U.S. Forest Service program manager on all issues related to the timely and successful achievement of agreement project work.

3. Collaborate with the U.S. Forest Service in the preparation of a mutually acceptable, detailed work plans in compliance with U.S. Forest Service direction as well as the provisions of this agreement in executing contract(s).

4. Adhere to all U.S. Forest Service regulations, standards, and specifications outlined in heritage program standard operating procedures.

5. Comply with all U.S. Forest Service regulations, policies, specifications, and guidance pertaining to data management and distribution of site locations and/or descriptions.

6. Select contractors able to be permitted to conduct archaeology survey work on the Coconino National Forest.

7. Perform in accordance with the attached Statement of Work (Exhibit A) and Financial Plan (Exhibit B).

8. Perform in accordance with the attached Exhibits C through Exhibit F.

9. JUSTICE 40 INITIATIVE. Executive Order (EO) 14008, Tackling the Climate Crisis at Home and Abroad, was signed on January 27, 2021. This EO commits federal agencies to providing 40% of federal benefits to disadvantaged communities. When the cooperator is considering a subaward or contract to be executed under this agreement, the cooperator may consider the requirements of EO

FINAL DRAFT

14008, section 223, OMB M-21-28 and OMB-23-09

10. FINANCIAL STATUS REPORTS. A Federal Financial Report, form SF-425, must be submitted quarterly. The report is due 30 days after the reporting period ending March 31, June 30, September 30, December 31. The final SF-425 must be submitted either with the final payment request or no later than 120 days from the expiration date of the agreement. The form may be found at https://www.grants.gov/forms/post-award-reporting-forms.html.

11. PROGRAM MONITORING AND PROGRAM PERFORMANCE REPORTS. The parties to this agreement shall monitor the performance of the agreement activities to ensure that performance goals are being achieved.

    Performance reports must contain information on the following:

    - A comparison of actual accomplishments to the goals established for the period. Wherever the output of the project can be readily expressed in numbers, a computation of the cost per unit of output, if applicable.

    - Reason(s) for delay if established goals were not met.

    - Additional pertinent information.

    The City shall submit quarterly performance reports to the U.S. Forest Service Program Manager. These reports are due 30 days after the reporting period. The final performance report must be submitted either with the City's final payment request, or separately, but not later than 120 days from the expiration date of the agreement.

FINAL DRAFT

B. The U.S. Forest Service shall:

1. PAYMENT/REIMBURSEMENT. The U.S. Forest Service shall reimburse the the City for the U.S. Forest Service's share of actual expenses incurred, not to exceed $1,000,000.00, as shown in the Financial Plan. In order to approve a Request for Reimbursement, the U.S. Forest Service shall review such requests to ensure payments for reimbursement are in compliance and otherwise consistent with the terms of the agreement. The U.S. Forest Service shall make payment upon receipt of the the City's quarterly invoice. Each invoice from the the City must display the total project costs for the billing period, separated by U.S. Forest Service and the the City's share. In-kind contributions must be displayed as a separate line item and must not be included in the total project costs available for reimbursement. The final invoice must display the the City's full match towards the project, as shown in the financial plan, and be submitted no later than 120 days from the expiration date.

   Each invoice must include, at a minimum:

1. The the City's name, address, and telephone number.
2. U.S. Forest Service agreement number.
3. Invoice date.
4. Performance dates of the work completed (start & end).
5. Total invoice amount for the billing period, separated by U.S. Forest Service and the City share with in-kind contributions displayed as a separate line item.
6. Display all costs, both cumulative and for the billing period, by separate cost elements as shown on the financial plan.
7. Cumulative amount of U.S. Forest Service payments to date.
8. Statement that the invoice is a request for payment by "reimbursement".
9. If using SF-270, a signature is required.
10. Invoice Number, if applicable.

The invoice must be forwarded to:

EMAIL: SM.FS.ASC_GA@USDA.GOV

FAX: 877-687-4894

POSTAL: USDA Forest Service
Albuquerque Service Center
Payments – Grants & Agreements
101B Sun Ave NE
Albuquerque, NM 87109

Send a copy to: Jeanne Stevens, jeanne.stevens@usda.gov

FINAL
DRAFT

3. TEXT MESSAGING WHILE DRIVING. In accordance with Executive Order (EO) 13513, "Federal Leadership on Reducing Text Messaging While Driving," any and all text messaging by Federal employees is banned: a) while driving a government owned vehicle (GOV) or driving a privately owned vehicle (POV) while on official Government business; or b) using any electronic equipment supplied by the Government when driving any vehicle at any time. All Cooperators, their Employees, Volunteers, and Contractors are encouraged to adopt and enforce policies that ban text messaging when driving company owned, leased or rented vehicles, POVs or GOVs when driving while on official Government business or when performing any work for or on behalf of the Government.

4. Designate U.S. Forest Service program manager that will consistently communicate with the designated City program manager on all issues related to the timely and successful achievement of agreement project work.

5. Collaborate with the City in the preparation of a mutually acceptable, detailed work plans in compliance with U.S. Forest Service direction as well as the provisions of this agreement.

6. Provide on-site guidance and direction for all project work as needed. Provide as needed, but no less than bi-weekly, project monitoring, inspection, and oversight of project progress completed by the City.

7. Be the primary reviewers of cultural resources work completed through this agreement and retains ultimate authority over acceptance of the City's work.

8. Review and provide any necessary feedback on progress and performance reports within 10 business days of receipt.

9. Conduct quality assurance and quality control on all final deliverables produced under the agreement.

10. Ensure all activities comply with all applicable Federal, State, and local laws and regulations, policies, and requirements.

FINAL

III. CONTACTS & TIME LIMITS:

A. PRINCIPAL CONTACTS. Individuals listed below are authorized to act in their respective areas for matters related to this agreement.

DRAFT

Principal Cooperator Contacts:

Cooperator Program Contact	Cooperator Administrative Contact
Neil Chapman, 211 W Aspen AVE Flagstaff, Arizona 86001-5359 Telephone: 928-606-9840 Email: neil.chapman@flagstaffaz.gov	Stacey Brechler-Knaggs 211 W Aspen AVE Flagstaff, Arizona 86001-5359 Telephone: 928-213-2227 Email: sknaggs@flagstaffaz.gov

Principal U.S. Forest Service Contacts:

U.S. Forest Service Program Manager Contact	U.S. Forest Service Administrative Contact
Jeanne Stevens Coconino NF, Flagstaff RD 5075 N Highway 89 Flagstaff, Arizona 86004 Telephone: 928-527-8261 Email: jeanne.stevens@usda.gov	Brian Speeg 333 Broadway Blvd SE Albuquerque, New Mexico 87102 Telephone: 000-000-0000 Email: brian.speeg@usda.gov

B. ASSURANCE REGARDING FELONY CONVICTION OR TAX DELINQUENT STATUS FOR CORPORATE ENTITIES. This agreement is subject to the provisions contained in the Department of Interior, Environment, and Related Agencies Appropriations Act, 2012, P.L. No. 112-74, Division E, Section 433 and 434 434 as continued by Consolidated and Further Continuing Appropriations Act, 2013, P.L. No. 113-6, Division F, Title I, Section 1101(a)(3) regarding corporate felony convictions and corporate federal tax delinquencies. Accordingly, by entering into this agreement the City acknowledges that it: 1) does not have a tax delinquency, meaning that it is not subject to any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, and (2) has not been convicted (or had an officer or agent acting on its behalf convicted) of a felony criminal violation under any Federal law within 24 months preceding the agreement, unless a suspending and debarring official of the United States Department of Agriculture has considered suspension or debarment is not necessary to protect the interests of the Government. If the City fails to comply with these provisions, the U.S. Forest Service will annul this agreement and may recover any funds the City has expended in violation of sections 433 and 434.

C. SYSTEM FOR AWARD MANAGEMENT REGISTRATION REQUIREMENT (SAM). the City shall maintain current information in the System for Award Management (SAM) until receipt of final payment. This requires review and update to the information at least annually after the initial registration, and more frequently if required by changes in information or agreement term(s). For purposes of this agreement, System for Award Management (SAM) means the Federal repository into which an entity must provide information required for the conduct of business as a Cooperative. Additional information about registration procedures may be found at the SAM Internet site at www.sam.gov.

D. AVAILABILITY FOR CONSULTATION. Both parties will make themselves available at mutually agreeable times, for continuing consultation to discuss the conditions covered by this agreement and agree to actions essential to fulfill its purposes.

E. MODIFICATIONS. Modifications within the scope of this SPA shall be made by mutual consent of the parties, by the issuance of a written modification signed and dated by all properly authorized, signatory officials, prior to any changes being performed. Requests for modification should be made in writing, at least 90 days prior to implementation of the requested change. The U.S. Forest Service is not obligated to fund any changes not properly approved in advance.

F. COMMENCEMENT/EXPIRATION DATE. This agreement is executed as of the date of the last signature and is effective through May 2, 2027 at which time it will expire.

FINAL DRAFT

The expiration date is the final date for completion of all work activities under this agreement.

G. AUTHORIZED REPRESENTATIVES. By signature below, each party certifies that the individuals listed in this document as representatives of the individual parties are authorized to act in their respective areas for matters related to this agreement. In witness whereof, the parties hereto have executed this agreement as of the last date written below.

BECKY DAGGETT, Mayor — Date
City of Flagstaff

AARON MAYVILLE, Forest Supervisor — Date
U.S. Forest Service, Coconino National Forest

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The authority and format of this agreement have been reviewed and approved for signature.

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BRIAN SPEEG — Date
U.S. Forest Service, Grants Management Specialist

Burden Statement

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0217. The time required to complete this information collection is estimated to average 4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

EXHIBIT A
STATEMENT OF WORK
Four Forest Restoration Initiative Heritage Support



I. BACKGROUND

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Management of the public lands for forest and watershed health is key to protecting the City from flooding and sedimentation, increasing public safety, and providing high quality water for municipal uses. In the Organic Administration Act of 1897, a principal purpose for establishment of the Forest Reserves (predecessor to the National Forest System) was to "secure favorable conditions for water flows." In the fall of 2021 USDA Forest Service Chief Randy Moore pledged $54 million dollars for forest restoration work in northern Arizona. The U.S. Forest Service is initiating several projects with that support to accelerate several local high-priority projects over ten years. The projects will include mechanical treatments, hand thinning, prescribed fire, and more. Additionally, Four Forests Restoration Initiative (4FRI) planning and implementation has been ongoing since 2010. As with watershed protection projects, 4FRI work is aimed at protecting communities and watersheds from catastrophic wildfires and the devastating after-effects such as uncontrollable flooding and associated damage. By completing heritage inventory surveys within the 4FRI Wildland Crisis Strategy (WCS) footprint, the U.S. Forest Service supports all the on-the-ground work of hazardous fuels reduction. Through completing this heritage inventory work and consultation on fuels reduction projects, the agency is investing in compliance needed for treatments. Working on heritage inventory supports a more efficient process for project work, with updated heritage data to use in 4FRI WCS implementation efforts. This work greatly improves the efficiency of the District.

The U.S. Forest Service is continuing a collaborative project to conduct landscape-scale heritage inventory projects with the City. The project will include approximately one heritage project over four years. This project is directly in line with the City's Wildland Fire Management mission, objectives, tactics, and intiatives (see Exhibit C) and through it, the U.S. Forest Service and the City are moving forward with all necessary activities to proactively improve the health and resiliency of U.S. Forest Service lands and watersheds for the mutual benefit of watershed protection, decreased risk from additional flooding and sedimentation, improved public safety, and reduced negative social and economic outcomes from wildfires.

Working together will allow both the U.S. Forest Service and the City to contribute resources and support for the implementation and completion of heritage inventory. It will also allow each to reap the benefits from working together. While much heritage inventory exists on the Flagstaff Ranger District to allow for the planning of forest restoration work (approximately 29% of the District has heritage inventory), a lot of survey and site assessment work remains to be done in areas where active treatment is planned.

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The City of Flagstaff, entirely surrounded by national forest lands, is extemely vulnerable to wildfire events and the devestating after-effects of wildfire such as uncontrollable flooding. These events cause property damage and destruction to city property, private property and disruput the lives and livelihods of city inhabitants. Until recently, the city has not had a large role in the planning and implementaiton of forest thinning and prescribed fire projects to restore forested lands. By working together, the City and U.S. Forest Service will each reap enormous benefits made possible through fuels reduction. As we join forces, the City is well positioned to work with the agency on this project by each bringing capacity, administrative and technical oversight, and expertise to the project. The U.S. Forest Service, through it's long history of conducting landscape level heritage inventories in support of fuels reduction, has expertise to share in the technical reivew process and will also ensure survey work meets federal lands criteria and meets the requirements of the National Historic Preservation Act of 1966, as amended, including Tribal consultation. Through working together and relying on our diverse and complimentary expertise, this collaborative project is well positioned to be successful.

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By working together, we will be better able to manage large landscape-level heritage inventory projects, collecting management data that is essential to proper restoration project planning. Through this work, work will take place more efficiently and rapidly in 4FRI WCS landscapes near the community of Flagstaff, Arizona. These forested lands (Figure 1, below) are critical due to their close proximity to a large urban center and impact on the city of Flagstaff water supply if compromised by catastrophic wildfire.. Additional effects from compromised forested landscapes include uncontrolled flooding that threatens human life, municipal and private property, and local roadways.

II. SCOPE OF WORK

The project will include heritage inventory, site assesements, site updates, site marking, and additional tasks related to the management of heritage resources on the Flagstaff Ranger District. The project area includes the entire Flagstaff Ranger District. Priority areas include locations in the US Highway 180 corridor west and northwest of Flagstaff as well as areas northeast of Flagstaff in close proximity to private lands. All project areas will be identified as either high or low site density with tasks clearly delineated ahead of time.

Surveys will be conducted as part of planning for all restoration -activities and will support hazardous fuels reduction in the project area. The forested lands, and cultural and natural resources will benefit from the heritage inventory work to be completed therein as the restored forested lands will support heathier and more robust forest conditions less vulnerable to the effects of devestating wildfire.

This agreement provides for cultural surveys, site revisits, reporting, data entry and management of Natural Resource Manager (NRM) cultural resource database of record, and other cultural resources work as needed. Cultural survey project efforts will be documented for submission to the U.S. Forest Service Coconino National Forest. The Coconino National Forest will consult on the inventory work with consulting Tribal Nations and the Arizona State Historic Preservation Office for concurrence, as needed.

The City of Flagstaff Forest Health will advertise for the heritage project contract and the Heritage Preservation Officer will coordinate those contracts to include cultural surveys, site revisits, reporting, data entry and management of the NRM cultural resource database of record, as well as additional heritage work such as monitoring. The U.S. Forest Service will work alongside the City to facilitate project work by contractors, and serve to provide quality control review assistance to the city of contractor work. The U.S. Forest Service will provide technical assistance to the City and both entities will work collaboratively to accept contractor work.

All project work undertaken in this agreement will occur on National Forest System (NFS) lands. With regard to the City's contributed labor, the City is responsible for the daily administration and supervision of its employees, contractors, and/or volunteers. This will be approximately eight hours per month for the Cultural Preservation Officer and five hours per month for the Forest Health Supervisor. The City will provide a vehicle to travel from the City’s office in Flagstaff to worksites for approximately two days each month. Distances to the project areas range from 5-40 miles along gravel roads and unimproved dirt roads from the city of Flagstaff, Arizona. The U.S. Forest Service is responsible for providing technical and coordination assistance to the City in the City’s oversight of contracts that will fulfill agreement tasks outlined in this agreement. The U.S. Forest Service will contribute approximately 35 days by the District Archaeologist, 90 days by the Project Archaeologist, 100 days by the Archaeology Technicican and 8 days by the Tribal Relations Specialist to support this project.

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III. DEFINITIONS (where applicable)

In additional to the following *archaeological survey* definitions, the General Requirements for Archaeological Survey on the Coconino National Forest (Exhibit F).

Site Definition: For the purposes of this agreement, a site is defined as a location of purposeful prehistoric or historic human activity. An activity is considered to have been purposeful if it resulted in a deposit of cultural material beyond the level of one or a few accidentally lost artifacts. Loci of human activity not classifiable as sites by this definition should be considered and recorded as isolated occurrences.

A cultural resource qualifying as a site under this definition should exhibit at least one of the following:
a. One or more features;
b. One formal tool if associated with other cultural material or more than one formal tool;
c. An occurrence of cultural material (such as pottery sherds, chipped stone, or historic items) that contains one of the following:

1. Three or more types of artifacts or raw material;
2. Two types of artifacts or material in a density of at least ten items per 100 square meters;
3. A single type of artifact or material in a density of at least 25 items per 100 square meters.

These criteria may be modified, where appropriate, based on a professional cultural resource specialist's judgment, and with prior approval of the Heritage Preservation Officer (HPO) (See Exhibit F - General Requirements for Archaeological Survey on the Coconino National Forest). Any deviation from the standard definition should be discussed in the resulting cultural resource report. As a general rule, site designations are reserved in the case of historic remains for those at least 50 years old.

All sites will be recorded in their entirety, even if the boundaries go outside of the identified survey boundary – the exception to this is if the site goes onto private land. In the event that long linear sites or other atypically large sites extend outside the survey boundary, the extent of recording will be discussed with the HPO.

100% Archaeological Pedestrian Survey: For the purposes of this survey, a 100% archaeological pedestrian survey is defined as the systematic intensive inspection of the project area using parallel transects spaced no more than 15 meters apart for areas shown in task orders. Areas to be surveyed may include linear areas (for example, roads or trails), corridors, contiguous blocks, a conglomeration of small blocks within a defined project area (for example cutting units within a timber sale), or any combination of these. Any proposed deviations from this transect interval must be identified and justified in the offeror's technical proposal.

FINAL DRAFT

Sample Archaeological Pedestrian Survey: For the purposes of this survey, a sample archaeological pedestrian survey is defined as the systematic intensive inspection of the project area using parallel transects spaced no more than 15 meters apart within sample units that comprise a subset of the project area. The sample survey will be designed by the Forest Service and described in the task order. Areas to be sampled may include linear areas, corridors, contiguous blocks or any combination of these. Any proposed deviations from this transect interval or sample design must be identified and justified in the offeror's technical proposal.

Low Site Density Areas: An area is considered to be a low site density area if the estimated average number of cultural resources per acre is less than the average site density for the forest. For example, a high elevation area in the mixed conifer zone will generally have a low site density.

High Site Density Areas: An area is considered to have a high site density if the estimated average number of cultural resources per acre is more than the average site density of the forest. For example, the pinon juniper zone or historic mining districts will generally have a high site density.

FINAL DRAFT

IV. GOVERNMENT FURNISHED MATERIALS (where applicable)

(There is no dollar value associated with these materials as they are part of the permitting process.)

1. 1:24,000 scale maps showing project boundaries, GIS files of project boundaries in Forest Service GIS format, and any other imagery, either electronic or hard copy, as specified in the task order.
2. Form R3-FS-2300-4, Inventory Standards and Accounting Form, in printed and/or digital format.
3. Isolated Occurrence recording form if applicable, in printed and/or digital format.
4. National Forest, Cultural Resources Photo Log if applicable, in printed and/or digital format.
5. USDA Forest Service National Site Form (with any requested addendum) or custom state site form modified for Forest Service use, in paper and/or digital format.
6. Geodatabase template for submitting digital locational information to conform to Forest standards.
7. Project number, site numbers (may request additional if needed during project), and site tags.

V. TIMEFRAME

This project will include one heritage project over four years to be developed collaboratively based on the U.S. Forest Service 4FRI restoration project locations (Exhibit D). The end date for the project is May 2, 2027.

VI. DELIVERABLES

There will be a project report for the project. On-the-ground work such as marking and other possible tasks will be described during each specific project development. See Exhibit E for more details on deliverables. The U.S. Forest Service is responsible for consulting with Tribal Nations and the State Historic Preservation Office on the project.

VII. QUALITY ASSURANCE

The City and U.S. Forest Service will monitor quality alongside project contractors according to the professional standards of each organization. Select contractors must be able to be permitted to conduct archaeology survey work on the Coconino National Forest. Quality assurance is described for the U.S. Forest Service in Exhibit E.

FINAL DRAFT

VII. POINTS OF CONTACT

Contacts at the City include Neil Chapman, Forest Health Supervisor & Flagstaff Watershed Protection Project Manager, Flagstaff Fire Department; and Mark Reavis, Heritage Preservation Officer/Neighborhood Planner. Contacts at the U.S. Forest Service include Flagstaff District Archaeologist Jeanne Stevens and Project Archaeologist Pete Wisniewski.

U.S. Forest Service

OMB 0596-0217
FS-1500-17B

Attachment: B

USFS Agreement No.: 23-PA-11030400-261 Mod. No.:

Cooperator Agreement No.:

Note: This Financial Plan may be used when:
(1) No program income is expected and
(2) The Cooperator is not giving cash to the FS and
(3) There is no other Federal funding

Agreements Financial Plan (Short Form)

Financial Plan Matrix: Note: All columns may not be used. Use depends on source and type of contribution(s).

	FOREST SERVICE CONTRIBUTIONS		COOPERATOR CONTRIBUTIONS		
	(a)	(b)	(c)	(d)	
COST ELEMENTS	Noncash	Cash to Cooperator	Noncash	In-Kind	(e) Total
Direct Costs					
Salaries/Labor	$65,640.00	$0.00	$55,220.00	$0.00	$120,860.00
Travel	$5,320.00	$0.00	$10,355.00	$0.00	$15,675.00
Equipment	$0.00	$0.00	$0.00	$0.00	$0.00
Supplies/Materials	$0.00	$0.00	$0.00	$0.00	$0.00
Printing	$0.00	$0.00	$0.00	$0.00	$0.00
Other	$0.00	$909,090.91	$0.00	$0.00	$909,090.91
Other					$0.00
Subtotal	$70,960.00	$909,090.91	$65,575.00	$0.00	$1,045,625.91
Coop Indirect Costs		$90,909.09	$6,557.50		$97,466.59
FS Overhead Costs	$10,644.00				$10,644.00
Total	$81,604.00	$1,000,000.00	$72,132.50	$0.00	
Total Project Value:					$1,153,736.50

Matching Costs Determination	
Total Forest Service Share = (a+b) ÷ (e) = (f)	(f) 93.75%
Total Cooperator Share (c+d) ÷ (e) = (g)	(g) 6.25%
Total (f+g) = (h)	(h) 100.00%

FINAL DRAFT

WORKSHEET FOR

FS Non-Cash Contribution Cost Analysis, Column (a)

Salaries/Labor

Standard Calculation

Job Description		Cost/Day	# of Days		Total
District Archaeologist		$440.00	35.00		$15,400.00
Project Archaeologist		$398.00	80.00		$31,840.00
Archaeology Technician		$185.00	80.00		$14,800.00
Tribal Relations		$450.00	8.00		$3,600.00
Total Salaries/Labor					**$65,640.00**

Travel

Standard Calculation

Travel Expense	# Vehicles	Cost/Trip	# of Trips		Total
FS Vehicle	1	$12.00	110.00		$1,320.00

Non-Standard Calculation

Travel Expense	# Vehicles	Cost/Mile	# of Miles		
FS Vehicle	1	$1.00	4000.00		$4,000.00
Total Travel					**$5,320.00**

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Subtotal Direct Costs	$70,960.00

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Forest Service Overhead Costs

Current Overhead Rate	Subtotal Direct Costs			Total
15.00%	$70,960.00			$10,644.00
Total FS Overhead Costs				**$10,644.00**

TOTAL COST	**$81,604.00**

WORKSHEET FOR

FS Cash to the Cooperator Cost Analysis, Column (b)

Other Expenses

Standard Calculation

Item		# of Units	Cost/Unit		Total
High Site Density Cultural Survey*		400	150	acre	$60,000.00
Low Site Density Cultural Survey*		11311.3864	75	acre	$848,353.98
Site Revisits*			680	site	$680.00
Data Entry (NRM Mgmt)*			56.92833	site	$56.93

**Contract(s) cost estimates based on market research with local firms.*

Total Other		**$909,090.91**

Subtotal Direct Costs	$909,090.91

Cooperator Indirect Costs

Current Overhead Rate*	Subtotal Direct Costs			Total
10.00%	$909,090.91			$90,909.09
Total Coop. Indirect Costs				**$90,909.09**

**Rate shown is proposed FY23. Final FY23 NICRA is still pending. The actual NICRA rate at the time an expense is incurred is what will be used.*

TOTAL COST	**$1,000,000.00**

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WORKSHEET FOR

Cooperator Non-Cash Contribution Cost Analysis, Column (c)

Salaries/Labor

Standard Calculation

Job Description		Cost/Day	# of Days		Total
Cultural Preservation Officer		$448.80	38.00		$17,054.40
Forest Health Supervisor		$346.96	110.00		$38,165.60
Total Salaries/Labor					**$55,220.00**

Travel

Standard Calculation

Travel Expense	Employees	Cost/Trip	# of Trips		Total
2004 F350	1	$190.00	54.50		$10,355.00
Total Travel					**$10,355.00**

Subtotal Direct Costs	$65,575.00

Cooperator Indirect Costs

Current Overhead Rate	Subtotal Direct Costs			Total
10.00%	$65,575.00			$6,557.50
Total Coop. Indirect Costs				**$6,557.50**

**Rate shown is proposed FY23. Final FY23 NICRA is still pending. The actual NICRA rate at the time an expense is incurred is what will be used.*

TOTAL COST	**$72,132.50**

FINAL DRAFT

EXHIBIT C

WILDLAND FIRE MANAGEMENT

Our Mission: To protect Flagstaff and its priority watersheds from the effects of catastrophic wildfire. **Our Vision:** We envision a community where Flagstaff thrives due to the Wildland Fire Management Division's unique skills, knowledge, and abilities within Wildland Fire Operations, Forest Management, Firewise development and Wildland Urban Interface code enforcement.

Our Objective

Transform the Greater Flagstaff Area into a landscape that is resilient and adapted to wildfire while facilitating strategic forest & fire management collaborations based on shared governance and responsibility

Our Tactics

- Restore altered **E**cosystems with partners
- **E**ducate citizens on the role of fire and how to minimize smoke impacts
- **E**ngineer a fire adapted built environment and response system
- Develop and **E**nforce firewise codes and ordinances
- **E**ngage partners to leverage Flagstaff's investment impact in forest health initiatives
- Continuously **E**volve and improve based on lessons learned
- Work in a way that **E**nables and inspires other communities to increase their ability co-exist with fire

Our Commitment

As part of the Flagstaff Fire Department and Summit Fire & Medical District, we are committed to Protecting Values at Risk by identifying and resolving risks/threats through proactive and responsive customer service. Equally as important, we develop, maintain, and work with various partnerships to leverage our impact

Strategic Pillars

- **Prevention:** Ensure effective planning, training & coordination to reduce wildfire risk
- **Preparedness:** Align codes and firewise projects to protect lives and property
- **Hazard Mitigation:** Implement fuel management projects designed to create and maintain a resilient and fire adapted community
- **Response:** Maintain emergency preparedness and capacity to address catastrophic wildfire impacts in a way that will save lives, protect property, and meet basic human needs
- **Recovery:** Act after incidents occur to identify lessons learned, evaluate operations, and develop initiatives to minimize the impacts of future incidents. (Wildland fire After Action Reviews, Cost recovery/reimbursements)

Outcomes

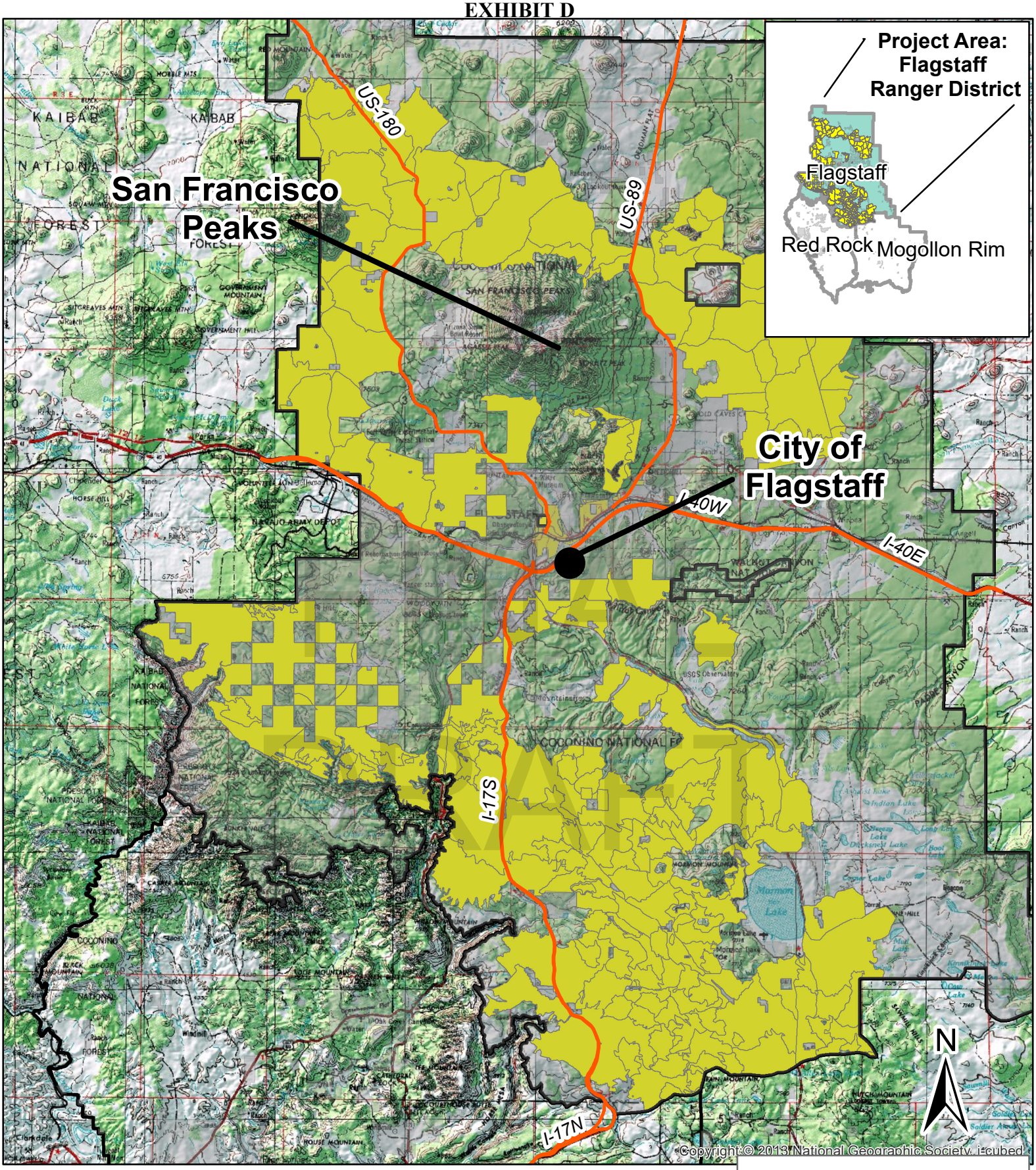
- The Greater Flagstaff Area forests are fire adapted and resilient
- Flagstaff Fire Department and Summit Fire & Medical District can respond to all wildfires in safe and effective ways
- Communities within the Greater Flagstaff Area are firewise
- Efforts increase the capacity of a prescribed fire, fuels reduction and community mitigation workforce

Initiatives

- Flagstaff Carbon Neutrality Plan
- Flagstaff Watershed Protection Project
- Four Forest Restoration Initiative
- Fire Adapted Communities Learning Network
- Prescribed Fire Training Exchange Network
- Greater Flagstaff Forest Partnership
- Ponderosa Fire Advisory Council
- Flagstaff Wildland Urban Interface Code
- National Emergency Response Support (Call-Out Program)
- Wildland Fire Crew Operations (Fuels and Fire)

FINAL DRAFT

EXHIBIT D



City of Flagstaff 4FRI Areas Heritage Inventory Project Area
Agreement Map- OVERVIEW
Flagstaff Ranger District
Coconino National Forest

0 4.5 9 18
Miles

Legend

- Major_Roads
- Flagstaff_Ranger_District
- 4FRI Treatment Areas

EXHIBIT E

The following Statement of Work will be used to develop the City of Flagstaff's request for bids:

Statement of Work

The Contractor shall furnish all personnel, facilities, equipment, materials, supplies and services and otherwise do all things necessary for heritage resources field inventory and other associated activities located on the National Forest lands within Region 3 of the U.S.D.A. Forest Service in Arizona, hereinafter referred to as 'the Forest Service'. The scope of this project will include intensive and sample archaeological pedestrian survey as described below and in task orders to be issued under this contract.

For numerous widely scattered spot surveys of small areas, (for example scattered units less than 1 to 2 acres in size, or site inspections/re-recording for numerous previously recorded archaeological sites scattered across a forest unit), details of specific projects will be provided to the contract awardees for pricing these tasks. Pricing for these scattered units will be project specific, and will be separate from Line Item 01 in the Schedule of Items.

For site testing (e.g., shovel testing), details of specific projects will be provided to the contract awardees for pricing these tasks. Pricing for these activities will be project specific.

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Tasks

Unless otherwise specified in the individual task projects, the contractor will be required to meet the following schedule for each task order issued:

A. Fieldwork – Progress reports shall be delivered to the Contracting Officer's Representative (COR) at the time schedule identified in the task order. Within five (5) business days of the completion of fieldwork, the contractor shall deliver to the (COR) copies of all draft site forms, IO forms, sketch maps, topographic maps showing site locations and geospatial data.

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B. Draft Report – One paper copy of the draft report and one electronic copy of the draft report with all forms, photographs, electronic data/files, digital images, and maps will be completed and delivered to the COR, postmarked no later than 20 business days after the completion of the fieldwork.

C. Contracting Officer's Representative Review – Will be completed with comments and suggested changes (if necessary) delivered to the contractor, postmarked no later than 15 business days after the receipt of the draft report.

D. Final Report – Three paper copies of the final report and one electronic copy of the final report with all forms, photographs, electronic data/files, digital images, maps, along with final geospatial data must be completed and delivered to the COR, postmarked no later than 10 business days after the receipt of the COR Draft Report Review.

PERFORMANCE WORK STATEMENT TASKS AND CRITICAL SUBTASKS

Intensive Survey
The contractor shall be required to survey all project area acres or the sample units as specified in the task order, according to USDA-Forest Service Region 3 Cultural Resources Handbook.

Records Search - The contractor shall review appropriate literature and documents sufficient to become familiar with the history of archaeological work and site documentation for project areas specified in task orders.
In addition the contractor will review the survey reports and records available at the National Forest Supervisor's Office for the Forest issuing the task order, which deal with previous USDA-Forest Service and other archaeological fieldwork in the vicinity of the project area sufficient to describe the results of a literature search for a project area specified in a task order.

Locate, identify, and describe/document all cultural resource sites and isolated occurrences which can reasonably be detected from a pedestrian survey. Potential Traditional Cultural Properties (TCPs) shall be referred to COR for further evaluation. Areas will frequently be larger inventory areas; however, smaller spot surveys may be identified. Details of specific projects will be provided to the contract awardees for pricing these tasks.

Locate, identify, and describe/document all previously recorded cultural resources sites which can reasonably be detected from a pedestrian survey. Any site which has been previously determined to be not eligible will not be updated, unless, upon inspection, a change in the status of the National Register eligibility of the site is determined to be warranted.

Performance Standards – Intensive Survey: The contractor shall conduct a complete pedestrian archaeological survey of 100% of the project area or the sample units designated in a project area as described in the task order in the manner specified in the USDA-Forest Service Region 3 Cultural Resources Handbook and/or other specifications described in the contract and associated task order.

Acceptable quality level: 100% compliance with the USDA-Forest Service Region 3 Cultural Resources Handbook and/or other specifications described in the contract and associated task order.

Means of measurement: A field inspection of up to 10% of the survey area by the Government and the review of the contractor's Quality Control records. If the inspections show that sites were missed by the contractor, field inspection of up to an additional 10% of the survey area may be conducted at the Government's discretion.

For large projects, the contractor shall submit progress reports at the time schedule identified in the task order.

FINAL DRAFT

Site Recording

***Site recording will take place using the U.S Forest Service NRM Heritage-Mobile Application for direct upload into Forest Service Corporate Databases. Site recording information below addresses technical information to be recorded in the NRM Mobile Application.** The U.S. Forest Service will assist the Heritage Preservation Officer is facilitating Contractors' training in and use of NRM Mobile Application.

At a minimum the contractor shall record all cultural resource sites located in the project area to the level of site recording identified in the associated task order and with the USDA-Forest Service Region 3 Cultural Resources Handbook. Locational information will be collected in UTMs, NAD 1983 datum using a suitable hand-held GPS device with a minimum accuracy of 1 meter. Photographs will be taken of each site and feature. Individual task orders may require additional electronic documentation of sites using the current Forest Service mobile data collection application or shovel testing.
Individual task orders may require data entry of cultural resource site information into the current Forest Service cultural resources database.

Evaluate each cultural resource site and make a recommendation regarding its eligibility to the National Register of Historic Places using all criteria listed in 36 CFR 60.6, USDI-National Register Bulletin 15, and provide all appropriate site, feature, and artifact documentation as required in the specifications as justification for a determination of eligibility, and as specified in an associated task order. An eligibility recommendation of "Undetermined" may be made, with justification, when eligibility if inconclusive based on surface observations and no additional testing has been authorized.

- All previously recorded sites located within the survey area will also be documented. All site records shall be updated as needed using the National Forest Service Site Form unless a different form is specified in the task order. In the case of those sites that have not received an eligibility determination, site updates shall include an evaluation of the site's eligibility to the National Register of Historic Places where possible. An eligibility recommendation of "Undetermined" may be made, with justification, when eligibility if inconclusive based on surface observations and no additional testing has been authorized. All appropriate documentation as required in the specification shall be provided as a justification for a determination of eligibility. Any site which has been previously determined to be not eligible will not be updated, unless, upon inspection, a change in the status of the National Register eligibility of the site is determined to be warranted.

- The following applies to all sites. The site boundary shall be marked with white flagging tape (or other method, depending on the type of project and appropriate Forest standards as specified in the associated task order and/or during pre-work meeting) in such a manner that a person who has not previously seen the site can easily identify it. Flagging on trees on the perimeter of the site should be inter-visible and not obscured by branches or foliage. Site boundaries marked on the ground should correspond to the boundaries as mapped. The site boundaries shall also be recorded using a GPS device with a minimum accuracy of 1 meter, in

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UTMs, using the NAD 83 CONUS datum and the appropriate UTM zone, unless otherwise specified in the task order. A datum tree or other convenient, fairly permanent object, such as a fence post, will be established as near as possible to the center of the site or next to a prominent feature of the site. The location of the datum shall be recorded using a GPS device with a minimum accuracy of 1 meter, in UTMs, using the NAD 83 CONUS datum and the appropriate UTM zone, unless otherwise specified in the task order. An aluminum tag with the site number shall be attached to the datum at stump level with an aluminum nail unless otherwise specified in the individual work order. The site datum shall also be identified by placing two bands of white flagging tape around or on it. The USDA-Forest Service realizes that this marking system is not always possible at each site; any deviation from this system should be discussed with the Contracting Officer's Representative and documented in the report. Unless specified in a task order this will be the standard site marking treatment.

Native American Graves Protection and Repatriation Act Notification: The contractor shall provide strict compliance with all Native American Graves Protection and Repatriation Act (NAGPRA) regulations as they apply to the inadvertent discovery of Native American human remains or associated cultural items. Upon the inadvertent discovery, the contractor shall provide immediate telephone notification of the discovery to the Contracting Officer's Representative. The contractor shall provide written confirmation of the inadvertent discovery to the Forest Archaeologist within five days of the discovery.

Tribal Consultation: The Forest Service will conduct all government-to- government tribal consultation.

Performance Standards – Site Recording: The contractor has recorded all sites on specified forms in accordance with the USDA-Forest Service Region 3 Cultural Resources Handbook, and/or as specified in the contract and associated task order.

Acceptable quality level: 100% compliance with the USDA-Forest Service Region 3 Cultural Resources Handbook, and/or as specified in the contract and associated task order.

Means of measurement: A field inspection of a maximum of 10% of the newly recorded sites and/or previously recorded sites or a minimum of 2 sites and the review and verification of the contractor's Quality Control records. If the inspections show that sites were not recorded in accordance with Sections 5.2.6 and 5.2.7 of this contract, field inspection of up to an additional 10% of the newly recorded sites and/or previously recorded sites may be conducted at the Government's discretion.

Recording Non-Site Cultural Remains
When an isolated occurrence (I.O.) is encountered, it shall be accurately recorded using a suitable hand-held GPS device with a minimum accuracy of 1 meter, in UTMs using the NAD 83 CONUS datum and the appropriate UTM zone, unless otherwise specified in the

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task order. Each I.O. shall be plotted on the appropriate 7.5 minute USGS map in the same manner as described for site locations. I.O.'s shall be briefly documented, including the area of artifact dispersement (when applicable), artifact type, and frequency. I.O.'s should be photographed (at least one minimum of area and associated diagnostics photographed with scale);
diagnostic artifacts can also be sketched. Date ranges for diagnostic artifacts shall be included in their descriptions. Detailed plan view maps are not required for I.O. locations.

Performance Standards – Recording Non-Site Cultural Remains: All isolated occurrences that were encountered during the survey have been documented on isolated occurrence recording forms if required in the task order; diagnostic artifacts, lithic and ceramic, have been drawn or photographed and the Isolated Occurrence location has been plotted on the appropriate topographic map.

Acceptable quality level: 100% documentation of encountered isolated occurrences.

Means of measurement: A field inspection by the Government, the verification of the contractor's Quality Control records, and the data documented in the contractor's report.

Report
After fieldwork is complete, the contractor will provide a report, which describes the survey and results. Unless specified in the task order, the report will be used for National Historic Preservation Act, Section 106 consultation between the USDA-Forest Service and the appropriate State Historic Preservation Office and as such, shall provide sufficient information with which to conduct these procedures. Reports prepared for purposes other than Section 106 consultation shall be prepared to the same standards, unless specified in the task order. The report shall contain a description of the proposed project for which the archaeological survey is being conducted as provided by the Government.

Unless otherwise stated in the task order, the report must be accompanied by a completed R-3- FS-2300-4 form (Inventory Standards and Accounting form), the appropriate site inventory forms, all associated site documentation materials (including, but not limited to, plan and location maps, photographs, artifact and feature drawings, artifact documentation forms, copies of associated relevant historic documents, and other materials), I.O forms, and all other appropriate recording forms, as well as the necessary number of 7.5 minute USGS topographic maps required to show clearly the locations of all cultural resources found, the site boundaries, the survey boundaries, and the project location. All site locations will be marked on the topographic maps in accordance with standards set forth in the USDA-Forest Service Region 3 Cultural Resources Handbook. All topographic maps included in the report shall contain a heading in accordance with the standards set forth in the USDA-Forest Service Region 3 Cultural Resources Handbook. All written GPS coordinate descriptions shall use the NAD 83 CONUS datum and the appropriate UTM zone, unless otherwise specified in the task order. All site forms,

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photo logs, and unused government-furnished property will be returned to the Contracting Officer's Representative with the report.

The contractor is required to utilize GIS for project vicinity, project location, site location, and I.O. location map production. Use of a GIS system provides for more accurate maps and site plots. All GPS data collected shall be provided to the Forest Service electronically in a geodatabase. The contractor shall provide copies of maps in electronic format as well as hard copy. This data will be used to populate the Forest's electronic site atlas. The US Forest Service currently utilizes ArcGIS mapping software.

Report Production: One paper copy of the draft report, one electronic copy of the draft report in Microsoft Word format, three paper copies of the final report, and one electronic copy of the final report in Microsoft Word format will be delivered to the Contracting Officer's Representative. The reports shall include all required site inventory forms, all associated site documentation materials (including, but not limited to, plan and location maps, photographs, artifact and feature drawings, artifact documentation forms, copies of associated relevant historic documents, and other materials) I.O forms, and all other appropriate recording forms, as well as the necessary number of 7.5 minute USGS topographic maps required to show clearly the locations of all cultural resources found, the site boundaries, the survey boundaries, and the project location. Electronic copies shall be provided on a CD/DVD, USB-type portable hard drive (flash drive), or other readily readable digital media in Microsoft Word format. The draft and final reports shall contain all appropriate maps, forms and photographs as described in section 5.4. The pages must be unbound and standard size (8 1/2" x 11"). Photographs may be digital photographs, of sufficient quality as to be clear on reproduction, minimally 300dpi. The cover and title page shall carry the statement that the work was "Prepared for the USDA-Forest Service, (Name) National Forest, Arizona". The title of the report shall conform to the title of the project as determined by the Forest Service. All hand prepared pages such as maps and drawings must be of professional quality and legible. All maps and line drawings must be legible and suitable for reproduction in black and white. Offset printing or high quality photocopying will be acceptable for the text. Color copies are required for duplicate copies of report sections and site recording materials where originals are in color. The report must be clean and suitable for reproduction. The various recording forms and the topographic maps showing project and cultural resource locations should be originals. All written GPS coordinate descriptions shall use the UTM system.

Geospatial Data Submittal: All GIS/GPS data shall be submitted in a geodatabase format on a CD/DVD, USB-type portable hard drive (flash drive), or other readily readable digital media to the Contracting Officer's Representative at the time of the completion of the fieldwork. The geodatabase shall include feature classes that conform to Forest standards provided by the COR prior to survey implementation. All locational data, survey polygons and site polygons shall use the NAD 83 CONUS datum and the appropriate UTM zone, unless otherwise specified in the task order. NAD 83 CONUS datum and the appropriate UTM zone, unless otherwise specified in the task order. The report will be returned to the contractor if there are editorial or typographic errors, reproduction or production flaws, format/content discrepancies or any other problems,

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which cause it to be of less than professional quality. Any additional costs to bring the report to acceptable quality will be at the contractor's own expense.
Performance Standards – Report: The contractor provides a report that meets the specifications described in this contract and is in accordance with the standards set forth in the USDA-Forest Service Region 3 Cultural Resources Handbook and/or as specified in the contract and associated task order.
Acceptable quality level: Clear, concise, proper grammar and format, and contains all required Government data.
Means of measurement: 100% review and verification of the contractor's records, data, and report.

Collections
Except as otherwise noted, thorough documentation of cultural materials shall be made in the field. Any collections must be approved in advance by the Contracting Officer's Representative, and may be made only in the following instances:
A. The collection is absolutely necessary to adequately assess the resource,

B. Especially rare or sensitive temporal indicator artifacts are encountered.

When collection is necessary, the artifact will be point provenienced to a permanent datum established by the contractor and the location of the artifact recorded using GIS the NAD 83 CONUS datum and the appropriate UTM zone (unless otherwise specified in the task order), and shown on the site map. Collected artifacts will be photographed in situ prior to removal, and a durable marker left at the collection location. All collected materials shall be analyzed and discussed in the final report. Arrangements for the curation of the collected artifacts will be the responsibility of the contractor and, as such, the contractor will be required to have a curation agreement with an appropriate Arizona repository for these purposes. All collections remain the property of the United States Government.

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Disposition of Collections and other Investigation Documentation
All material and data produced by the contractor in performance under this contract, or in work in support thereof, are, and shall be, the sole property of the United States Government; unlimited rights in ownership, usage, and equity for such materials and data, and shall be, transferred without reservation to the United States Government. Materials include, but are not limited to, the following items: manuscripts, outlines, abstracts, field notes, artwork (including maps, sketches, charts, tables and related overlays), photography (including negatives, digital imagery, transparencies, prints, and microfiches), geospatial data, collected artifacts, and data sheets. The final report will be distributed to interested parties by the government.

The contractor may use the archaeological data resulting from this survey for future research purposes. However, the contractor agrees to comply with all applicable site confidentiality requirements concerning the nature and location of cultural resources, Traditional Cultural Properties or sacred sites located during the survey. The contractor shall provide three copies of any manuscripts, reports, and publications pertaining to the

survey to the Forest Archaeologist on the forest where the work was performed and to acknowledge that the Forest Service funded the Fire Plan.

At the time a task order is placed, the appropriate Fire Plan will be provided if needed

Government-Furnished Property:
Upon award of individual task orders, the Government shall furnish to the contractor the following listed property and supplies, referred to as "Government-Furnished Property". The National Forest associated with each task order will supply this property.

1. 1:24,000 scale maps showing project boundaries, GIS files of project boundaries in Forest Service GIS format, and any other imagery, either electronic or hard copy, as specified in the task order.
2. Form R3-FS-2300-4, Inventory Standards and Accounting Form, in printed and/or digital format.
3. Isolated Occurrence recording form if applicable, in printed and/or digital format.
4. National Forest, Cultural Resources Photo Log if applicable, in printed and/or digital format.
5. USDA Forest Service National Site Form (with any requested addendum) or custom state site form modified for Forest Service use, in paper and/or digital format.
6. Geodatabase template for submitting digital locational information to conform to Forest standards.
7. Project number, site numbers (may request additional if needed during project), and site tags.

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Contractor Furnished Items:
The Contractor shall furnish all personnel, facilities, equipment, materials, supplies and services and otherwise do all things necessary for heritage resources field inventory and other associated activities located on the National Forest lands within Region 3 of the U.S.D.A. Forest Service in Arizona, hereinafter referred to as 'the Forest Service'. Equipment will include, but not be limited to, GPS units, cameras, etc.

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Quality Control:
The contractor shall prepare a Quality Control Plan pursuant to the requirements of the Statement of Work (SOW) as specified in an associated task order. This plan sets forth the procedures and guidelines that the contractor will use to assure that the work performed under the contract is complete, accurate, and meets the requirements of the standards set forth for this contract, including, but not limited to, fieldwork, laboratory analyses, documentation, and reporting. The Quality Control Plan shall include the submittal of bi-weekly progress reports identifying areas surveyed and cultural resources identified to date.

EXHIBIT F

GENERAL REQUIREMENTS FOR CONDUCTING ARCHAEOLOGICAL SURVEY ON THE COCONINO NATIONAL FOREST

(Revised May 25, 2023)

Principal Investigator, project supervisors and crew leaders must have the following minimum qualifications:

1. A graduate degree in anthropology, specializing in archaeology, or equivalent archaeological experience.

2. At least 16 months of professional experience and/or specialized training in archaeological field work, artifact analysis, and administration.

3. At least three months experience in archaeological survey or excavation on the Coconino National Forest.

4. Demonstrated competence in collecting, handling, analyzing, evaluating, and reporting archaeological data.

5. A demonstrated ability to plan, equip, staff, organize, and supervise a cultural resources survey.

6. The demonstrated ability to accurately locate archaeological sites on U.S.G.S. 1:24,000 maps, aerial photographs, in addition to demonstrated ability in the use of GPS units.

7. Demonstrated competence in identifying the prehistoric ceramics found within the Coconino National Forest, using the type names defined in the Museum of Northern Arizona Ceramic Series publications and as additionally described in the references listed below.

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Each crew member must have the following minimum qualifications:

1. At least 12 semester hours of credit in archaeology, anthropology, and/or history courses. Courses must include information on the conduct and theory of archaeological survey and excavation.

2. At least three months field experience in archaeological survey.

3. Crew members not meeting these requirements must work under the direct field supervision of a crew leader or project supervisor.

COORDINATION WITH ARCHAEOLOGICAL PERMIT REQUIREMENTS

All individuals proposed to work as principal investigators, project directors, or in other supervisory capacities must be approved by the Forest Archaeologist before that person may direct archaeological work.

Individuals, institutions, groups, and agencies applying for an archaeological permit will submit the *Vitae* of all persons who may work under the permit to the Forest Archaeologist. If additional individuals are recruited to work under the permit after its issuance, *Vitae* of these additional individuals must also be submitted to the Forest Archaeologist. Information in the *Vitae* will be used to verify that individuals meet the requirements listed above.

FIELD EXAMINATION IN LIEU OF EDUCATION/EXPERIENCE REQUIREMENTS

Individuals who do not meet the requirements listed above may demonstrate their competency in those areas by successfully surveying, documenting, and reporting a 40-acre test plot as per the requirements of this document.

Upon request, the Forest Archaeologist will assign a 40-acre test plot and will determine the adequacy of the survey and reporting results. Upon successful completion of the test, individuals will be approved by the Forest Archaeologist to survey under the conditions of an archaeological permit.

GENERAL SURVEY STANDARDS

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1. Before beginning work, the Forest and District Archaeologists are to be notified and consulted to determine the extent of previous survey work and whether sites are known or reported in the survey area. This data may be provided electronically upon request.

2. **Minimum Survey Sizes:** To maximize meaningful survey results, economy of effort, and minimize reporting error, the minimum acceptable survey unit size is 3 acres, centered on the project location.

For roads and other linear projects that are 30 ft. or less in width, surveyors shall survey a minimum of 120 ft. along the center line of the project. For linear projects with widths greater than 30 ft., the right-of-way plus 66 ft. on both sides of the right-of-way shall be surveyed. Having standard survey widths makes survey record checks more efficient to do, maximizes field survey efficiency, and provides a buffer that can accommodate most ancillary project activities and minor realignments.

3. Each crew must be directly supervised in the field by a crew leader who meets the supervisory requirements listed above. Individual survey crews may be no larger than five people.

4. In order to ensure complete, intensive coverage of survey areas, surveyors should be spaced no more than 20 m. (66 ft) apart. Spacing should be reduced as needed by vegetation and ground cover to ensure complete, intensive coverage. Map, compass, aerial photographs, and GPS units shall be used as needed to ensure systematic, even coverage of survey areas.

5. For areas other than linear projects, survey beginning, and end points shall be easily relocatable on the ground – such as washes, roads, meadow edges, timber sale boundaries, etc.

6. All work conducted under permit is subject to inspection and approval by the District and/or Forest Archaeologist.

ASSIGNMENT AND USE OF FOREST SERVICE SITE NUMBERS

Because of land exchange programs, Congressional and administratively determined land-management authorizations, and federal responsibilities for sites on non-federal lands when they are part of a federally authorized or assisted project (as per 36 CFR 800.16(y), all sites within the boundaries of the Coconino National Forest may be assigned a Forest site number.

Archaeological permittees will request Forest site number assignments and site tags from District or Forest archaeologists.

Forest site numbers will be used as the primary site reference number in reports, forms, correspondence, records, and other documentation resulting from the project. The Forest site number must appear in reports each time a site is referenced. Other site numbers should be indicated parenthetically.

DEFINITION OF "SITE" AND "ISOLATED OCCURRENCES"

Site

All cultural resources sites encountered are to be identified and recorded. For general purposes, a cultural resource site is defined as a locus of prehistoric or pre-1940 historic human activity at a level of intensity normally involving evidence of purposeful behavior beyond the level of one or a few (less than 25) accidentally deposited artifacts.

Minimal site identification criteria include at least two of the following:

(a) at least 25 artifacts within a definable area
(b) a density of at least five artifacts per square meter,
(c) three or more types of artifacts or materials,
(d) One or more features,
(e) One or more formal tools associated with other cultural material

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Isolated Occurrences

Occurrences of artifacts at less than the above shall be classified as "Isolated Occurrences". Three classes of Isolated Occurrences are recognized – Features, Scatters, and Isolated Artifacts:

A "Feature" is a construction that due to its recent nature or lack of association is not designated as a "site". Examples would be an isolated trash dump, abandoned road, old fence line, or a recent campfire ring. Features may or may not be recommended for protection from project activities. Isolated prehistoric features, such as petroglyphs, pictographs, grinding slicks, pecked hand and toeholds, or bedrock mortars, will normally be recorded as a site. Consult the Forest Archaeologist if there is a question about whether such remains should be recorded as an Isolated Occurrence or a site.

Trash Dumps

> Isolated historic period trash dumps without a known source or context, particularly post-1940, will generally be considered to be "Features" rather than "sites", regardless of artifact density and diversity. When reporting historic period trash scatters and dumps, descriptions should include the size of the dump or trash concentration, estimate the numbers of different types of trash items

present, a possible date for the trash, and suggest the activity(ies) the trash represents. Also, discuss implications for age, gender, and ethnicity suggested by the trash.

"Scatters" (less than 25 artifacts). However, a "pot bust" is considered to be a scatter, even if it contains more than 25 sherds.

"Isolated Artifacts" (an occurrence of ONE single item)

GENERAL SITE LOCATION AND RECORDING STANDARDS

1. All cultural resource features, sites, scatters, and isolated artifacts encountered during the course of a project are to be identified and recorded. General information on completing the Forest's site form is provided in Exhibit 1.

2. Each site discovered shall be plotted and identified with its Forest site number at the time it is recorded on USGS topographic maps. The use of a Global Positioning System (GPS) unit to delineate survey areas and site locations is required. Reports and site forms will identify the GPS unit model and the UTM Datum used (NAD 1983 is the Forest standard) to plot project and site areas. At a minimum, the location of the site tag, near the center of the site, must be taken. In the case of irregularly shaped sites, perimeter plots are desirable. Shape files and other GPS data for each project, locating project areas, sites, site perimeters, Isolated Occurrences, etc. will be provided electronically or on a CD with the final report.

3. From 1975 until about 2000, before reliable, inexpensive Global Positioning units were available, aerial photographs and acetate overlays were routinely used to plot the locations of archaeological sites. These aerial photographs and acetates are often invaluable for re-locating sites recorded before 2000. They may be borrowed from the Forest to assist in locating survey and site areas as well as a backup method, other than GPS, for locating sites and survey areas.

4. At least two digital photographs (minimum 1600 x 1200 at 5 megapixels), taken from different directions, will be taken of each site and feature, and submitted as part of the final project and site documentation package.

Photographs will be catalogued according to the examples in Exhibit 2. Camera digital image numbers will not be used as the final photograph identification number. Photographs from each site will be separated and assigned sequential numbers following the site number so that each has its own series of catalogued photographs beginning with "1", e.g., "05-1435.0001". For resurvey and site inspections, contact Forest or District Archaeologist for next available image numbers to be used for cataloguing.

5. Each newly discovered site shall be recorded using the USFS NRM electronic site recording system. Information and downloads of the requisite formats can be obtained from the Forest or District Archaeologist. In addition, hard copy site forms covering information listed on the Coconino National Forest site form must also be provided Except for site plans, handwritten forms will not be accepted. Information contained on the site form is to be consistent with the instructions in Exhibit 1 Both hard copies, as well as electronic copies, of site forms will be provided to the Forest or District archaeologist, periodically or upon completion of the project, as determined at initial project orientation meeting.

6. Isolated Occurrences: There are three types of Isolated Occurrences- Features, Scatters, and Isolated Artifacts. They shall be plotted on USGS maps and with UTM coordinates. Each Feature, Scatter or Isolated artifact is to be identified on a separate numerical list – e.g., Feature 1, 2, 3, etc.,

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Scatter 1, 2, 3, etc.: Isolated Artifact 1, 2, 3, etc. that includes a description of the feature or artifacts and the UTM coordinates for their location. When possible, isolated occurrence descriptions will include associated dates, cultural affiliation, material type, ceramic type, and other information relating to the context of the isolated occurrence.

ARTIFACT COLLECTION AND ANALYSIS

Collections may not be made under the authority of Non-disturbing Permits. Collections may only be made under Disturbing Permits, when working under a direct contract to the Forest (prime contractors only, not sub-contractors), or unless other arrangements have been made in advance with the Forest Archaeologist. This should be determined at initial project orientation meeting.

When artifact collection is allowed:

1. Collections may be made at the discretion of the archaeologist in the field, when authorized by the Forest Archaeologist. This pertains to rare finds, such as whole or nearly whole vessels, jewelry, diagnostic projectile points, etc. Any artifact collected must be located using a GPS unit. Collections remain the property of the U.S. Government and will be submitted to the federal repository listed in the permit or to the Forest Archaeologist upon completion of the project unless otherwise agreed to.

If found on a site, such rare finds are to be photographed and plotted on the site sketch. If they are an isolated artifact, or within a scatter, they are to be plotted on USGS topographic maps and GPS plots determined for each. UTM coordinates and related information will be provided to the Forest in electronic form and listed in the report. The report will also specifically state when individual artifacts are, or are not, collected.

2. Ceramic Analysis: Archaeologists should expect to encounter ceramic types in the Alameda Brown Ware, Tusayan White Ware, Tusayan Gray Ware, Tsegi Orange Ware, Little Colorado White Ware, Little Colorado Gray Ware, San Francisco Mountain Gray Ware, and Mogollon Brown Ware series. Other types may also be present in small numbers. Sherds shall be identified according to the standard type descriptions in Carlson (1970), Hays-Gilpin and van Hartesveldt (1998), Henderson (1979), and the *Museum of Northern Arizona Ceramic Series* (Abel 1955, Colton 1955, 1956, 1958; Colton and Hargrave 1937) unless otherwise agreed to with the Forest Archaeologist.

3. Lithic Analysis: Archaeologists should expect to encounter artifacts manufactured from sandstone, quartzite, rhyolite, obsidian, chert, petrified wood, and other siliceous and igneous materials. The typology used in classifying lithic artifacts shall be explained in the final report and the lithic material type identified for each artifact or class of artifacts observed or collected. At a minimum, manos should be identified by material and whether they are “one-hand” or “two-hand” in size, and whether they are unifacially or bifacially worked. Similarly, nether stones must be identified as to type, such as bedrock grinding slicks, mortars, grinding slabs, basin metates, trough metates, etc.

4. Artifact Density:

SITE TAGS

All sites found during the project must be marked with the Forest’s aluminum site tags unless other arrangements have been agreed to by Forest Archaeologist. Before beginning field work, the archaeological permittee should obtain a supply of aluminum site tags from the District or Forest

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Archaeologist which will be used to mark all sites recorded. Tags that are not used shall be returned to the District or Forest Archaeologist at the end of the project.

The aluminum site tag will be nailed on the south side of a tree near the center of the site, no more than 6 in. above the ground. If no tree is available, the site tag will be attached to the end of a metal wire or stake, driven into the ground at the center of the site, and a small rock cairn (at least 20 cm. high) erected around the wire or stake.

SITE MARKING STANDARDS

When sites must be marked for avoidance from project activities, they shall be marked on the ground in the following manner:

(A) The perimeter of the site will be marked by spraying a white horizontal band, at least two inches wide, at a height of approximately 5 ft. above the ground, around trees that circle the site. In addition, a spot above 6 in. in diameter will be painted at the base of each tree so banded with the spot facing into the site.

(B) The perimeter of the site will be additionally marked by tying pink, fluorescent flagging tape at chest or face height on the painted trees with the knot and a trailing strand of flagging tape on the outside of the tree, facing into the center of the site.

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(C) Both painted bands and flagging tape must be inter-visible and not obstructed by branches or foliage. Lathe, stakes, or posts that are clearly visible may be used to identify site boundaries when tree trunks are difficult to mark, there are no trees to paint, or there are no shrubs or rocks present to which the flagging tape can be attached.

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GENERAL SURVEY REPORT STANDARDS

Exhibit 4 provides the report format that should be used. If anything more than the information in this report format is needed, this should be discussed in advance with the District or Forest archaeologist. Specific information that should be included in this report format is:

(A) Legal location of the project area, identified by reference to a USGS map and the ` Township(s) Range (s), and Section (s) examined by the project.

(B) Identify the Ranger District (s) on which the survey was done by District name(s).

(C) Provide the dates during which the survey was done.

(D) Identify by name and position the people who performed the survey and who directed or otherwise had administrative responsibility for the project and survey work. Use full names, not initials e.g. “Tom Jones”, not “TJ” or “T. Jones”.

(E) Describe the manner in which the survey was conducted and the spacing between surveyors or survey transects.

(F) If a previously recorded site cannot be relocated, describe the distance and extent of area surveyed from the reported location in an attempt to relocate the site.

(G) State any factors influencing survey type or ground visibility.

(H) If less than 10 acres, state approximate dimensions of survey area in feet and provide total acreage surveyed for each survey unit as well as total area surveyed.

(I) Provide summary information of number of sites, Isolated Occurrences (sub-divided under the headings of Features, Scatters, and Isolated Artifacts) that were identified. All maps will include a north arrow (indicating true north) and must accurately depict areas surveyed and locations of sites and Isolated Occurrences. For the report, maps at a 1:24,000 scale, and larger scale maps, if necessary, will be prepared on 8 ½ x 11 or 11x 17 -inch paper. If sites are shown on the maps, the map must contain the statement "For Official Use Only. Disclosure of Site Locations is Prohibited (36-CFR-296.18)".

(J) Reports and records will be submitted in electronic format with two print copies. If photographs, prints, or illustrations are used, they must be of suitable quality to provide a clear, legible copy.

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(K) When sites have multiple site numbers, the Forest site number will be the primary reference used in the report. Other site numbers will be listed following the Forest site number or, if more than five sites are contained within the project, a concordance table listing all site numbers will also be included in the report.

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(L) Do not include Culture History and Environmental sections, unless such information is vital to later sections of the report and is specifically addressed in later sections. Overall general, summary statements of culture history and environment in report introductory sections is adequate. Avoid on-site descriptions of vegetation, soil type, soil color, etc. unless such information helps locate features or is germane to understanding site use, e.g. location of a roasting pit to nearest agave concentration, or unusual on-or near concentration of possible of cultivar plants. Simply reference existing reports and sources providing such overview information.(*Cf* Downum 1988, 1990, 1992; Elson 2011; Fish and Fish 1977; Pilles 1978, 1987, 1996, 2014; Powers and Pearson 2008; Wilson 1969).

(M) In clearance reports, only discuss and locate sites that are within or immediately adjacent to the project area, unless describing or postulating land use or settlement patterns. Do not reference sites outside the project area (the APE). When reporting previous sites in the vicinity of a project. DO NOT provide any GPS information or precise site plots on maps. Site numbers may be printed in the general vicinity of a site's locastion, but precise plots or locational information for sites outside of project areas are not allowed unless prior arrangements have been made with the Forest Archaeologist.

DOCUMENTATION TO BE PROVIDED TO THE FOREST ARCHAEOLOGIST

Two original printed reports, an electronic copy of the report, printed and electronic copies of data originating from the survey including site inventory forms artifact analyses, and survey locational data. NRM data should be provided to the CNF Heritage NRM Steward, currently the Special Uses Archaeologist in the Supervisor's Office.

Unused tags shall be returned to the District or Forest Archaeologist upon completion of the project or submission of the final report. The report will be reviewed by the District and/or Forest Archaeologist and, if needed, returned with comments and suggestions for revision. Revisions will be made within a mutually agreed upon time frame, and the final report submitted to the Forest Archaeologist.

Copies of site records for sites not on Forest land, but located within the boundaries of the Forest, will also be provided as above.

FUTURE USE OF DATA COLLECTED UNDER PERMIT

The permittee may use archaeological data resulting from this survey for future research purposes. However, per conditions of Forest Service archaeological permits, the permittee agrees to provide three copies of any manuscripts, reports, and publications pertaining to the survey data to the Forest Archaeologist, acting on behalf of the Forest Supervisor, within one month of its completion and/or publication. Manuscripts prepared for possible publication will be submitted once they have been completed in addition to any published versions that may be produced at a later date.

CONDITIONS OF USE OF DATA PROVIDED BY CNF

FINAL

Information needed by a permittee regarding previous survey areas and archaeological sites provided by the Forest can be provided but must be used solely for the purpose of the permitted project, unless otherwise agreed to by the Forest Archaeologist. Such information, when provided will be accompanied by the following confidentiality agreement:

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"Here is the electronic data (shape files/ site data/ site forms/ whatever) you requested for your project _____- Please note the conditions, below, under which these files and scans are being provided for your use.

Disclosure of site locations is prohibited by 36-CFR-800-296.18. These files and scans are the property of the USFS and are being loaned to you solely for official use for this project. They may not be duplicated to anyone outside _____ without written permission, and the precise locations of these sites are not to be disclosed in reports unless they are within the area of direct project impacts (the area identified in the project permit application.) Upon completion of the project, you agree to destroy all copies and versions of this information and will notify _____ when this has been done.

By accessing these files (through this e-mail/ or at our office) you are acknowledging your acceptance of these conditions."

STANDARDS FOR ACCEPTANCE OF WORK

Pre-field and field research, laboratory analysis, and reports are to meet professional archaeological standards determined through review by the Forest Archaeologist.

Pre-field research should be adequate to identify previously known or suspected locations of prehistoric and historic archaeological sites. At a minimum, this includes the permittee's inspection of the Forest's NRM and paper archaeological records, historic maps, and reports.

Field research should be adequate to identify and properly located 95% of all sites, and 75% of all Isolated Occurrences in the survey transects.

Laboratory analyses must correctly identify 75% of artifacts encountered, including ceramic types, artifact types, and the material from which artifacts were made. If artifact nomenclature is different from standard terminology (e.g., Adams 1997; Haury 1950; Gillio, Levine, and Scott 1980; Rock 1980; Sliva 2015; Loendorf and Rice 2005; Lyndon 2005) this is to be defined and explained in the final report.

Reports must contain the information mentioned above and must be written in a style that is clear, concise, and, most importantly, well organized, and easy to use. Poor writing, organization, production, etc. are grounds for rejection of the report. There should be no more than three errors in spelling, grammar, punctuation, and typing per page of the report. Legal descriptions in the report must agree with those shown in maps and figures. All sites, scatters, isolated artifacts, and features mentioned in the report must be shown on the report maps and vice versa.

All site information is to be on the site form with additional pages, if needed. Reports should not contain any information about a site that is not also included on the site form. If information is found in the report that is not on the site forms, the report and site forms will be returned for revision.

Appropriate knowledge of the prehistory and history of the Forest must be demonstrated by use of correct terminology, dating, and citations of primary references (e.g., Colton 1946), as well as the most recent publications pertinent to the cultural resources of the Forest.

Additional standards and requirements may be established for specific projects and will be discussed by the Forest Archaeologist and permittee at the time the permit is issued or prior to beginning fieldwork for a specific project.

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Exhibit 1

Instructions for Completing Coconino National Forest NRM Site Forms

FS Site Number: Obtain site number from Ranger District (RD) or Supervisor's Office (SO) or will be assigned by CNF upon submission of site form.

NA Site Number, if used: Will be assigned by the Museum of Northern Arizona

ASM Quad Number, if used: Will be assigned by Arizona State Museum, if needed

Project Name: Be sure name used is the same as name used in CNF project records

Project No.: Get project number from District or Forest Archaeologist before starting field work

Site Recording Date: Write out completely as "Sept. 15, 2007". Do not use numerical dates like "9/15/07"

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I. General Site Information

Site Description: Be brief and concise. Do not include or repeat information that is going to be provided in another section of the site form, such as locational information or artifact details.

Site Condition: Use the following terms ONLY: Excellent, Good, Fair, Poor, Critical (site mostly destroyed. These correspond with the condition rank numbers, 0-5, used prior to 2008.

Site Dimensions: Give length, width, and total area in square meters. Indicate how dimensions were determined – visual estimate, paced, measured by tape, GPS unit, etc. Indicate orientation of site – "Site is 100 m. northeast-southwest by 35 m. northwest-southeast". Estimated depth of soil is 50 cm. – 1 m.

Maintenance Condition Rating: See below or obtain current List of Values (LOV's)

Condition Narrative: Elaborate, if needed, upon site condition and identify the nature and extent of any damage present. Be specific. Don't just say "grazing" or "erosion". See below

Disturbances: See below or get current LOV's

Management Recommendations: The default recommendation "Scientific Study", not "Preservation" but Stabilization, Interpretation, Maintenance, or Monitor are also acceptable

II. Locational Information

Land Status: Will usually be "Coconino National Forest, _____ Ranger District". Otherwise indicate details of land status under **"Other Ownership".**

Map Quad: Provide complete USGS map name, scale, and date of map. e.g. Sunset Crater West 1:24,000, 1966.

State: Will always be Arizona. **County:** Will be either Coconino or Yavapai. **Township & Range:** Will always be ___North and ____ East. **Section ¼:** Provide down to nearest ¼, ¼, ¼, ¼, starting with the smallest ¼. Think of the words "of the", between each ¼ to help keep this in mind.

This is the SW ¼ "OF THE" SE ¼ of the NW ¼ of the SE ¼:

GPS Datum: USFS standard references is NAD 83, but always indicate the datum used. Survey crew members should always double check their settings to be sure they are all consistent.

UTM Source: Provide the GPS unit's manufacturer's name and model.

Additional GPS information: Add anything else regarding the precise location of the reading or adverse weather conditions that might affect the reading., e.g. "GPS reading taken 20 ft. west of site, in center of East Clear Creek, outside of site overhang."

Elevation: Elevations from GPS units are often incorrect. Verify elevation reading with USGS map plot.

Site Tag Location: Describe where the tag is located or if no tag was used. Forest protocol for site tags is to nail them to the south side of a tree, preferably 5-6 in., but no more than 1 ft. above the ground, as close to the center of the site as possible. If no tree is present, wire tag to a bush by the center of the site or affix site tag to a pin flag and build a small rock cairn around it.

III. Legal Status

National Register Status: This is a formal designation that requires consultation between the Forest and the State Historic Preservation Office and must be made by a professional archaeologist. The only acceptable terms are "Unevaluated", "Listed on the National Register", "determined Eligible under Criterion ____", "Not eligible", or 'Non-contributing".

National Register Status Justification: Discuss what's typical, or unique and unusual, about the site. How does it fit in the local/regional settlement pattern? Add what Criterion the site is eligible under. Be specific on WHY a site is eligible. Generic justifications such as "can contribute important information about the past", "information about past life ways" should be avoided. Relate significance to specific research questions, needs. or topics as identified in current literature of the area. Unless making a formal National Register nomination, don't discuss aspects of integrity unless they specifically support a site's eligibility criteria. e.g. Do not state that a site does or does not have integrity of design, feeling, location, the work of a master craftsman, etc. if it is only considered eligible under Criterion D.

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IV: Site Component Information

Temporal Affiliation: Is either **P** (prehistoric), **H** (historic), or **U** (unknown)

Culture, Phase, and Date: See List of Values. Provide site-specific date, based on ceramics, or general phase dates. "B.C.", is placed before the date, "A.D." is placed after the date – e.g. "3,000-5,000 B.C.", "A.D. 1150-1250"

Basis for Cultural Affiliation, Phase, and Dates: What is the basis for your evaluation? e.g., "geographic location,", "regional pattern", for general statements, or "Dominance of Verde Brown and Walnut B/w" for more specific assessments.

Theme: This relates to historic themes used by the National Register, State Historic Preservation Office, and National Park Service. See List of Values.

Function/Activity : this field should represent the predominate feature of the site, equivalent to 'Site Type'. Use the same List of Values as Feature Type.

Feature Types: See List of Values (below) for terminology. Give each feature a number, e.g. "Feature 1 - Pueblo, two rooms. Start with architectural units (pueblos, pit houses, kiva, etc.), then features (hearths, rock pile, cleared area, agricultural features, etc. and end with artifact categories

Description/Construction Technique: When masonry structures are present, describe wall construction technique, number of courses wide, wall fill material, stone type. How high are walls now, and how high might they have been originally, based on amount of wall fall. Provide size of each room/pit house, specifying interior dimensions. Give size of wall fall in addition to interior dimensions, when possible.

Artifacts: Artifact ID is the discrete artifact or group of artifacts being described – such as projectile point 1, Tusayan White Ware, ground stone, etc. Essentially, if the artifact is identified individually on a site map or site description, then it should be described individually in this matrix.

Provide information about quantity and location of artifacts. Most sites will have "sheet trash" – an overall scatter of artifacts. But are there also areas of artifact concentration? Estimate densities using the terms sparse, moderate, and abundant, as well as estimates of density by numbers (tens, hundreds, thousands).

V. Site Associations: Site recorders, company, publications, any other relevant person, or institution.

ADDITIONAL INFORMATION FOR COMPLETING SITE FORMS

LOCATION DATA: Add any additional information that will assist someone return to the site with a minimum of effort. **Always state distance and direction** and use compass bearings when appropriate. Use prominent terrain features that will help an individual return to the site. Do not use general references that are not directly useful to relocating the site – e.g., do **NOT** state "Mormon Mountain 2 mi. to northeast". Use only features in the immediate vicinity – e.g., "Prominent spike-top clump of dead ponderosa 200 m. NE

Do not assume such detailed information is superfluous because you are using a GPS unit. Document terrain reference points in your sketch map to help guide a person to the site, using traditional map navigating skills. .

SITE TYPE: this provides the Forest's list of standardized site "types" than can be used for initial computer sorting. The full NRM LOV for site types uses many terms to identify the same site type. This list attempts to reduce those terms to provide long-term consistency for site types on the Forest. Use the "Site Type" term below that best characterizes the site. Trash is considered a by-product of human activity and as such should not be used to identify the primary site type when other features are present. Hence, a site type would not be "an artifact scatter with a structure" but rather "a "field house with a [sparse/moderate or /abundant] artifact scatter." See published summaries of the archaeology of the area reconstructions of these past systems (Baldwin and Bremer 1986; Fish and Fish 1977; Fish, Pilles, and Fish 1980; Pilles 1978, 1979, 1981; Wilcox 1996, 1987.)

Rock shelter. A shallow overhang –usually not high enough to stand upright. (no structures)
Cave. A deep overhang – deeper than it is wide – in which one can usually stand upright. No structures.
Cavate. Sides of the cave have been modified or carved out by humans. Typically, with a wall built across the mouth of the cave.
Community Room: An unusually large pit house or room, typically 2-4 times larger than a "typical" pit house or room. Functionally, they are probably equivalent to a "Great Kiva", but do not have traditional Great Kiva features.
Lithic Scatter: Flaked and ground stone. No pottery.
Sherd Scatter: Sherds only.
Artifact Scatter: Sherds, flakes, and ground stone present.
Pit House Site, 1-2 depressions present: Depressions are evident, or density and diversity of trash suggests pit houses are present.

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Pit House Site, 3-4 depressions evident
Pit House Site, 5-8 depressions evident
Pit House Site, 9-12 depressions evident
Pit House Site, 13-20 depressions evident
Pit House Site, 20+ depressions evident
Field House: A structure utilized seasonally, typically during planting , harvesting, or for other temporary uses. Characterized by low walls with insufficient rock fall to provide full-height walls. Sparse artifacts, few decorated/trade ware sherds, no exotic materials such as jewelry, points rare, few artifacts other than ground stone tools or fragments.
Pueblo, 1-2 Room Habitation: Distinguished from a field house by having sufficient wall fall to have had full height walls, diverse artifact assemblage, moderate number of decorated/intrusive pottery, variety of lithic material, etc.)
Pueblo, 3-4 Rooms
Pueblo, 5-8 Rooms
Pueblo, 9-12 Rooms
Pueblo, 13-20 Rooms
Pueblo, over 20 Rooms
Agricultural Site: Evidence of agricultural features only, such as rock piles, linear borders, or grid borders. If a field house is also present, it has precedence over an "agricultural site" site type identification.
Historic Site (specify type of historic site present. There is not currently a standardized historic site typology).
Rock Art Site: (Specify if petroglyphs, pictographs, intaglios, terraforms, dendroglyphs, etc. are present).
Roasting Pit
Ball Court
Other

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Multi-property terms, such as "fort" or "cliff dwelling" may also be used as a secondary level of "site type".

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Multiple site types may be present on a single site; however, determine the most appropriate primary site type designation. Except for "scatters", a secondary site type may also be added, e.g., "Pueblo, 9-12 rooms / agricultural", "field house/agricultural". Artifacts are usually present on most sites so the presence of features takes precedence identifying a site type. i.e. the primary site type term for a field house with artifacts should be "Field House", not "Artifact Scatter with a field house"; or "Pithouse" not "Artifact scatter with pit house".

CONSTRUCTION TECHNIQUE: When masonry sites are present, describe the wall construction method, if this can be determined. Watch for differences between basal courses and upper courses. – e.g., "Double coursed wall, filled with fist-sized rocks. Basal course of upright slabs, upper courses are evenly spaced. No shaping. All limestone".

The following observations have been found useful for distinguishing seasonally used field houses from permanent habitation pueblos. All are "best guess" estimates.

RUBBLE HEIGHT NOW: How high (metric) is the mounded wall fall now?

ESTIMATED ORIGINAL HEIGHT: How high (in meters) could the wall have stood originally?

STONE: Identify stones used and, if multiple stone types present, indicate which is dominant.

TRAILS: Indicate evidence for human-made trails, not modern game trails.

ROCK ART: If rock art is present, specify if petroglyphs or pictographs, approximate number of panels, approximate number of elements. Indicate what pecking techniques are present (Direct Percussion, Indirect Percussion, Sharpened Hammerstone, Scratched, Incised, Abraded, etc.) and colors present in pictographs.

TRASH/ARTIFACT DENSITY: Indicate the number of sherds, lithics, and ground stone artifacts by type that are present at the entire site by either counting the total number of each, if site is small, or by using 1 m. sample units, if site is larger. The terms sparse, moderate, and abundant may be used, but each must be quantified, e.g., "sparse(< 1 artifacts/sq. m.), "moderate" (2-5 artifacts/ sq. m.), or "abundant" (> 5 artifacts /sq. m.). Do **NOT** use combinations like "Sparse to Moderate". Provide a general overall site density estimate by counting a few random 1 m. sq. areas and averaging them to state an average site density of "general density of X sites/sq. m.".

ADDITIONAL SITE DATA: Describe anything else you can about the site. Give details on structure sizes, masonry techniques, similarity, or differences of this site to others in the area, etc.

DISTURBANCE: If the site has been damaged, indicate the nature and severity of disturbance. Actions such as cattle grazing, tree growth, weathering, and erosion are considered to be natural processes and are not usually considered "damage". Only indicate these if they have caused damage beyond that which would normally be expected, like if a tree is growing inside a pit house, an arroyo has cut through the site, or a major cattle drive has impacted the site. In any case, be specific about the location, extent, and severity of damage, rather than general terms such as "cattle grazing", "erosion", "recreational use" etc. Be specific as to WHAT damage has such activities caused and WHERE is it?

SITE SIZE: Give the size of the site according to its short and long axes in meters and indicate the direction of these dimensions – e.g., "25 m. N-S x 45 m. E-W".

HOW DETERMINED? Do not visually estimate distances. Either pace these dimensions or measure them with a tape or GPS unit.

TOTAL AREA: Multiply the length by the width of the site to compute the site's total area in square meters or determine with a GPS unit.

DISCUSS SITE RE: LOCAL/REGIONAL SETTLEMENT: From spending time in an area and recording its various sites, you should have formed some impressions about the archaeological settlement and land use pattern of the area. Summarize and interpret these impressions here. This section should discuss the site as it relates to other archaeological sites in the area. Try to relate this site to broader settlement and land use patterns and discuss its potential significance to regional archaeology. Indicate how typical or unique it is compared to other sites in the area. Infer site function.

SITE TESTED/EXCAVATED/DOCUMENTED: If the site has been professionally investigated, indicate the level of work that has been done. "Testing" would include the digging of test squares or trenching to examine sub-surface remains and the site extent. "Excavation" would involve the excavation of 50% or more of the site. "**Documented" does not mean a site form has been prepared;** rather, it means documentation beyond a basic recording level, such as would be done for mitigation from project impacts, or for research purposes. Examples would be documenting a historic structure by making measured drawings or taking extensive photographs. Or, in the case of a petroglyph site, when detailed descriptions, sketches, measurements, and photographs have been made of each element.

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CHRONOMETRIC DATES: If available**, i**ndicate if tree-ring, archaeomagnetic, obsidian hydration, or other dating techniques have been used on the site and provide those dates.

REFERENCE/PUBLICATION: If there is additional information about the site beyond the site form and photographs, indicate what and where it is. If the site appears in a report or manuscript, give the reference. For example, "See site file", "Part of Winona Village. McGregor 1937:45.", "Colton 1946:146." Do not state "see site file" unless there IS a site file that contains additional information.

TAG LOCATION: Indicate where on the site a site tag has been placed – e.g., "Tag tree is an alligator juniper, 36 in. dbh, at NW corner of pueblo". The tag should be placed near the center of the site, on the south side of a tree, no more than 1 ft. above the ground. If a tree is not available, tag can be tied to a sturdy bush or place beneath a small cairn of rocks in the center of the site. Also, be sure to identify the location of the tag in your site sketch.

RECORDED BY: Enter full first and last names of people. **DO NOT USE INITIALS ALONE.** This should include all members of the crew who recorded the site with the main site recorder's name appearing first. .

DATE: Enter the date the site was recorded listing the month, date, and year, in that order. **DO NOT** use military or European style for citing dates. If the site was previously recorded, enter the earlier recorders' names and the dates the site was first recorded, then the names and dates for the current recording of the site.

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IDENTIFY ARTIFACTS: Identify ceramic and artifact types collected or observed in the field. This information should be extensive and complete so that the site can be assigned to a cultural and temporal placement. If a site is small, the total collection analysis should be listed. Ceramics are to be identified to the type level following the Colton/Hargrave typology. If sherd or painted design is too small to identify to type, identify it to the Ware level and identify as such. e.g. simply " 4 Tusayan White Ware sherds", not "4 unassigned/ unidentified/ undifferentiated Tusayan White Ware sherds".

IDENTIFICATION/COLLECTION TECHNIQUE: Indicate how the artifacts were recognized for identification or collection purposes, if authorized. For example, "Total site id", "Grab", "Grab with emphasis on decorated sherds", "100% id in every other meter square through N-S axis of site", "Four 1 sq. m. units collected" etc,

SITE MAP: This is a detailed sketch of the site, local topography, features, location of diagnostic artifacts, structures, structure numbers, size of structures, site tag location, etc. If a GPS map is not made, a compass and pace map of the site is acceptable.

Exhibit 1 – Site Form

NA _____ **Ariz**. : : ___ (ASM) **AR-03-04- - .**

Site Name/Other Site Numbers: _____

Project Name: _____**CNF Project No.:** _____

Location Information
Land Status: Coconino National Forest _____Ranger District

Other Ownership : _____

USGS Map Quad.: _____ **State:** Arizona **County:** Yavapai___ *or* Coconino __
T N, **R E** , **Sec.** , ¼ ¼ ¼ ¼ **Elev.**: ft
UTM: Zone 12 ***East***:_____ ***North***: _____ **Datum:** NAD 1983

GPS Unit: _____ **GPS Comments**: _____

Site Tag Location:
_____

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Directions to Site: (Describe route from major highway & milepost. Give landmarks, references, etc.):
_____

Site Type: *(See LOV's)*_____

General Site Information
Site Description (add additional information on back):

Cultural Affiliation(s):

P,H,U	Culture	Phase(s)	Date *(of phase)*	Date (Based on Artifacts)

Basis for Affiliation, Phase, and Dates *(Be specific! Sherd types, point forms, bottle/can types, assemblages, etc.)*

Theme (see LOVs): _____

Function/Activity (see Feature Type LOVs, pick predominate feature of site):

Features:

No	Feature Type *(see LOVs)*	Material/ Stone type	Describe *(Construction technique, courses wide/high,*	Wall hgt now	Wall hgt originally
1					
2					
3					

Site Condition
Disturbance *(Circle):* **Rank: 0** *(undisturbed)*, **1** *(Good)*, **2** *(Fair)*, **3** *(Poor)*, **4** *(Critical)*, **5** *(Destroyed)*
Describe source and specifics of disturbance:

Vandalism (?) *(Circle)*: **Yes / No** **Pot hunted (?)** *(Circle)*: **Yes / No**
Describe:

Site Dimensions: Length_____ m. Width_____ m. Area_____m²
How determined ?: Visual estimate _____ Paced _____ Taped _____ GPS _____

Ground Visibility: Overall, what percent of the ground surface is visible? _____

Mangmt. Recommend (see LOVs or choose 1): Research _____ *(preferred default for all sites)*
Interpreation _____ Preservation _____

Management Recommendation Narrative:

Management Condition (see LOVs):

National Register Recommendation: Unevaluated___, Eligible___, Not Eligible___,
Criteria (*A,B,C,D*): **_____ Basis for Eligibility: R-3 PA ____** and/or **Other _____**
Why ? *(Discuss site re: local/regional settlement. Specific research potential. What's typical or unique?)*

Status: Unevaluated___, Eligible___, Not Eligible___, Listed ___

Site Recorded By:

Name	Agency/Organization	Date

Artifacts:
Density: + artifacts/m²___. *(Sparse, Moderate, Abundant):* **Ceramics: ____ Lithics: ____ Ground Stone: _____**
Sample Type: Grab ____ Controlled ____ Grab & Controlled ____
(*Use separate sheets for controlled sample information)*

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Artifact FS No.	Class *(see LOVs)*	Type *(see LOVs)*	Count	Coll-ected	Cat No.

Photographs:

No.	Subject:	Facing:	Photographer:	Date:

Site Associations

Previous Projects/Events and Report No(s):

References/Publications:

Add any additional information on back of form or on continuation sheet.
Attach Site sketch, Map(s), and illustrations.

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Exhibit 2

Photo Log

Digital photographs should be identified on a photo log, as per the following example. .

Example of completed photo log:

Date of latest revision: Aug. 11, 2006 ***By: Peter J. Pilles, Jr.***

Coconino National Forest - DIGITAL Photo Identification Sheet

Site AR-03-04- 06-273 Devil's Dining Room

Photo cat. no.:	**Description.** *(Identify people by name. Describe what you are trying to show by taking this photo.)*	**Direction: Facing**	**Photographer's Name** *(Not initials)*	**Date**
NOTE: These are photo catalogue numbers, not camera image numbers. Rename your images with a cat. number.				
06-273. DIGITAL.				
.0001	Looking over site and Forest Road 179-F. Vehicle is in parking area adjacent to Devil's Dining Room.	SSW	Peter J. Pilles, Jr.	Aug. 10, 2006
.0002	Looking over site andForest Road 179-F	N	Peter J. Pilles, Jr.	Aug. 10, 2006
.0003	Looking S. over FR 179-F that cuts through site	S	Peter J. Pilles, Jr.	Aug. 10, 2006
.0004	Detail of artifact density on W. side of road	SE	Peter J. Pilles, Jr.	Aug. 10, 2006

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Exhibit 3

Logging Railroad Grade Evaluation Criteria

Obtain current information from District or Forest Archaeologist.

For background information on the Forest logging railroad system, see Pat Stein, 1993, *Logging Railroads of the Coconino and Kaibab National Forests*. SWCA Archaeology Report No. 92-26. USDA Forest Service, Southwestern Region, Report No. 19, 2006. Copies may be obtained from the Coconino National Forest.

Exhibit 4

Standard Report Format

NOTE: Edit header to include project number & page number on all pages

FINAL

An Archaeological Survey and
Cultural Resources Clearance Report for **
Coconino National Forest, Arizona

Note: SHPO has asked that the titles of reports clearly indicate when a new survey is involved, if it is just a clearance based on previous work, or a combination. So, use appropriate title to indicate this.

DRAFT

By
* District Archaeologist *(or whatever author's position is)*

, 2013

Table of Contents, List of Figures: Only use one when it is a complex, lengthy report where a table of contents, figures, tables are needed to find necessary information

ABSTRACT

This should be a short, concise summary of what project activities are involved, how many sites were found, sites determined eligible, not-eligible, undetermined, project acres, new acres surveyed, percent of project area sampled. This should be suitable for cutting and pasting into the IS&A form.

Project Acres:
New Acres Surveyed:
Acres Re-surveyed:
Previously Surveyed Acres: *Previously surveyed that are used to provide clearance*.
Project Location and USGS Quadrangle:
Names of Surveyors:
Dates of Field Survey:
Total Sites in Project Area:
Newly Recorded Sites: Eligible: Not Eligible: Unevaluated:

Previously Recorded Sites: Eligible: Not Eligible: Unevaluated: *(This will be detailed by individual site numbers in the National Register Eligibility Table attachment to the IS&A.)*
Isolated Occurrences: Features: Scatters: Isolated Artifacts:
Clearance Recommendations: *If recommend monitoring, always include requirement for a report. Can be as simple as e-mail or a complex report.* **None: Avoid:**
Flag sites for avoidance: Monitor: Other:
Determination of Effect: *Delete those that do not apply. No. refers to coding no.* 1) No Effect: 2) No Adverse Effect: 3) Adverse Effect: 4) Not an Undertaking: 5) Beneficial Effect: 6) No Sites Present:

INTRODUCTION

Project activities will consist of ** *(list all activities associated with the project including ancillary support components, such as access roads. Include direct, indirect, and cumulative effects, as needed.)* An archaeological survey was performed to determine if cultural resources were present that might be affected by the proposed **. The project is located in T*N, R*E, Sec. * on the ** Ranger District of the Coconino National Forest, Arizona (Figure 1). *When a project is being done under the provisions of the R-3 PA, such as staged, modified survey strategy, sample surveys, etc., refer to the specific provision in the PA under which work was done, or reference date of consultation with SHPO.*

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PREVIOUS SURVEYS AND RECORDS SEARCHES

DRAFT

The Forest's INFRA database, Geospatial Data Bases, and Archaeological Atlas have been reviewed to locate previously surveyed areas, recorded sites, and sites for which locations are uncertain.

Author and Date	CNF Project No.	Project Name	Comments
Example: Kuehn, David 1977	1978-8-D	Stumpwood Sale: Anderson Mesa	No report prepared

A total of *** projects have been conducted in the proposed project area, covering *** acres. These projects are considered to meet current survey standards. *If this is not the case, explain.*

The Forest's Historic Maps Atlas has been reviewed to identify historic properties that have not yet been recorded. *Depending on the size of the project, the intent is to locate historic locations that may have remains that fit the CNF definition of "site". This is not an index of all places and features shown on all historic maps. Do not include infrastructure such as roads, telephone lines, power lines, gas lines, etc. If found in the field, these will usually be considered features. Known historically significant routes, such as the Beale Road, General Crook Road, etc. may be identified, but if previously recorded, describe under "Sites". If uncertain, consult the Forest Archaeologist.*

Reference any other sources consulted as well, citing author, date, place of publication or other necessary refence citations.

The Coconino National Forest Site Density Prediction Model [1](Barrett 2010) *(T:\FS\NFS\Coconino\Program\2300Recreation\2360HeritageRestricted\GIS\Site_Density_Model)* indicates that the project area is Class *** with a predicted site density of *** sites per square mile. *Modify this as needed for large projects that may include areas of different predicted site densities.*

Buffer Zones: *Buffer zones are not usually included, other than sites that have not been precisely plotted with GPS and that may be in close proximity to the project area. If buffers are necessary, 200 m. is considered adequate, otherwise consult with the Forest Archaeologist. If such sites are identified on maps, do not use a point locator, only the USFS site number in the vicinity of the actual site location.*

Environment and Culture History: *These will not be in reports unless they are directly relevant to determinations of significance. Consult with the Forest Archaeologist before including such sections.*

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THE SURVEY

Survey Strategy

This is only needed when less than 100% survey is conducted. If less than 100% survey is done, indicate the type of sample employed (judgmental, random, stratified, etc.). Discuss how sample areas were selected, why, and where. Consider ground visibility, slope, elevation, land ownership, etc. when areas are omitted from survey. Indicate when the Forest Archaeologist, SHPO, tribal representatives, etc. were consulted or provided input into sample strategy.

Survey Methods

The survey was conducted on ** by **, **, by walking a series of parallel transects spaced 66 ft. apart over the entire project area. The project area measures ** by ** ft. (* acres). The survey area measures * by * ft. (* acres). A total of * acres were surveyed. *If the project, or any part of it, has previously been surveyed, provide separate figures for "newly surveyed acres" and "resurveyed acres".*

Survey Results

* sites * features, * scatters and * isolated artifacts were found. Definitions of "site", "isolated 0ccurrences", "feature", "scatter", "isolated artifact" are contained in FSH 2309.24 and the "General Requirements for Conducting Archaeological Surveys on the Coconino National Forest". References for dating of ceramics, projectile points, and historic artifacts are *** or "those referenced in the Coconino National Forest "Guidelines".

---

[1] Site density ii predicted on number of sites/sq. mile based on 134 environmental units in the USFS Terrestrial Ecosystem Soil Survey. Class 1 = Very low, 0 sites/sq. mi; Class 2 = Low, 1-10 sites/sq. mi; Class 3 = Moderate11-20 sites/sq. mi; Class 4 = High, 21-30 sites/sq. mi; and Class 5 = Very High 30+ sites/sq. mi.

Indicate how survey results do or do not support the CNF predictive model. If different from prediction, state how results differ and possible explanations why.

THE SITES

Do not include photographs or site plans unless there is something very unusual about a site or if there is a need to convey certain information about the site or its setting that is relevant to its eligibility or protection or when actions are proposed within a site. DO, however, include plans and photographs for sites that are being determined not eligible, as per the SHPO's request.

AR-03-04-_____ **UTM Coordinates: _ __ ___ E., __ __ ___ N.**
Cultural Affiliations: **Phases:** **Dates:**

*State the basis for assigning culture and phase determinations. Be specific. Don't say "based on decorated sherds", cite the specific types that indicate the dates. For projectile points, identify the type of projectile point, as per Krug ****, or describe the point.*

Site Description:

Artifact Types and Density: *Artifact density refers to the overall site, not variable densities within the site, although loci with densities greater than the overall general site density should be identified and plotted on the site plan. Only one overall density term for the site as a whole is to be used. DO NOT USE TERMS LIKE "SPARSE-MODERATE" or "MODERATE TO DENSE". If a small site, give a total site artifact count by artifact class. If the site is too large for this, sample the entire site area by appropriately sized metric units and provide artifact densities in terms of artifacts per square meter. When describing artifact density give numerical ranges. The terms "low", "medium", and "abundant" may be used, but the approximate count ranges for each rating must be defined, e.g., " low density = 3-10 artifacts per sq. m., moderate density = 10-30 per sq. m." whatever is appropriate for the part of the Forest in which the survey is being done. Do not use "more-than" counts, e.g., "200+".*

Although collection of artifacts is not usually authorized, identify specific artifacts that were collected and include the phrase "with the authorization of the [District or Forest] Archaeologist."

Determination of Eligibility: *This should be no longer than necessary to demonstrate a site is eligible under one or more of the Criteria. Any additional information not needed to demonstrate minimal eligibility should not be in a clearance report, but a more appropriate document such as a Forest Heritage management plan, District overview, National Register nomination, archaeological property evaluation, property type thematic evaluation, professional publication, or similar document. Identify the specific criteria for which a site is eligible (i.e., A, B, C, and/or D) and be sure to discuss its integrity. Aspects of integrity include location, design, setting, materials, workmanship, feeling, and association as they relate to the significant qualities of the*

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site (see National Register Bulletin 15). Give specific reasons WHY a site is eligible or not eligible. Statements like "important information for land uses" are not acceptable. Reference potential for contributing to specific research questions for the Southwest and/or for the prehistoric, protohistoric, and historic groups represented on the Forest. Reference existing overviews, thematic National Register documents, and SHPO context documents. As professional archaeologists, part of our legal responsibilities is to make knowledgeable, objective determinations of eligibility – not to save every site we find. Unless there is clear potential for significant information, the site should be left unevaluated or, more likely, not eligible. For example, if a site is an artifact scatter, with no features, no diagnostics, and little potential for subsurface deposits, it should probably be determined not eligible.

If the report covers a large number of sites, a table should be included as an appendix. See Appendix A.

THE ISOLATED OCCURRENCES

Features

Ftr. No.	Description	± No. of Items	Extent (m. NS x m EW)	Approx. Date	UTM-E Easting	UTM-N Northing
Ftr 1:						
Ftr 2:						

Artifact Scatters

Scat 1:*						
Scat 2:*						

Isolated Artifacts

IA 1:*						
IA 2:*						

* = Artifact collected *Use asterisk if artifact(s) collected. Delete asterisk if not collected.*

TRIBAL CONSULTATION *(IF NEEDED. IF NOT, DELETE)*

The following Native American Indian groups were notified of the project in the Coconino National Forest Annual Consultation letter dated _____, *confirm project is listed there* as well as the Forest's Schedule of Proposed Actions and quarterly updates: Dine' Medicine Man's Association, Fort McDowell Yavapai Nation, Hopi Tribe, Hualapai Tribe, Havasupai Tribe, Navajo Nation, Pueblo of Acoma***(**Only for projects***

on S.F. Peaks) , Pueblo of Zuni, San Carlos Apache Tribe, San Juan Southern Paiute Tribe, Tonto Apache Tribe, Yavapai-Apache Nation, Yavapai-Prescott Tribe, and White Mountain Apache Tribe. No replies about tribal concerns about this project were received. No areas of traditional cultural importance or areas of specific tribal concern are known for this part of the Forest, based on previous consultations and Forest research into tribal uses of the Forest.

Only include this if you are making a DOE: The Hopi Tribe, the Yavapai-Apache Nation, and the Yavapai Prescott Tribe concur with the recommendations of eligibility as per a Memorandum of Agreement signed Jan. 9, 2003, and other agreements of January 24 and February 4, 2002, respectively.

CLEARANCE RECOMMENDATIONS

The latest Forest Service listings for the National Register of Historic Places have been consulted, and no sites on or nominated to the Register are known to be in the project area. Sites ** are considered eligible for nomination to the National Register of Historic Places under Criterion D of 36-CFR-60.4. *or additional criteria if appropriate.*

Sites _____ are determined eligible under Criterion D and will be protected. Sites _____are unevaluated but will be protected pursuant to FSM 2361.1(2) and FSM R-3 2361.21(2) until testing or additional information is available that would allow conclusive determinations of eligibility to be made (Programmatic Agreement V.D.3).*See Programmatic Agreement Appendix B List of Properties that May be Considered Eligible without further consultation)*

The isolated occurrences are not considered significant and require no further protection, as per the First Amended U.S.D.A., Forest Service, Region 3 Programmatic Agreement Regarding Cultural Property Protection and Responsibilities, dated December 24, 2003.

The _____Ranger District is responsible for notifying the Zone or Forest Archaeologist before initiating any activities as part of this project, to ensure the proposed activities have cultural resources clearance and that project personnel are aware of the conditions of this clearance.

Should any additional prehistoric or historic archaeological sites be encountered during the course of the project, they are to be avoided and reported to the District or Forest Archaeologist.

Consider using a monitoring requirement:

The_____ District _____ (*Title*) will periodically monitor the sites during the time the project is active to ensure sites are being avoided and the conditions of this clearance are being met. Should any site damage be noted, work in the vicinity of that

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site will stop and the District or Forest Archaeologist contacted to determine an appropriate course of action.

DETERMINATION OF EFFECT

This section must make a statement as to whether or note the proposed undertaking will have an effect upon the significant qualities of the archaeological sites/historic properties within the Area of Potential Effect of the project. The only determinations that may be used are "No historic properties effected", "No effect", "No Adverse Effect", or "Adverse Effect". Note that there can only be one determination of effect and that relates to the entire undertaking, not one aspect of the undertaking, not individual portions of the undertaking, and not individual sites. You do not make determinations of effect on individual sites. If one property is affected by an undertaking, ALL are effected by that undertaking. Effects are measured against the specific qualities of significance of individual properties. Effect to visual, auditory, or atmospheric qualities are only present if they are contributing qualities to the National Register significance of a property.

If these recommendations are followed, there will be _____ Effect to cultural resources by the proposed project.

This report is submitted in compliance with the provisions of the National Historic Preservation Act of 1966, as amended, and the First Amended Programmatic Agreement between the Arizona State Historic Preservation Officer [and other R-3 SHPO's], the Advisory Council on Historic Preservation, and the USDA Forest Service, Region 3 (Dec. 24, 2003).

Cultural Resources Clearance for the ** Project is recommended, contingent upon the above recommendations.

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REFERENCES CITED

(NOTE: Unless otherwise noted, all reports are manuscripts on file at the Coconino National Forest Supervisor's Office, Flagstaff, Arizona. Previous project references listed in Table ___ need not be repeated here.

Barrett, Chris
2010 Coconino National Forest Site Density Predictive Model. Geospatial data layer at Coconino National Forest Supervisor's Office, Flagstaff.

Authors' names
19 An Archaeological Survey and Clearance Report for____ (CNF Project ___-____).

Coconino National Forest
2013 General Requirements for Conducting Archaeological Surveys on the Coconino National Forest.



Figure 1. Area Surveyed for **, (Project No.**), located in T*N, R*E, Section * . Base map is *, Ariz., U.S.G.S., 7.5' quadrangle.

Appendix A: Table of National Register Status of Historic Properties

Site No. & Name	Site Type	Culture	Phase & Dates	Eligibility Criteria	Easting (NAD 83)	Northing (NAD 83)	Comments

NOTE: Land status is Coconino National Forest, and property type is "Site" unless otherwise noted under comments.

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Move following section into the Revised Guidelines for Working on CNF

Consider citing an appropriate historic context document and/or state how site contributes to a specific research topic pertinent to the prehistory or history within the Coconino National Forest.

Within the historic thematic contexts reports produced by the State Historic Preservation Office as components of the Arizona Historic Preservation Plan, the following sites are most appropriately considered under the following context report(s):

Site	Context Report	By
02-1234	Rock Art in Arizona	J. Homer Thiel
02-1234	Prehistoric Water Utilization Technology in Arizona	Michael S. Foster, M. Kyle Woodson, & Gary Huckleberry
02-1234	Prehistoric Non-Irrigated Agriculture in Arizona	David E. Doyel
02-1234	Prehistoric Irrigation in Arizona	Allen Dart
02-1234	Making and Using Stone Artifacts: Lithic Sites in Arizona	Jane Sliva
02-1234	Transcontinental Railroading in Arizona, 1878-1940	Janus Associates
02-1234	Homesteading in Arizona, 1862-1940	Pat H. Stein
02-1234	The Basques in Arizona from Spanish Colonial Times to the Present	Pat H. Stein
02-1234	Historic Trails in Arizona from Coronado to 1940	Pat H. Stein
02-1234	The Chinese in Arizona, 1870-1950	M.Keane, A.E. Rogge, B. Luckingham
02-1234	Gold & Silver Mining in Arizona, 1848-1945	Melissa Keane & A.E. Rogge
02-1234	The United States Military in Arizona, 1846-1945	W.S. Collins, M. Sturgeon, R. Carriker

Site	NRHP Multiple Property Nomination Form	By
02-1234	Warfare Between Indians and Americans in Arizona, 1846-1886	Don W. Ryden & Doug Kupel
02-1234	Logging Railroads of the Coconino and Kaibab National Forests	Pat H. Stein

Site	Other	By
02-1234	The Civilian Conservation Corps in Arizona: A Context for Erosion-Control Features	Gregory R. Seymour *The Kiva,* 63(4)359-377

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8. A.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To: The Honorable Mayor and Council

From: Alaxandra Pucciarelli, Current Planning Manager

Date: 08/31/2023

Meeting Date: 09/05/2023

TITLE:

Public Hearing, Consideration and Possible Adoption of Ordinance No. 2023-21: A public hearing, consideration and adoption of an Ordinance of the City Council of the City of Flagstaff, extending and increasing the corporate limits of the City pursuant to the provisions of Title 9, Chapter 4, Arizona Revised Statutes, by annexing approximately 1.82 acres of land located at 2445 S. Woody Mountain Road, which certain land is contiguous to the existing corporate limits of the City of Flagstaff, and establishing city zoning for said land as Rural Residential (RR); providing for severability, authority for clerical corrections, and establishing an effective date. ***(Liv Timber Sky Annexation)***

STAFF RECOMMENDED ACTION:

At the September 5, 2023 Council Meeting:

1) Hold public hearing

At the September 19, 2023 Council Meeting:

2) Read Ordinance No. 2023-21 by title only for the first time

3) City Clerk reads Ordinance No. 2023-21 by title only (if approved above)

At the October 3, 2023 Council Meeting:

4) Read Ordinance No. 2023-21 by title only for the final time

5) City Clerk reads Ordinance No. 2023-21 by title only (if approved above)

6) Adopt Ordinance No. 2023-21

Executive Summary:

An Annexation request from Vintage Partners and Liv Communities, LLC of approximately 1.82 acres located at 2445 S. Woody Mountain Road. The property is identified as a portion of Coconino County Assessor's Parcel Number 112-01-019B which is approximately 13.01 acres and the adjacent S Woody Mountain Road right-of-way . This annexation request is the first part of a two-part request. The second part of the request is a Direct to Ordinance Zoning Map Amendment to rezone from RR to High Density Residential (HR).

Financial Impact:

The purpose of this annexation is to develop the entire parcel under the City's HR zoning. Currently, the site has access directly onto either City or ADOT maintained roadways. The property may be served with adjacent City water and sewer. No additional maintenance costs will be incurred through the annexation of this County property.

Policy Impact:

None

Connection to PBB Priorities/Objectives, Carbon Neutrality Plan & Regional Plan:

PBB Priorities/Objectives

- Utilize existing long-range plan(s) that identify the community's future infrastructure needs and all associated costs.
- Grow and strengthen a more robust, diverse, and resilient economy.

Regional Plan

- Goal LU.7.2 – Require unincorporated properties to be annexed prior to provision of City services, or that a pre-annexation agreement is executed when deemed appropriate.
- Policy WR.4.3 – Development requiring public utility services will be located within the Urban Growth Boundary.
- Page III-10:
  - The proposed annexation should not be detrimental to the majority of persons or property in the surrounding area or the community in general.
  - Annexation must demonstrate a favorable benefit to the taxpayers of the City.

Carbon Neutrality Plan

- DD-2: Create inclusive networks for walking and biking that are continuous, attractive, safe, comprehensive, and convenient for people of all ages.

Has There Been Previous Council Decision on This:

None

Options and Alternatives:

1. Approve the annexation with the conditions as recommended by the Planning and Zoning Commission.
2. Approve the annexation with additional conditions, modified conditions, or deleted conditions.
3. Deny the annexation for non-compliance with the Regional Plan, Zoning Code, and/or Arizona Revised Statutes.

Background/History:

The applicant is requesting to annex approximately 1.82 acres at the intersection of W Route 66 and S Woody Mountain Road. The area subject to the annexation is a portion of parcel 112-01-019B and the adjacent Woody Mountain Road ROW. This parcel is currently vacant and was at one time heavily forested before the Woody Fire in 2006. The parcel is located within the Resource Protection Overlay (RPO) zone and still maintains forest resources towards the southern portion of the property. The parcel is located within the Urban Growth Boundary and this small portion of the overall parcel is within County jurisdiction.

This annexation is the first of a two-step process. The second being a Direct to Ordinance Zoning Map Amendment request to zone the parcel to the HR zone for the construction of a 214-unit for-rent multi-family residential development, associated parking, landscaping, outdoor amenities, clubhouse, and fitness building. The Zoning Map Amendment application is being processed concurrently with this application but will not become effective until after the annexation has been completed. A full Zoning Map Amendment policy analysis can be found in that staff report

Key Considerations:

Annexations are adopted by the City Council via ordinance. Ordinance No. 2023-XX annexes 1.82 acres located at 2445 S. Woody Mountain Road and the adjoining right-of-way into the City of Flagstaff.

Community Benefits and Considerations:

Community benefits and considerations related to this request are addressed in more detail in the attached Planning and Zoning Commission Staff Report, dated July 10, 2023. Annexing this property provides for additional residential development opportunities in western Flagstaff.

Community Involvement:

The applicant held two neighborhood meetings regarding this case and the Zoning Map Amendment on December 12, 2022 and February 6, 2023. Both meetings were held virtually. Per the meeting sign-in, approximately 18 individuals attended the first meeting and 4 attended the second meeting. A Citizen Participation Report is attached and includes responses to any questions, comments and concerns presented. The meetings included a presentation from the applicant and a question-and-answer session. Comments on the project included the topics of traffic and the lack of commercial development.

Notice of the Planning and Zoning Commission meeting was provided by placing an ad in the Daily Sun, posting notices on the property, and mailing a notice to all property owners within 300 feet of the site excluding rights-of-way. The Planning & Zoning Commission met on Wednesday, July 26, 2023 at 4 pm. No members of the public commented on this item. The Commission recommended approval of the annexation by a unanimous vote (6-members present).

Public hearings before the City Council are conducted in conjunction with requests for annexation. In accordance with State statute, notice of the public hearing was provided by placing an ad in the Daily Sun, posting notices on the property, and mailing a notice to all property owners within 300 feet of the site. The notices were also provided to the County Assessor, County Community Development Department, and the Chair of the Board of Supervisors.

Attachments:

Ord. 2023-21
Staff Report
Application
Legal Description
Project Narrative
Public Hearing Legal notice
Public Participation Report
Site Plan
Civil Plans
Landscape Plan
Arch floor plans
Building Elevations Part1
Building Elevations Part2
presentation

ORDINANCE NO. 2023-21

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF FLAGSTAFF, ARIZONA EXTENDING AND INCREASING THE CORPORATE LIMITS OF THE CITY OF FLAGSTAFF, COCONINO COUNTY, STATE OF ARIZONA, PURSUANT TO THE PROVISIONS OF TITLE 9, CHAPTER 4, ARIZONA REVISED STATUTES, BY ANNEXING CERTAIN LAND TOTALING APPROXIMATELY 1.82 ACRES LOCATED AT 2445 SOUTH WOODY MOUNTAIN ROAD, WHICH LAND IS CONTIGUOUS TO THE EXISTING CORPORATE LIMITS OF THE CITY OF FLAGSTAFF, AND ESTABLISHING CITY ZONING FOR SAID LAND AS RURAL RESIDENTIAL, RR, WITH A RESOURCE PROTECTION OVERLAY, RPO

RECITALS:

WHEREAS, petitioner owns parcel APN 112-01-019B, consisting of 13.01 acres of land, 1.82 acres of which, plus the adjacent right-of-way located within Coconino County, Arizona as property adjacent to the boundaries of the City of Flagstaff, and described in Exhibit A attached to and made a part hereof; and

WHEREAS, a petition in writing ("Petition") accompanied by a map or plot of said Property, having been filed and presented to the Mayor and Council of the city of Flagstaff, Arizona, signed by the owners of one-half or more in value of the real property and more than one-half of the persons owning real and personal property as would be subject to taxation by the City of Flagstaff in the event of annexation of the territory and land hereinafter described, which said territory is contiguous to the City of Flagstaff and not now embraced within its corporate limits, asking that the Property be annexed to the city of Flagstaff, and that the corporate limits of the City of Flagstaff be extended and increased so as to embrace the same, and

WHEREAS, The Mayor and Council of the City of Flagstaff, Arizona, are desirous of complying with said Petition and extending and increasing the corporate limits of the City of Flagstaff to include said territory, as described in Exhibit A; and

WHEREAS, said Petition set forth a true and correct description of all the exterior boundaries of the entire area proposed to be annexed to the City of Flagstaff, and had attached thereto at all times an accurate map of the territory desired to be annexed; and

WHEREAS, no alterations increasing or reducing the territory sought to be annexed have been made after said Petition had been signed by an owner of real and personal property in such territory; and

WHEREAS, the provisions of Section 9-471, Arizona Revised Statutes, and amendments thereto have been fully observed; and

WHEREAS, proper and sufficient certification and proof of the foregoing facts are now on file in the office of the City Clerk of the City of Flagstaff, Arizona, together with a true and correct copy of the original Petition referred to herein, which is on file in the office of the Coconino County Recorder; and

WHEREAS, the development of the Property will be controlled by the conditions of approval of the annexation application, other relevant provisions of the Zoning Code, and various other City codes regulating the development of the Property; and

WHEREAS, the Council finds that the proposed annexation for the Property has been considered by the Planning and Zoning Commission and that the City staff and the Commission have each recommended that the Council proceed with the annexation at this time; and

WHEREAS, the Council has reviewed the Staff Summary Report, which discusses the proposed annexation, and now finds that the annexation of the Property would be consistent with the objectives and policies of the Flagstaff Area Regional Plan 2030 ratified May 20, 2014 ("Regional Plan"); that the annexation of the Property would not be detrimental to the majority of the persons or property in the surrounding area or to the community in general; and the Council specifically further finds that the annexation of the Property and the existing and proposed uses thereon will further the objectives of the Regional Plan.

ENACTMENTS:

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF FLAGSTAFF AS FOLLOWS:

SECTION 1. That the following described territory be, and the same hereby is, annexed to the City of Flagstaff, and that the present corporate limits be, and the same hereby are, extended and increased to include the following described territory contiguous to the present City of Flagstaff corporate limits:

See attached Exhibit A which is incorporated herein by this reference.

SECTION 2. That the territory described in Exhibit A is annexed to the City of Flagstaff subject to the following condition:

That a copy of this Ordinance, together with an accurate map of the territory hereby annexed to the City of Flagstaff, certified by the Mayor of said City of Flagstaff, be forthwith filed and recorded in the office of the County Recorder of Coconino County, Arizona.

SECTION 3. That pursuant to the provisions of Section 9-471(M), Arizona Revised Statues, upon this Ordinance becoming final under the provisions of Section 9-471(D), Arizona Revised Statutes, the municipal zoning designation for the Property under the Zoning Code shall be:

1. The portion of APN 112-01-019B, will be located within the Rural Residential (RR) zoning district and be designated with a Resource Protection Overlay (RPO).

SECTION 4. The Community Development Department of the City of Flagstaff is hereby directed to enter such changes and amendments as may be necessary upon the Zoning Map of said Zoning Code in compliance with the ordinance.

SECTION 5. That the Flagstaff City Clerk shall provide a copy of the adopted annexation ordinance to the Clerk of the Coconino County Board of Supervisors within sixty (60) days of the annexation becoming final.

SECTION 6. Severability

If any section, subsection, sentence, clause, phrase or portion of this ordinance or any part of the code adopted herein by reference is for any reason held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions thereof.

SECTION 7. Clerical Corrections

The City Clerk is hereby authorized to correct typographical and grammatical errors, as well as errors of wording and punctuation, as necessary related to this ordinance as amended herein, and to make formatting changes as needed for purposes of clarity and form, or consistency, within thirty (30) days following adoption by the City Council.

SECTION 8. Effective Date

This Ordinance shall be effective thirty (30) days following adoption by the City Council.

PASSED AND ADOPTED by the City Council of the City of Flagstaff this 19th day of September, 2023.

_____
MAYOR

ATTEST:

_____
CITY CLERK

APPROVED AS TO FORM:

_____
CITY ATTORNEY

Exhibits:
Legal Description

PLANNING AND DEVELOPMENT SERVICES DIVISION
ANNEXATION REPORT

PZ-21-00271-04

DATE: **July 10, 2023**
MEETING DATE: **July 26, 2023**
REPORT BY: **Alaxandra Pucciarelli**

REQUEST:
An Annexation request from Vintage Partners and Liv Communities, LLC of approximately 1.82 acres located at 2445 S. Woody Mountain Road. The property is identified as a portion of Coconino County Assessor's Parcel Number 112-01-019B which is approximately 13.01 acres. This annexation request is the first part of a two-part request. The second part of the request is a Direct to Ordinance Zoning Map Amendment.

STAFF RECOMMENDATION:
Staff recommends the Planning and Zoning Commission, in accordance with the findings presented in this report, forward the Annexation request to the City Council with a recommendation for approval.

PRESENT LAND USE:
The subject site consists of undeveloped land in the General (G) Zone under Coconino County jurisdiction and adjacent Right-of-Way (ROW).

PROPOSED LAND USE:
If this annexation is approved, the property will be designated with Rural Residential (RR) zoning. The accompanying zoning map amendment will change the zoning on the property from the RR Zone to the High Density Residential (HR) zone for the construction of a 214-unit for-rent multi-family residential development, associated parking, landscaping, outdoor amenities, clubhouse, and fitness building.

NEIGHBORHOOD DEVELOPMENT:
See the attached area context map.

North: Public Works Yard owned by the City of Flagstaff in the Public Facility (PF) Zone; Professional River Outfitters in the General Commercial (CG-10,000) Zone under Coconino County jurisdiction.
East: Woody Mountain Campground & RV Park in the RR Zone and the G Zone under Coconino County jurisdiction; Single-Family homes in the HR Zone (Presidio in the Pines).
South: Multi-family development under construction in the Medium Density Residential (MR) Zone (Sky Cottages).
West: Vacant Land in the HR Zone (Timber Sky).

I. Project Information

The applicant is requesting to annex approximately 1.82 acres at the intersection of W Route 66 and S Woody Mountain Road. The area subject to the annexation is a portion of parcel 112-01-019B and the adjacent Woody Mountain Road ROW. This parcel is currently vacant and was at one time heavily forested before the Woody Fire in 2006. The parcel is located within the Resource Protection Overlay (RPO) zone and still maintains forest resources towards the southern portion of the property. The parcel is located within the Urban Growth Boundary and this small portion of the overall parcel is within County jurisdiction.

This annexation is the first of a two-step process. The second being a Direct to Ordinance Zoning Map Amendment request to zone the parcel to the HR zone for the construction of a 214-unit for-rent multi-family residential development, associated parking, landscaping, outdoor amenities, clubhouse, and fitness building. The Zoning Map Amendment application is being processed concurrently with this application but will not become effective until after the annexation has been completed. A full Zoning Map Amendment policy analysis can be found in that staff report.

Zoning Requirements

As was noted above, if annexed, the property will need to be brought into the City as a zone similar to the existing County zoning. In this case, the City's RR zone best matches the County's G zone. Arizona statute requires that once annexed, the zoning is to remain in place for a period of 30 days. As a result, an ordinance modifying the zoning code must include an effective date 30 plus days after the annexation ordinance becomes effective.

II. Required Findings

The Commission shall find that the requested annexation complies with Section 9-471 of the Arizona Revised Statutes; the applicable goals and policies set forth in the City's General Plan (Flagstaff Regional Plan 2030), and Flagstaff Zoning Code Division 10-20.90: Annexations.

A. Arizona State Statue Compliance

Arizona Revised Statute 9-471 sets forth the standards for properties that can be annexed, along with required processes and procedures for cities and towns to annex real property. This statute allows cities and towns to annex property that is contiguous to the exterior boundaries of the city or town into which it will be annexed. Subsection S of ARS 9-471 states that a parcel is considered contiguous if it meets these requirements: 1) the territory is owned by one person, 2) the city or town and the owner of the real property agree to the annexation, and 3) the territory adjoins the exterior boundary of the annexing city or town for at least three hundred feet. The parcel subject to this annexation request meets this requirement.

State statutes only allow the City to adopt a zoning classification that permits densities and intensities no greater than those permitted by the County immediately before the annexation. The current county zoning requires ten-acre minimum lot size. The closest city zoning district is the RR permitting a density of one dwelling unit per acre.

B. City of Flagstaff Regional Plan 2030 Compliance

All proposed annexations shall be evaluated as to whether the application is consistent with the policies of the General Plan. The proposed annexation should not be detrimental to the majority of the persons or property in the surrounding area or the community in general (Regional Plan, pg. III-10). The City's basic position regarding annexation is that the annexation must demonstrate a favorable benefit to the taxpayers of the City.

This property is located within the Urban Growth Boundary (UGB) per the Regional Plan. Thus, for the annexation application, staff is not required to analyze all of the Regional Plan goals and policies—just the basic annexation policies as outlined here. The UGB includes all the lands and future land uses that have been included in the City's Arizona Department of Water Resources (ADWR) 100-year adequate water supply designation. The following Regional Plan policies are considered by staff to be the most pertinent to the annexation:

- Policy LU.7.2: Require unincorporated properties to be annexed prior to the provision of City services, or that a pre-annexation agreement is executed when deemed appropriate.
- Policy WR.4.3: Development requiring public utility services will be located within the Urban Growth Boundary.

The proposed development, which will be partially located on the currently unincorporated parcel, will require City water and sewer services once annexed. The proposed annexation is consistent with the relevant goals and policies of the Flagstaff Regional Plan 2030.

C. Public Facilities and Service Impact Analysis

i. Traffic/Right-of-Way Impact

The specific objectives of the Traffic Impact Analysis are:

- To determine whether the planned street system in the vicinity of the site is adequate to accommodate the increased traffic that results from the proposed development;
- To recommend additional street improvements or traffic control devices, where necessary, to mitigate the additional site-generated traffic; and,

- To evaluate the internal site circulation and provide recommendations if necessary.

The scope of a Traffic Impact Analysis (TIA) is generally determined by the estimated peak hour trips generated by a development, per the Engineering Standards. The estimated peak hour trips for this development is 89 trips during the AM peak hour and 113 trips during the PM peak hour. According to the Standards, a level one analysis was appropriate. The consulting engineer analyzed the intersections of S Woody Mountain Road and W Route 66, Alvin Clark Blvd and W Route 66, Woody Mountain Road and Patio Del Presidio, Woody Mountain Road and Presidio Drive, Flagstaff Public Works Driveway and W Route 66, and Northwestern Street and W Route 66.

Transportation Improvements

The applicant is responsible for the following roadway improvements, as shown in the TIA dated June 9, 2023, and outlined in the Development Agreement:

- Dedication of any necessary right(s) of way and easement(s) and construction of off-site Roadway Improvements along both S Woody Mountain Road and W Route 66 as shown on Site Plan.
- A new northbound left turn lane at the driveway access point on S Woody Mountain Road.
- Extending the northbound left and right-turn lane storage at the intersection of Woody Mountain and Route 66.
- Extending the median north on Woody Mountain and adding a left-turn lane into the site driveway.
- A new eastbound right turn lane, at the intersection of Woody Mountain and Route 66.

The report indicates that a traffic signal, located at the intersection of S Woody Mountain and W Route 66 is warranted in the future. The developer is obligated to pay a proportional share contribution for the cost of the signal, based on the percentage of peak hour traffic volumes, and the estimated cost of a signal.

The project site is not serviced by transit. This area is identified in the Flagstaff Area Regional Land Use and Transportation Plan for future service, but there are no current plans to service the property. Pedestrian and bicycle access to the subject property is limited. There are currently no sidewalks along W Route 66 to the east of this project. Bike lanes are provided along S Woody Mountain Road up to W Route 66 but only a striped shoulder exists on W Route 66 to Woodlands Village Boulevard. It is possible for both pedestrians and bicycles to gain access through the Presidio in the Pines development into Boulder Pointe and beyond.

ii. Water and Wastewater Impact Analysis

A Water and Sewer Impact Analysis (WSIA) was completed by the City on December 20, 2013, for a similar land use on the property. On September 20, 2022, the City issued a letter waiving the requirement for a WSIA as part of this application. The proposed development is located within the City of Flagstaff urban growth boundary and can be served by City water and sewer utilities. Currently there is no infrastructure in the ground on-site to support this development, so all on-site sewer and water systems will have to be designed and built. Offsite sewer improvements are required and are defined in the wastewater section below. It is the developer's responsibility to design and construct all on-site and connecting water infrastructure per the City of Flagstaff Engineering Standards.

Water

Water to the site will be provided by an 8-inch water main loop within the project site connecting to a new 8-inch PVC water main in the northeast corner of Sky Cottages and to an existing 12-inch DIP water main in Woody Mountain Road.

Wastewater

Sewer will be provided by two 8-inch sewer main branches throughout the project site connecting to a new sewer manhole near the northeast corner of Sky Cottages. The project requires a 12-inch offsite sewer main. The offsite sewer improvements will be completed with the construction of the Sky Cottages.

If the construction of the sewer improvements is not completed by the adjacent development, then the applicant shall be responsible to construct offsite sewer improvements. The sewer improvements must be completed and accepted by the City prior to the issuance of the first Certificate of Occupancy for the Project. The sewer improvements shall be designed and constructed in accordance with the City Engineering Standards and ADEQ requirements.

iii. Stormwater Analysis

The site is located in the South Fork of Clay Wash watershed.

- The north portion of the site drains to the east/northeast to an existing 24-inch CMP at the intersection of S Woody Mountain Road and W Route 66. The existing storm drain system along W Route 66 ultimately discharges into the South Fork Clay Wash.
- The south portion of the site drains to the east/southeast to an existing 4-foot by 3-foot concrete box culvert which conveys the stormwater to an existing storm drain system within Presidio in the Pines. This existing storm drain system also discharges into South Fork Clay Wash.

The project's overarching drainage concept is to provide peak flow stormwater discharge mitigation (detention) for the 10-year and 100-year storms, stormwater runoff volume mitigation (LID ROCV), improvement to the water quality of site discharges (LID), and retention of the runoff volume increase for the 100-year 24-hour storm per the approved Drainage Impact Analysis prepared on August 30, 2022. There are no proposed offsite stormwater improvements required with the inclusion of onsite retention for increase runoff volumes.

The Water Quality Improvements consisting of sediment capture components will be incorporated with the use of Low Impact Development (LID) Integrated Management Practices (IMPs) including sediment trapping isolator rows within the sub-surface, extended detention basin (EDB) storage systems . The increase in volume of stormwater runoff discharged from the site will be mitigated by additional retention volume provided within aforementioned EDB's.

iv. Schools

The proposed development of the subject site is not anticipated to affect the local school district.

v. Fire Protection:

The site will be served by Fire Station No. 1, located at 1972 S. Thompson Drive. The site is within the desired response time.

D. CITIZEN PARTICIPATION:

Notice of the Planning and Zoning Commission meeting was provided by placing an ad in the Daily Sun, posting notices on the property, and mailing a notice to all property owners within 300 feet of the site excluding rights-of-way.

The applicant held two neighborhood meetings regarding this case and the Zoning Map Amendment on December 12, 2022 and February 6, 2023. Both meetings were held virtually. Per the meeting sign-in, approximately 18 individuals attended the first meeting and 4 attended the second meeting. A Citizen Participation Report is attached and includes responses to any questions, comments and concerns presented. The meetings included a presentation from the applicant and a question-and-answer session. Comments on the project included the topics of traffic and the lack of commercial development.

RECOMMENDATION:

Staff recommends that the Planning & Zoning Commission, in accordance with the findings presented in this report, forward the annexation request to the City Council with a recommendation of approval.

Attachments:

- Application
- Legal Description
- Project Narrative

City of Flagstaff

Community Development Division

211 W. Aspen Ave
Flagstaff, AZ 86001
www.flagstaff.az.gov
P: (928) 213-2618
F: (928) 213-2609

ANX

Date Received	**Application for Annexation**	File Number

Property Owner(s) / Title	Phone	Email
VP 66 & Woody Mountain, LLC	(480) 231-0814	walter@vintagevp.com
Mailing Address		**City, State, Zip**
2502 E. Camelback Road, No. 214		Phoenix, AZ 85016
Applicant / **Title**	**Phone**	**Email**
Vintage Partners 2.0, LLC		
Mailing Address		**City, State, Zip**
2502 E. Camelback Road, No. 214		Phoenix, AZ 85016
Project Representative / **Title**	**Phone**	**Email**
Lindsay C. Schube / Gammage & Burnham, PLC	(602) 256-4471	lschube@gblaw.com
Mailing Address		**City, State, Zip**
40 N. Central Avenue, 20th Fl.		Phoenix, AZ 85004

Site Address	Parcel number(s)	Subdivision, Tract & Lot Number
2701 S. Woody Mountain Road	112-01-019B	@Liv Subdivision, Lot 2

Existing Zoning District	Existing Regional Plan Land Use Category
General - 10 ac. min. (Coconino County)	Future Urban Activity Center (U7)
Proposed Zoning District	**Proposed Regional Plan Land Use Category**
High-Density Residential - Resource Protection Overlay	Future Urban Activity Center (U7)
Present Use	**Proposed Use**
Undeveloped	Multi-Family Residential

Summarize Reason for Request (Attach additional sheets if necessary):

See enclosed narrative.

Note:
Indicate how the annexation will not be detrimental to the majority of persons or properties in the surrounding area, or to the community in general. If a modification to the Regional Land Use and Transportation Plan or a Zoning Map Amendment is requested, clearly state the reasons for such changes (a separate application is required).

Property Owner Signature	Date	Applicant Signature	Date
	9-2-22	LCSchube	9/1/2022

For City Use

Date Filed:	Fee Receipt Number:	Amount:	Date:

Type of Request: ☐ Annexation ☐ Continued

Publication and Posting Date(s): **File Number:**

Action by Planning and Zoning Commission:	Action by City Council
Hearing Date:	**Hearing Date:**
☐ Approved ☐ Continued ☐ Denied	☐ Approved ☐ Continued ☐ Denied

Staff Assignments	Planning	Engineering	Fire	Stormwater	Utilites/PW

Revised 1/31/18

EXHIBIT ‘A’

LEGAL DESCRIPTION

ANNEXATION

A parcel of land being a portion of ‘Lot 2’ and a portion of the South Woody Mountain Road Right-of-Way as shown on the Final Plat for @LIV according to Instrument Number 3955182, Official Records of Coconino County (herein referred to as R1), lying within Section 19, Township 21 North, Range 7 East, of the Gila and Salt River Meridian, Coconino County, Arizona, described as follows:

Commencing at the northwest corner of said ‘Lot 2’, said point being in common with the southerly Right-of-Way line of West Route 66 as shown on R1, from which a point on the west line of ‘Lot 1’ as shown on R1 bears South 00°42'05" West, 1107.36 feet (Basis of Bearing, R1);

Thence along the northerly line of said ‘Lot 2’, and along said Right-of-Way line, South 85°16'49" East, 450.83 feet to the **TRUE POINT OF BEGINNING;**

Thence continuing along said northerly line, and said Right-of-Way line, South 85°16'49" East, 332.12 feet to the centerline of said South Woody Mountain Road as shown on R1;

Thence along said centerline, South 00°20'18" East, 224.57 feet to a point on the East-West midsection line of said Section 19;

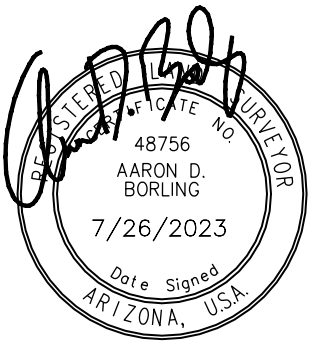
Thence leaving said centerline, and along said midsection line, South 89°46'36" West, 331.24 feet;

Thence leaving said midsection line, North 00°14'47" West, 253.18 feet to the **TRUE POINT OF BEGINNING;**

Containing 1.815 Acres, more or less.

See Exhibit ‘B’ attached hereto and made a part hereof.

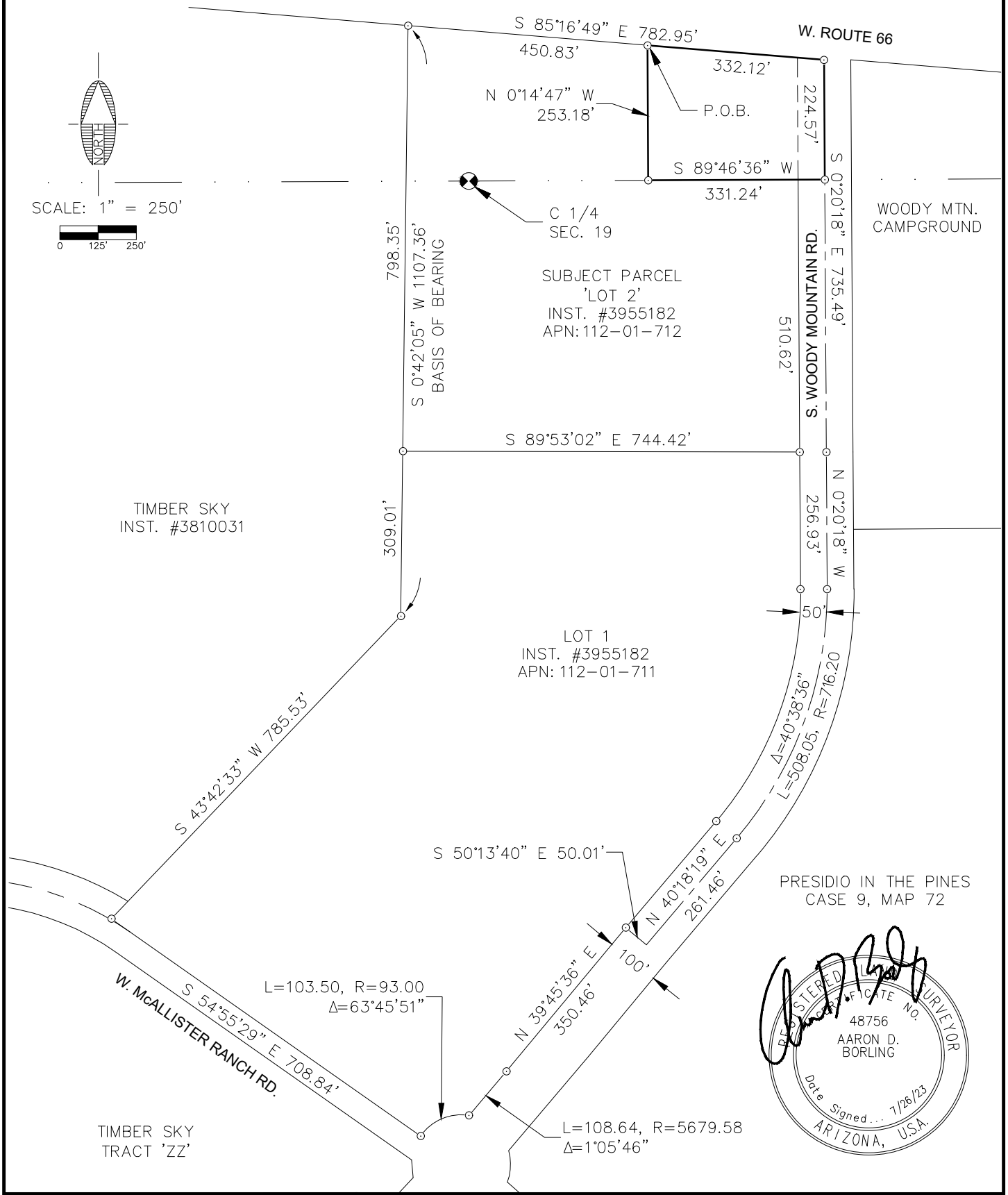
This legal description was prepared by Aaron D. Borling, RLS 48756,
on behalf of and at the request of Shephard-Wesnitzer, Inc., Flagstaff, AZ.



PLOTTED: Jul 26, 2023–3:36pm

EXHIBIT 'B'

A PARCEL OF LAND LOCATED IN SECTION 19, TOWNSHIP 21 NORTH, RANGE 7 EAST,
OF THE GILA AND SALT RIVER MERIDIAN, COCONINO COUNTY, ARIZONA



Shephard Wesnitzer, Inc.
110 W. Dale Avenue
Flagstaff, AZ 86001
928.773.0354
928.774.8934 fax
www.swiaz.com

JOB NO.	22045
DATE	JUL 23
SCALE	1"=250'
DRAWN	RPR
DESIGN	
CHECKED	ADB

LIV TIMBER SKY — FLAGSTAFF, ARIZONA

LEGAL EXHIBIT

SHEET 2 OF 2

FILE: P:\2022\22045\SURVEY\LEGAL DESCRIPTIONS\ANNEX EXHIBIT W ROW.DWG ABORLING

GAMMAGE & BURNHAM, PLC
ATTORNEYS AT LAW
40 NORTH CENTRAL AVENUE
20TH FLOOR
PHOENIX, ARIZONA 85004

TELEPHONE (602) 256-0566
FACSIMILE (602) 256-4475

WRITER'S DIRECT LINE
(602) 256-4471

July 30, 2023

Ms. Alaxandra Pucciarelli
City of Flagstaff
Community Development Department
211 West Aspen Avenue
Flagstaff, Arizona 86001

Re: Request for Annexation of approximately 1.815 acres of property generally located at the southwest corner of US Route 66 & Woody Mountain Road.

Dear Alax:

Introduction.

VP 66 & Woody Mountain LLC ("Vintage") is proposing to annex 1.815 acres ("Annexation Area") of property generally located at the southwest corner of US Route 66 & Woody Mountain Road (see Legal Description). Vintage is the owner of the west approximately 1.555 acres of the Annexation Area; the remainder is right-of-way. The approximate 1.555 acres is part of a larger approximately 13-acre property, known as Coconino County Assessor Parcel Number 112-01-712. Vintage is proposing to develop the 13 acres with multi-family residences ("Project"). Vintage requests that the City annex the Annexation Area.

Compliance with A.R.S. § 9-471.

A.R.S. § 9-471 sets forth the qualifications and required processes for the annexation of real property. As requested by the City, the following addresses compliance with Subsections H. and I. of A.R.S. § 9-471, allowing the City to annex the Annexation Area:

H. Territory is not contiguous for the purposes of subsection A, paragraph 1 of this section unless:

1. It adjoins the exterior boundary of the annexing city or town for at least three hundred feet.

Response: **Complies.** The south and west boundaries of the Annexation Area adjoin the City by more than 575-feet, as depicted on the Legal Description.

2. It is, at all points, at least two hundred feet in width, excluding rights-of-way and roadways.

Response: **Complies.** The 1.815 acres is approximately 330-feet east-to-west and between 224 and 253-feet north-to-south.

3. The distance from the existing boundary of the annexing city or town where it adjoins the annexed territory to the furthest point of the annexed territory from that boundary is not more than twice the maximum width of the annexed territory.

Response: **Complies.** The distance from the City boundary where it adjoins the Annexation Area to the furthest point of the Annexation Area is boundary is not more than twice the maximum width of the Annexation Area, as depicted on the Legal Description.

I. A city or town shall not annex territory if, as a result of that annexation, unincorporated territory is completely surrounded by the annexing city or town or a combination of the annexing city or town and other cities or towns.

Response: **Complies.** Annexation of the Annexation Area does not result in unincorporated Coconino County being completely surrounding by the City.

Regional Plan.

The City's 2030 Regional Plan ("Regional Plan") designates the Annexation Area as Urban Future. Additionally, the Annexation Area is also located within Urban Activity Center U6. The Annexation Area is located within the City's Urban Growth Boundary.

Infrastructure & Facilities.

Water & Sewer. Water and sewer will be provided by the City. Adequate water and sewer capacity exists to serve the Project.

Traffic. US Route 66 and Woody Mountain Road provide adequate vehicular access to serve the Project.

Material Management. Refuse will be provided to serve the Project.

* * *

Should you have any questions or require additional information, please do not hesitate to contact me at **(602) 256-4471** or **lschube@gblaw.com**. Thank you.

Sincerely,

GAMMAGE & BURNHAM



By
Lindsay C. Schube

LCS/nas

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that the Flagstaff City Council will hold a public hearing for an Annexation on Tuesday, September 5, 2023, at 3:00 pm at City Hall Council Chambers (211 W Aspen Ave).
Flagstaff City Council will then hold a public hearing for a Zoning Map Amendment and Annexation on Tuesday, September 19, 2023, at 3:00 pm at City Hall Council Chambers (211 W Aspen Ave).
A virtual option will be provided for these meetings.

NOTICE IS HEREBY GIVEN that the Flagstaff City Council will consider a Development Agreement associated with the cases referenced above on Tuesday, October 3, 2023, at 3:00 pm at City Hall Council Chambers (211 W Aspen Ave). A virtual option will be provided for this meeting.

A. Explanation of Matters to be Considered:
ZONING MAP AMENDMENT: A proposed amendment to the Official City of Flagstaff Zoning Map to rezone the entirety of the subject property, which is approximately 13.01 acres (this includes the 1.55 acres being annexed in Case No. PZ-21-00271-04), from RR zoning with the RPO to High Density Residential (HR) zoning with the RPO. The purpose of the rezone is to support the requested use of a multi-family development. Reference City of Flagstaff Case No.: PZ-21-00271-05.

ANNEXATION: A proposed annexation of approximately 1.82 acres of land to the City of Flagstaff. The annexation is a request to incorporate the remaining portion of the subject parcel into the City limit. The parcel is owned by Vintage Partners and Woody Mountain LLC. The current Coconino County Zoning is G - General Zone. If this annexation is approved, the property will be designated the Rural Residential (RR) zone and a Resource Protection Overlay (RPO) to facilitate the development of Liv Timber Sky, a 214-unit multi-family development. Reference City of Flagstaff Case No.: PZ-21-00271-04.

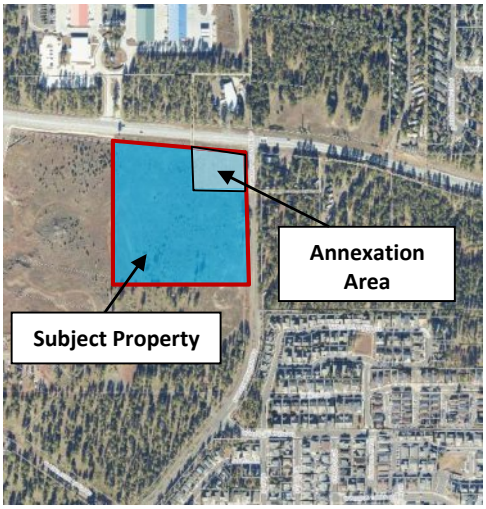
B. How to Participate:
Interested parties may file comments in writing regarding the applications or may appear and be heard at the hearing date set forth above. Maps and information regarding the applications are available at the City of Flagstaff, Planning and Development Services Division, 211 West Aspen Avenue.

A virtual public comment platform will be available for all meetings. All meetings will be live-streamed on the city's website. Please see the corresponding agenda for additional information on how to participate virtually. Agendas can be found at this link:

https://www.flagstaff.az.gov/328/Meetings

C. General Description of the Affected Area:
Approximately 1.82 acres (annexation) and 13.01 acres total (rezoning) located at the southwest corner of the intersection of Route 66 and S Woody Mountain Rd, portion of Coconino County Assessor's Parcel Number 112-01-712, SW 1/4 of the NE 1/4 of Section 19, T21N R7E, of the G&SRM, City of Flagstaff, Coconino County, Arizona.

PROPOSED ANNEXATION AND REZONING MAP



ADDRESS: **2445 S Woody Mountain Road**
APN: 112-01-712
ACRES: Approximately 1.82 acres (annexation); 13.01 acres total (rezoning) Coconino County

FOR FURTHER INFORMATION, CONTACT:
Bethan X. Heng
Planning & Development Services
211 West Aspen Avenue
Flagstaff, Arizona 86001
(928) 213-2603
Email: Bethan.Heng@flagstaffaz.gov

Publish: August 19, 2023

liv communities

at

TIMBER SKY

Southwest Corner of
US Route 66 and Woody Mountain Road

Annexation
PZ-21-00271-04

Direct Ordinance Zoning Map Amendment
PZ-21-00271-05

Record of Proceedings

Submitted: April 12, 2023

1. INTRODUCTION

In accordance with Section 10-20.30.060.F of the Zoning Code, VP 66 & Woody Mountain LLC d/b/a as Vintage Partners ("Vintage") and Liv Communities ("Liv") (collectively, "Applicant") are submitting this Record of Proceedings related to the proposed development of the approximate 13.86 acres located at the southwest corner of US Route 66 and Woody Mountain Road ("Property").

We filed application case no. PZ-21-00271-04 to Annex the approximate 1.555 acres ("1.5 Acres") located at the southwest corner of US Route 66 & Woody Mountain Road (cross-hatched below). We also filed application case no. PZ-21-00271-05 to rezone the Property (including the 1.5 Acres) from RR—RPO (Rural Residential—Resource Protection Overlay) to HR—RPO (High-Density Residential—Resource Protection Overlay) ("Application") to allow for the development of Liv Timber Sky, a 214-unit, multi-family residential community.

2. NEIGHBORHOOD MEETINGS

In accordance with Section 10-20.30.060.A, the Applicant held two neighborhood meetings.

Neighborhood Meeting Notification. On November 23, 2022, a notice of neighborhood meetings was mailed by first class to properties 300-feet; property owners' associations and homeowner's associations within a 1,000-foot radius; and individuals, groups, etc. on the City's "Registry of Persons and

Groups" as provided by the City (collectively, "Affected Party or Affected Parties"). The letter set forth the purpose and substance of the proposed application, the time, date, and virtual meeting weblink for the neighborhood meetings, and contact information for the Applicant/Representative and the assigned City Planner.

Site Posting Notification. On November 23, 2021, one notification sign was installed on the Property near the intersection of US Route 66 & Woody Mountain Road. The sign set forth the purpose and substance of the proposed application, the time, date, and virtual meeting weblink for the neighborhood meetings, and contact information for the Applicant/Representative and the assigned City Planner. The sign included a tube containing copies of the neighborhood meetings notification letter. See **Tab A** — First Neighborhood Meeting Notification Letter, Mailing List, and Neighborhood Meeting Certification.

Voluntary Neighborhood Meeting Notification. On January 13, 2023, the Applicant mailed a voluntary notice of neighborhood meeting reminder by first class to Affected Parties and individuals that registered for the first neighborhood meeting and provided their address and/or email. See **Tab B** — Voluntary Second Neighborhood Meeting Reminder and Mailing List.

First Neighborhood Meeting Summary. The first neighborhood meeting was held on December 12, 2022 from 6:00 to 7:25 PM. The meeting was held via the Zoom virtual meeting platform. The meeting consisted of an overview of the meeting procedures and instructions for asking questions, a formal presentation, and

concluded with questions & answers and comments. Approximately 13 members of the public registered for and attended the meeting. See **Tab C** — First Virtual Neighborhood Meeting Attendee List.

The Development Team provided a formal presentation, which included presentation of an aerial map, site plan, perspective renderings, building elevations, landscaping, and public civic space area, an overview of the applications and requests, conformance with the Regional Plan, as well as discussion regarding the project's response to the City's Climate Action & Adaptation Plan and the City's Housing Crisis. The Development Team responded to questions and comments regarding: signalization of the intersection of US Route 66 & Woody Mountain Road; traffic; density; building height; commercial users; partnership with Habitat for Humanity; student housing; the site plan; and conformance with the Regional Plan.

Second Neighborhood Meeting Summary. The second neighborhood meeting was held on February 6, 2023 from 6:00 — 6:40 PM. The meeting was held via the Zoom virtual meeting platform. The meeting consisted of an overview of the meeting procedures and instructions for asking questions, a formal presentation, and concluded with questions & answers and comments. Approximately 4 members of the public registered for and attended the meeting. See **Tab D** — Second Virtual Neighborhood Meeting Attendee List.



The Development Team provided a presentation similar to the first neighborhood meeting, as well as addressed traffic and traffic control at the intersection of US Route 66 & Woody Mountain Road. The Development Team responded to questions regarding traffic, access, and signalization of the intersection of US Route 66 & Woody Mountain Road. The Applicant reaffirmed its commitment to install the traffic signal at the intersection, which those participating in the meeting were pleased to hear.

3. NEIGHBORHOOD MEETING SUMMARY LETTER

In accordance with Section 10-20.30.060.F.4, the Applicant mailed a written summary those who registered for the neighborhood meeting(s) and provided their address and/or email. See **Tab E** — Neighborhood Meetings Summary Letter.

4. PUBLIC HEARING NOTIFICATION

Once scheduled for public hearing, the Applicant shall install signs on the Property advising of dates, times, and other pertinent details related to the hearings. In addition, a notification letter will be sent via first class mail to the Affected Parties and residents that registered for and provided their email and/or mailing address for the virtual neighborhood meetings. The public hearing notification letter will include a description of the request and application case number, location and acreage, a conceptual site plan and renderings for the project, details regarding the scheduled public hearings and contact information for the Applicant/Representative and City Planner.

TAB A

First Neighborhood Meeting Notification Letter
Mailing List
Neighborhood Meeting Certification



November 23, 2022

Dear Property Owner, Resident, Neighborhood Association, or Interested Citizen,

VP 66 & Woody Mountain LLC d/b/a as Vintage Partners, in partnership with Liv Communities is proposing to develop the approximate 13.86 acres located at the southwest corner of US Route 66 and Woody Mountain Road ("Property"). Vintage Partners is responsible for developing forward thinking and award-winning projects throughout the State for more than 30 years, including the highly successful Timber Sky master-planned community—the finest Dark Skies compliant master-planned community in the State. In addition, Vintage Partners is in the process of developing Sky Cottages located at the northwest corner of McAllister Ranch and Woody Mountain Roads (directly south of the Property). See enclosed Context Map. Liv Communities is an experienced multi-family and generational housing residential developer and management company that designs communities to promote eco-friendly, social, and healthy lifestyles for their residents. Liv's Arizona development portfolio currently includes 12 communities in the State.

We recently filed application case no. PZ-21-00271-04 to Annex the approximate 1.9 acres located at the southwest corner of US Route 66 & Woody Mountain Road. See enclosed Annexation Map. In addition, we filed application case no. PZ-21-00271-05 to rezone the Property (including the 1.9 acres) from RR-RPO (Rural Residential, Resource Protection Overlay) to HR-RPO (High Density Residential, Resource Protection Overlay) to allow for the development of a market rate, 214 multi-family residential dwelling unit community at a density of approximately 16.45 dwelling units per acre. The 2030 Regional Plan designates the Property as Urban-Future land use—the proposed use and density comply with this designation. Dwelling units will consist of 1, 2, and 3 bedroom units spread throughout a series of 2-story carriage units and 3-story buildings. Amenities are planned to include a centrally located resident amenity area, open space area, clubhouse, fitness center, spa, bbq area and ramadas, fire pit and seating area, pickleball court, and dog park. In addition, civic (public) space, which includes seating, landscaping, and hardscape, is planned at the northeast corner of the Property. See enclosed Site Plan and Building Elevations.

We have scheduled **two virtual neighborhood meetings** to discuss the proposed applications.

VIRTUAL NEIGHBORHOOD MEETING NO. 1: December 12, 2022 from 6:00 – 7:00 PM

VIRTUAL NEIGHBORHOOD MEETING NO. 2: February 6, 2023 from 6:00 – 7:00 PM

Meeting details for BOTH virtual neighborhood meeting are as follows:

Meeting:	Liv Timber Sky—Virtual Neighborhood Meeting
Location:	Meeting to be held virtually in Zoom.
Link:	https://www.gblaw.com/livtimbersky/
Date and Time:	As stated above.

Instructions for Access to Virtual Neighborhood Meetings. The neighborhood meetings will be held on the Zoom video conferencing platform, which can be accessed through your internet browser or through the Zoom app on your mobile device via the above link. For registration assistance, please contact Taylor Manemann at (602) 256-4454 or tmanemann@gblaw.com.

Please note, to access the meetings, you will be required to register. Meeting registration information will be part of the public record and shared with the City. We will also use this information to keep you informed of future meetings and hearings via email, as well as traditional mail. At the beginning of the neighborhood meetings, we will provide a brief overview of the meeting procedures and instructions for asking questions once the formal presentation has concluded.

A follow-up notification letter will be mailed in mid-January 2023 to remind you of the SECOND virtual neighborhood meeting.

Please be advised that future meetings and hearings before the Planning & Zoning Commission and City Council will be scheduled to review this case. Specific meeting and hearing dates have not yet been set. An additional notification letter will be provided identifying the date, time, and location of these meetings and hearings.

The City Planner assigned to this case is Ms. Genevieve Pearthree, Senior Planner. Ms. Pearthree can be reached at (928) 213-2603 or Genevieve.Pearthree@flagstaffaz.gov. She can answer your questions regarding the City's review and hearing process. Should you have any questions in the meantime or are unable to attend either or both of the virtual neighborhood meetings and would like more information, please do not hesitate to contact me at (602) 459-9929 or walter@vintagevp.com.

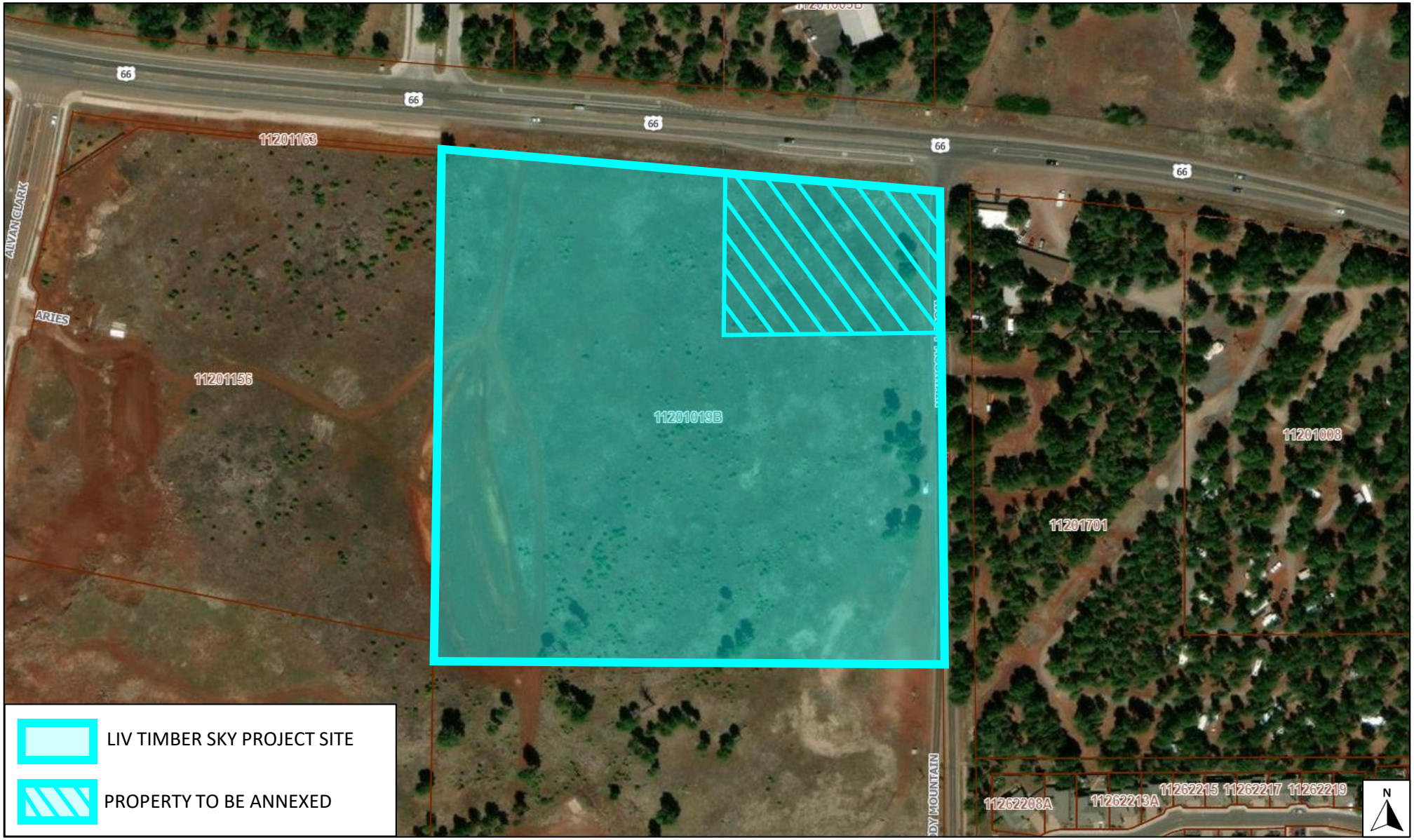
Sincerely,

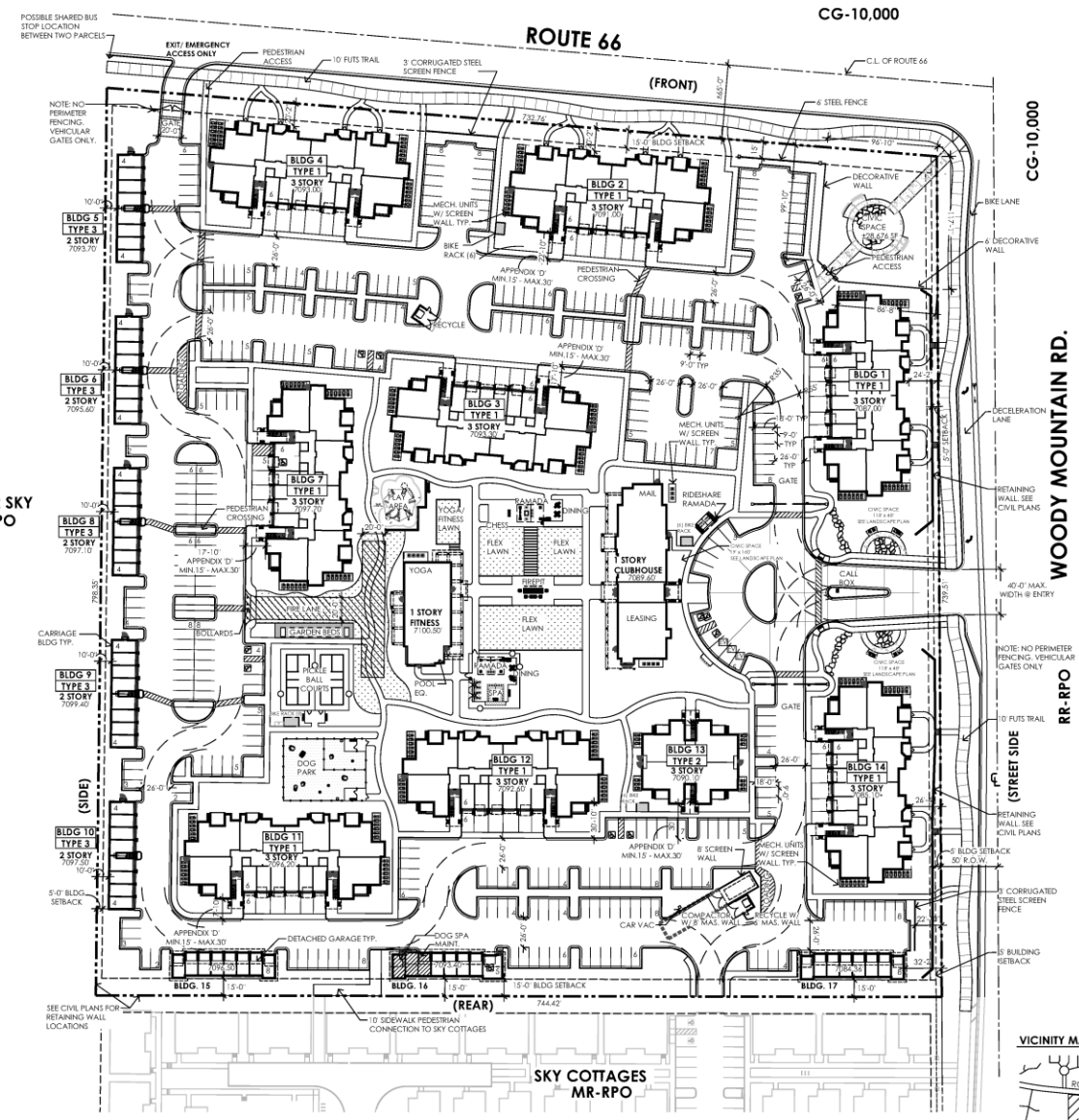
Walter Crutchfield
Vintage Partners

CONTEXT MAP


Timber Sky
Liv Timber Sky
Sky Cottages at Timber Sky
66
40
ALTAIR
ALTAIR
ARIES
ALVANGARK
ADORA
VEGA
ROCKWOOD
UNNAMED
M GALLISTER RANCH
PUTNAM
CORONADO
ZEPHER
ROCKSUND
NORTHWESTERN
RAILROAD SPRINGS
PATIO DEL PRESIDIO
PRESIDIO
MISSION TIMBER
CAUSE
KISTLE
WOODY MOUNTAIN
N

ANNEXATION MAP





DEVELOPMENT TEAM:

DEVELOPER:
LIV COMMUNITIES
1600 S. BEACON BLVD.
SUITE 260
GRAND HAVEN, MI 49417
616-846-6900

ARIZONA OFFICE:
8950 SOUTH 52ND STREET
SUITE 115
TEMPE, AZ 85284
480-739-9240

VINTAGE PARTNERS
2502 E. CAMELBACK RD.
SUITE 214
PHOENIX, AZ 85016
602-459-9929

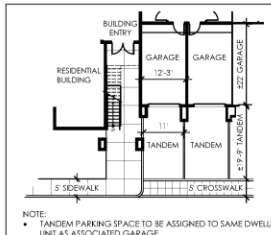
ARCHITECTURE:
TODD & ASSOCIATES
4019 N. 44TH STREET
PHOENIX, AZ 85018
602-952-8280

LANDSCAPE ARCHITECTURE:
NORRIS DESIGN
901 E. MADISON STREET
PHOENIX, AZ 85034
602-254-9600

CIVIL ENGINEER:
SHEPARD-WESNITZER, INC.
110 DALE AVENUE
FLAGSTAFF, AZ 86001
928-773-0354

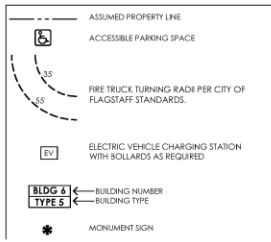
ZONING ATTORNEY:
GAMMAGE & BURNHAM
40 N. CENTRAL AVENUE
20TH FLOOR
PHOENIX, AZ 85004
602-256-0566

DETAIL AT TYPICAL ATTACHED GARAGE



NOTE:
- TANDEM PARKING SPACE TO BE ASSIGNED TO SAME DWELLING UNIT AS ASSOCIATED GARAGE.
- TANDEM PARKING SPACE COUNT HAS NOT BEEN COUNTED TOWARD THE REQUIRED PARKING.

LEGEND

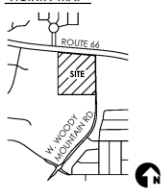


BUILDING S.F. (GROSS)

BUILDING / LEVEL	CONST. TYPE	OCC.
BLDG TYPE 1:		
1ST FLR. 10,250 S.F.	V-A	R-2
2ND FLR. 10,233 S.F.		
3RD FLR. 10,233 S.F.		
SUBTOTAL 30,716 S.F. (x 8 = 245,728 S.F.)		
BLDG TYPE 2:		
1ST FLR. 4,574 S.F.	V-A	R-2
2ND FLR. 4,574 S.F.		
3RD FLR. 4,574 S.F.		
SUBTOTAL 13,722 S.F. (x 1 = 13,722 S.F.)		
BLDG TYPE 3:		
1ST FLR. 2,299 S.F.	V-A	R-2
2ND FLR. 2,185 S.F.		
SUBTOTAL 4,484 S.F. (x 5 = 22,420 S.F.)		
TOTAL RESIDENTIAL:	**281,870 S.F.**	
CLUBHOUSE:		
1ST FLR. 6,511 S.F.	V-B	A-3 / B
SUBTOTAL 6,511 S.F. (x 1 = 6,511 S.F.)		
FITNESS:		
1ST FLR. 3,753 S.F.	V-B	A-3
SUBTOTAL 3,753 S.F. (x 1 = 3,753 S.F.)		
DETACHED GARAGES:		
TYPE 1: 2,012 S.F.	V-B	U
SUBTOTAL 2,012 S.F. (x 2 = 4,024 S.F.)		
TYPE 2: 2,148 S.F.	V-B	U
SUBTOTAL 2,148 S.F. (x 1 = 2,148 S.F.)		
TOTAL ALL BUILDINGS:	**298,306 S.F.**	

CODE COMPLIANCE:
THE FLAGSTAFF CITY COUNCIL HAS ADOPTED THE FOLLOWING BUILDING CODES WITH AMENDMENTS:
2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL FUEL GAS CODE
2018 INTERNATIONAL EXISTING BUILDING CODE
2017 NFPA 70 / NATIONAL ELECTRICAL CODE
1997 UNIFORM CODE FOR THE ABATEMENT OF DANGEROUS BUILDINGS
2018 INTERNATIONAL RESIDENTIAL CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL ENERGY CONSERVATION CODE
1997 UNIFORM ADMINISTRATIVE CODE
1997 UNIFORM HOUSE CODE
ICC A117-1-2017 ACCESSIBLE & USABLE BUILDINGS & FACILITIES

VICINITY MAP



SITE DATA:

SITE ADDRESS:
2701 South Woody Mountain Road

APN:
112-01-019B
Note: as of January 1, 2023, this parcel number will be changed to APN 112-01-712

SITE AREA:
GROSS AREA: 13.01 ACRES (567,020 SF)
NET AREA: 13.01 ACRES (567,020 SF)

LOT COVERAGE:
MAX. ALLOWED: 50% (0.50 x 567,020 SF = 283,510 SF)
PROVIDED: 23% (130,737 SF)

LOT COVERAGE CALCULATIONS:

BUILDING 1	11,461 S.F. x 8 =	91,688 S.F.
BUILDING 2	5,780 x 1 =	5,780 S.F.
CARRIAGE	2,277 S.F. x 5 =	11,385 S.F.
CLUBHOUSE	9,249 S.F.	9,249 S.F.
FITNESS	5,930 S.F.	5,930 S.F.
GARAGES	2,035 x 3 =	6,105 S.F.
RAMADAS	600 S.F.	600 S.F.

COMMON OPEN SPACE: (SEE LANDSCAPE OPEN SPACE PLAN)
REQUIRED: 15% (±85,053 SF)
PROVIDED: 16% (±91,109 SF)

CIVIC OPEN SPACE: (SEE LANDSCAPE OPEN SPACE PLAN)
REQUIRED: 3% (±28,351 SF)
PROVIDED: 3% (±28,360 SF)

ZONING:
EXISTING ZONING: COF: Rural Residential - Resource Protection Overlay (RR-RPO) (±11.31 ac.)
CC: General - 10 Ac. Minimum (±1.70 ac.)
PROPOSED: COF: High Density Residential - Resource Protection Overlay (HR-RPO)(± 13.01 ac.)

HEIGHT:
ALLOWED: 60'-0" (65'-0" ALLOWED WITH 6:12 PITCHED ROOFS)
PROVIDED: 3 STORIES - ± 50'-0" / 2 STORIES - ± 30'-0" (AT FINISH GRADE)
(Building height shall be measured vertically from top of any point of a structure or building element, including the top of parapet, top of mansard roof, screened wall or pitched roof to the natural grade directly benefits one point measured under the finished grade abutting the bldg. or structure is below the natural grade.)

UNIT MIX:

1 BEDROOM/ 1 BATH	48 D.U.	(22.4%)
2 BEDROOM/ 2 BATH	118 D.U.	(55.2%)
3 BEDROOM/ 2 BATH	48 D.U.	(22.4%)
TOTAL	**214 D.U.**	**(100%)**

CONSTRUCTION TYPE:
PROPOSED: TYPE V-A/V-B, SPRINKLERED (RESIDENTIAL APARTMENT BLDGS.)

DENSITY:
MAXIMUM ALLOWED: 29 D.U./GROSS ACRE (MAX. WITH RPO, INSIDE PEDESTRIAN SHED OF AN ACTIVITY CENTER)
PROVIDED: ±16.44 D.U./GROSS ACRE

PARKING:
REQUIRED PARKING:
1 BEDROOM/1 BATH (48 D.U. x 1.50 P.S./D.U.) = 72 P.S.
2 BEDROOM/2 BATH (118 D.U. x 2.00 P.S./D.U.) = 236 P.S.
3 BEDROOM/2 BATH (48 D.U. x 2.00 P.S./D.U.) = 96 P.S.
GUEST (2 & 3 BEDROOM - (166 D.U. x 0.25) = 42 P.S.
TOTAL REQUIRED PARKING: 446 P.S.

REQUIRED ACCESSIBLE PARKING:
REQUIRED: PER CITY OF FLAGSTAFF TABLE 10-50.80.080.B:
401-500 TOTAL P.S. = 10 ACC. P.S.
PROVIDED: 10 PARKING SPACES (9 SURFACE, 1 GARAGE)

PROVIDED PARKING:
SURFACE PARKING 390 P.S. (INCLUDES 340 SURFACE P.S., 3 EV CHARGING STATIONS & 47 TANDEM P.S.)
ATTACHED GARAGES 47 P.S.
CARRIAGE BUILDING GARAGES 40 P.S.
DETACHED GARAGE 21 P.S.
TOTAL PROVIDED PARKING 498 P.S.
INCLUDES 10 ACCESSIBLE P.S: 9 SURFACE, 1 GARAGE

GENERAL PARKING DIMENSIONS:
PARKING SPACE: 9' x 18' WITH 1.5' OVERHANG
AISLE WIDTH: 26' FIRE CODE (APPENDIX D)
LANDSCAPE ISLAND RATIO: 8 P.S. PER 1 LANDSCAPE ISLAND

BICYCLE PARKING:
REQUIRED: 5% OF REQUIRED PARKING = 5% x 446 = 22
PROVIDED: 24 BICYCLE PARKING SPACES

BUILDING SETBACK:

	REQUIRED	PROVIDED
- FRONT (ROUTE 66)	15'	±19' - BUILDING
		15' - FENCE (6')
- STREET SIDE (WOODY MTN RD)	5'	±24' - BUILDING
- SIDE (WEST PROPERTY LINE)	5'	10' - BUILDING
- REAR (SOUTH PROPERTY LINE)	15'	15' - DETACHED GARAGE

FIRE CODE:
CITY OF FLAGSTAFF FIRE DEPARTMENT HAS ADOPTED APPENDIX D WITHIN THE 2018 FIRE CODE WHICH REQUIRES THE FOLLOWING:
1. WHERE THE VERTICAL DISTANCE BETWEEN THE GRADE PLANE AND THE HIGHEST ROOF SURFACE EXCEEDS 30', APPROVED AERIAL FIRE APPARATUS ACCESS ROADS SHALL BE PROVIDED.
2. AERIAL FIRE APPARATUS ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 26'.
3. FIRE APPARATUS ACCESS ROUTES SHALL BE LOCATED NOT LESS THAN 15' AND NOT GREATER THAN 30' FROM THE BUILDING AND SHALL BE POSITIONED PARALLEL TO ONE ENTIRE SIDE OF THE BUILDING. THE SIDE OF THE BUILDING ON WHICH THE AERIAL FIRE APPARATUS ACCESS ROAD IS POSITIONED SHALL BE APPROVED BY THE FIRE CODE OFFICIAL.

FIRE TRUCK TURNING RADIUS:
INSIDE: 35'
OUTSIDE: 55'

ARCHITECTURAL SITE PLAN

0' 25' 50' 100'
SCALE: 1" = 50'-0"

PROJECT NO. 22-2003-01
LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT
LIV COMMUNITIES
8950 S 52ND ST. SUITE 115
TEMPE, AZ 85284

SEAL
REGISTERED ARCHITECT CERTIFICATE NO. 13467 GARY D. TODD 11/18/22 Date Signed ARIZONA U.S.A.

CONTACT
TODD + ASSOCIATES
CRITICAL THINKING / CREATIVE DESIGN
ARCHITECTURE. PLANNING. LANDSCAPE ARCHITECTURE.
4019 N. 44TH ST. / PHOENIX, AZ 85018
602-952-8280 / TODDASSOC.COM
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PHASE
09-22-2022
SITE PLAN REVIEW SUBMITTAL #1
11-23-2022
SITE PLAN REVIEW SUBMITTAL #2

DATA
Proj Mgr.
Dwn By:

ARCHITECTURAL SITE PLAN
A1.1.1



REAR ELEVATION



LEFT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR		SWATCH
A	Fiber Cement Siding Body 1	MFG.:	Allura Lap Siding - Horizontal Panels Traditional Texture	
		COLOR:	Maple	
B	Fiber Cement Siding Body 2	MFG.:	Allura Lap Siding - Vertical Panels Traditional Texture	
		COLOR:	Slate	
C	Fiber Cement Fascia	MFG.:	Allura - Plycem Fiber Cement Trim	
		COLOR:	Sterling Gray	
		LRV:	48.20	
D	Fiber Cement Trim	MFG.:	Allura - Plycem Fiber Cement Trim	
		COLOR:	Autumn Red	
		LRV:	12.60	
E	Stone Veneer	MFG.:	Coronado - Getty Stone	
		COLOR:	Embassy Blend	
F	Shingle Roof	MFG.:	GAF Timberline - Ultra HD Shingles	
		COLOR:	Charcoal	
G	Metal Roof	MFG.:	MBCI - Slimline Roof Panel	
		COLOR:	Signature 300 "Slate Gray"	
		LRV:	18.76	
H	Metal Railing	MFG.:	Sherwin Williams	
		COLOR:	SW 7578 "Borscht"	
		LRV:	6	

CLUBHOUSE ELEVATIONS

0" 4" 8" 16"

SCALE: 1/8" = 1'-0"

PROJECT
NO. 22-2003-01
LIV TIMBER SKY

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SEAL
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13467
GARY D. TODD
11/18/22
ARIZONA, U.S.A.

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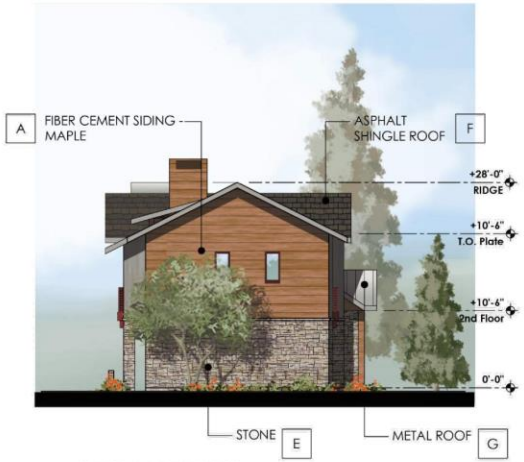
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SITE PLAN REVIEW SUBMITTAL #2

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CLUBHOUSE ELEVATIONS

A3.4.2



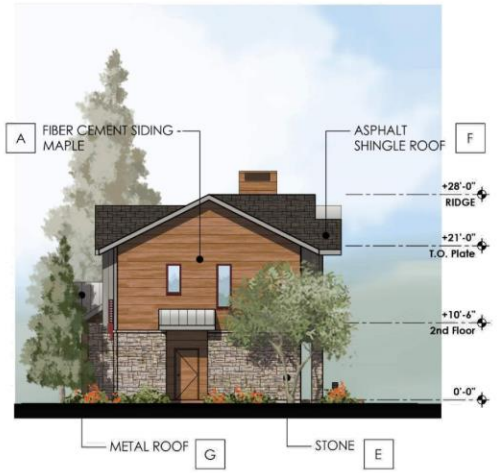
RIGHT ELEVATION



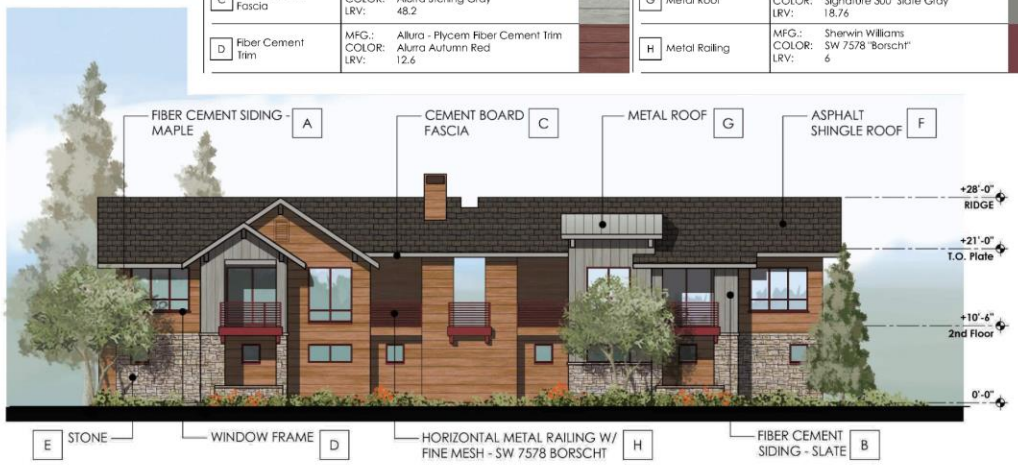
FRONT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR	SWATCH
A	Fiber Cement Siding Body 1	MFG.: Allura Lap Siding - Horizontal Panels Traditional Texture COLOR: PPG Bleached Maple (PPG1089-5) LRV: 37	
B	Fiber Cement Siding Body 2	MFG.: Allura Lap Siding - Vertical Panels Traditional Texture COLOR: PPG Cloudy Slate (PPG0996-4) LRV: 29	
C	Fiber Cement Fascia	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Sterling Gray LRV: 48.2	
D	Fiber Cement Trim	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Autumn Red LRV: 12.6	
E	Stone Veneer	MFG.: Coronado - Getty Stone COLOR: Embassy Blend LRV: 45.43	
F	Shingle Roof	MFG.: GAF Timberline - Ultra HD Shingles COLOR: Charcoal LRV: n/a	
G	Metal Roof	MFG.: MBCI - Slimline Roof Panel COLOR: Signature 300 "Slate Gray" LRV: 18.76	
H	Metal Railing	MFG.: Sherwin Williams COLOR: SW 7578 "Borscht" LRV: 6	



LEFT ELEVATION



REAR ELEVATION

TYPE 3 ELEVATIONS

0" 4" 8" 16"
SCALE: 1/8" = 1'-0"

PROJECT
NO. 22-2003-01
LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT
LIV COMMUNITIES
8950 S 52ND ST. SUITE 115
TEMPE, AZ 85284

SEAL
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CERTIFICATE NO.
13467
GARY D. TODD
11/18/22
ARIZONA, U.S.A.

CONTACT
TODD + ASSOCIATES
CRITICAL THINKING / CREATIVE DESIGN
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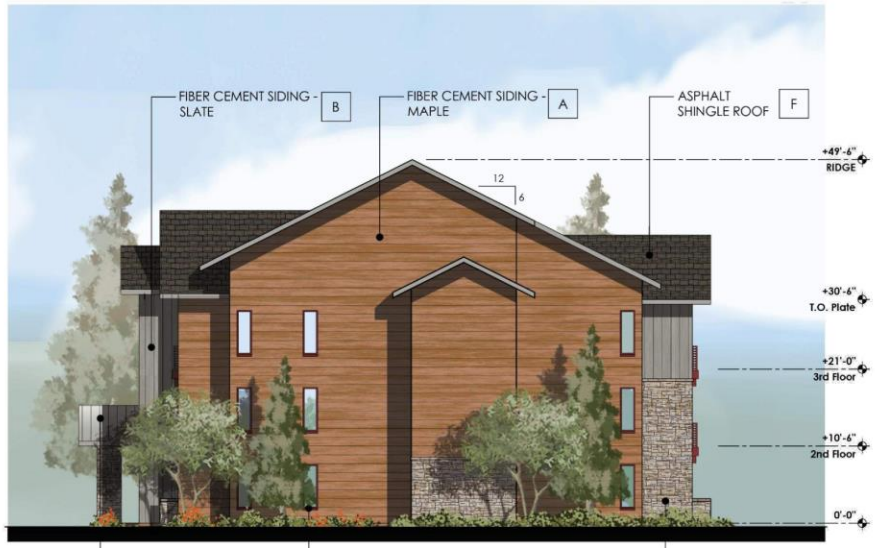
DATA
Proj Mgr.
Dwn By:

BUILDING TYPE 3 ELEVATIONS

A3.3.1



REAR ELEVATION



LEFT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR	SWATCH
A	Fiber Cement Siding Body 1	MFG.: Allura Lap Siding - Horizontal Panels Traditional Texture COLOR: PPG Bleached Maple (PPG1089-5) LRV: 37	
B	Fiber Cement Siding Body 2	MFG.: Allura Lap Siding - Vertical Panels Traditional Texture COLOR: PPG Cloudy Slate (PPG0996-4) LRV: 29	
C	Fiber Cement Fascia	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Sterling Gray LRV: 48.2	
D	Fiber Cement Trim	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Autumn Red LRV: 12.6	
E	Stone Veneer	MFG.: Coronado - Getty Stone COLOR: Embassy Blend LRV: 45.43	
F	Shingle Roof	MFG.: GAF Timberline - Ultra HD Shingles COLOR: Charcoal LRV: n/a	
G	Metal Roof	MFG.: MBCI - Slimline Roof Panel COLOR: Signature 300 "Slate Gray" LRV: 18.76	
H	Metal Railing	MFG.: Sherwin Williams COLOR: SW 7578 "Borscht" LRV: 6	

TYPE 1 ELEVATIONS

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT
NO. 22-2003-01
LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT
LIV COMMUNITIES
8950 S 52ND ST. SUITE 115
TEMPE, AZ 85284

SEAL
REGISTERED ARCHITECT
13467
GARY D. TODD
11/18/22
ARIZONA

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SITE PLAN REVIEW SUBMITTAL #2

DATA
Proj Mgr.
Dwn By:

BUILDING TYPE 1 ELEVATIONS

A3.1.2

Property Owners within 300-feet					
Property Owner Name	**Mailing Address**	**City**	**Sate**	**ZIP**	**APN**
DUNN SHELLY R	2864 W PICO DEL MONTE CIR	FLAGSTAFF	AZ	86001	11262212A
ESTERLY BRIAN & ROSETTA	24361 N 73RD ST	SCOTTSDALE	AZ	85255	11262208A
FLAGSTAFF CITY OF	211 W ASPEN AVE	FLAGSTAFF	AZ	86001	11201002
HELIN BUILDING LLC	1800 N HEREFORD DR	FLAGSTAFF	AZ	86001	11201003A 11201003B
PRESIDIO IN THE PINES HOMEOWNER'S ASSOC INC	323 S RIVER RUN RD NO 1	FLAGSTAFF	AZ	86001	11262473B
TIMBER SKY COMMUNITY ASSOCIATION	2502 E CAMELBACK RD NO 214	PHOENIX	AZ	85016	11201163
VAN HOY FAMILY REVOCABLE TRUST DTD 01-16-02	14194 W SMOKETREE DR	SURPRISE	AZ	85387	11262207
VP 66 & WOODY MOUNTAIN LLC	2502 E CAMELBACK RD NO 214	PHOENIX	AZ	85016	11201156 11201157
WALKER WINSTON W & MARY M	13450 N KACHINA DR	ORO VALLEY	AZ	85755	11262210A
WOODY MOUNTAIN CAMPGROUND	1425 W FOREST MEADOWS	FLAGSTAFF	AZ	86001	11201701
HOAs and Neighborhood Associations within 1,000-feet					
Organization / Contact	**Mailing Address**	**City**	**Sate**	**ZIP**	
RAILROAD SPRINGS 66 LLLP	1016 W UNIVERSITY AVE NO 203	FLAGSTAFF	AZ	86001	
PRESIDIO IN THE PINES HOMEOWNER'S ASSOC INC	323 S RIVER RUN RD NO 1	FLAGSTAFF	AZ	86001	
TIMBER SKY COMMUNITY ASSOCIATION	2502 E CAMELBACK RD NO 214	PHOENIX	AZ	85016	
Registry of Persons and Groups					
Organization / Contact	**Mailing Address**	**City**	**Sate**	**ZIP**	**Email**
Friends of Flagstaff's Future	P.O. Box 23462	Flagstaff	AZ	86002	info@friendsofflagstaff.org
Friends of Flagstaff's Future ATTN: Michele A. James	P.O. Box 23462	Flagstaff	AZ	86002	
Northern Arizona Building Association	1500 East Cedar Avenue, Suite 86	Flagstaff	AZ	86004	tbociung@nazba.org
Northern Arizona Association of Realtors ATTN: Jeffrey Herd	1515 East Cedar Avenue, Suite C-4	Flagstaff	AZ	86004	naarflag@nazrealtor.com
Tish Bogan-Ozmun	5271 Mt. Pleasant Drive	Flagstaff	AZ	86004	tishflagstaff@gmail.com
Marilyn Weissman	1055 East Apple Way	Flagstaff	AZ	86001	Missymoet@aol.com
Nat White	1120 North Rockridge Road	Flagstaff	AZ	86001	white@lowell.edu
Charlie Silver	720 West Aspen Avenue	Flagstaff	AZ	86001	Cws720@gmail.com
Betsy McKellar	330 S Ash Lane	Flagstaff	AZ	86004	
David Carpenter	1109 W Beal Road	Flagstaff	AZ	86001	dc@hopeaz.com
Arizona Army National Guard, AZAA-FMO ATTN: Dorenda Coleman	5636 E McDowell Rd, M5330	Phoenix	AZ	85008	dorenda.j.coleman.nfg@mail.mil
US Navy, Intergovernmental Branch. ATTN: Mary Beth Dreusike	850 Pacific Highway Building 1 – 5th Floor, Suite 513	San Diego	CA	92132	marybeth.dreusike@navy.mil
Celia Barotz	3354 N Crest Street	Flagstaff	AZ	86001	cbarotz@gmail.com
Norm Wallen	3716 N Grandview	Flagstaff	AZ	86004	normwallenflg@gmail.com
Coconino County Community Development ATTN: Jay Christelman	2500 N Fort Valley Rd. Bldg 1	Flagstaff	AZ	86001-1287	jchristelman@coconino.az.gov
Tyler Denham	800 W Forest Meadows St, Apt 119	Flagstaff	AZ	86001	tyler.b.denham@gmail.com
Coconino County Community Development ATTN: Jess McNeely	2500 N Fort Valley Rd. Bldg 1	Flagstaff	AZ	86001-1287	wmcneely@coconino.az.gov
Flagstaff Lodging, Restaurant & Tourism Association ATTN: Steve Finch	PO Box 30622	Flagstaff	AZ	86003	sfinch@flrta.org
Rachel Bass	3083 W. Easterday Lane	Flagstaff	AZ	86001	rsilverton@gmail.com
Other Interested Parties					
Organization / Contact	**Mailing Address**	**City**	**Sate**	**ZIP**	**Email**
City of Flagstaff Community Development ATTN: Genevieve Pearthree	211 W. Aspen Ave	Flagstaff	AZ	86001	gpearthree@flagstaffaz.gov
Gammage & Burnham, PLC ATTN: Nick Sobraske	40 N Central, 20th Floor	Phoenix	AZ	85004	nsobraske@gblaw.com

Neighborhood Meeting Certification

I, Gammage & Burnham, PLC c/o Lindsay C. Schube, the authorized representative of VP 66 & Woody Mountain LLC, do hereby attest that the neighborhood meeting for Project No. PZ-21-00271-05 and PZ-21-00271-04 was noticed and conducted in compliance with Section 10-20.30.060 of the City of Flagstaff Zoning Code and included the following:

- ☑ A Citizen Participation Plan, prepared in accordance with Section 10-20.30.030.C of the City of Flagstaff Zoning Code, was submitted to the City of Flagstaff on 11/22/2022 and accepted by the City of Flagstaff on 12/8/2022.
- ☑ A list of property owners within 300 feet of the subject property boundaries was prepared and submitted to the City of Flagstaff as part of the Citizen Participation Plan.
- ☑ Notices of the neighborhood meeting were sent via first class mail on 11/23/2022 to all property owners within 1,000 feet of the subject property boundaries, to all tenants residing on the subject property, to all Homeowners Associations (HOAs) within 1,000 feet of the subject property, and all persons or groups whose names are listed on the Registry of Persons and Groups.
- ☑ A total of 1 neighborhood meeting notification sign(s) were installed on 11/23/2022 at the following location(s):
  - o Near the intersection of US Route 666 & Woody Mountain Road
  - o _____
  - o _____
- ☑ A written summary of the meetings, known as a Citizen Participation Report, was submitted to the City of Flagstaff on 4/12/2023.
- ☑ Copies of the Citizen Participation Report were sent via first class mail on 4/11/2023 to all persons who recorded their names on the neighborhood meeting sign-in sheet.

Authorized Representative of the Applicant:

Lindsay C. Schube

Signature:

LCSchube

TAB B

Voluntary Second Neighborhood Meeting Reminder
Mailing List

January 13, 2023

Dear Property Owner, Resident, Neighborhood Association, or Interested Citizen,

You are receiving this follow-up letter as a courtesy reminder that Vintage Partners is hosting a second virtual neighborhood meeting for the Liv Timber Sky development proposal on the approximate 13.86 acres located at the southwest corner of US Route 66 and Woody Mountain Road ("Property"). VP 66 & Woody Mountain LLC d/b/a as Vintage Partners, in partnership with Liv Communities, is proposing to develop a new, market-rate multi-family residential development on the Property.

We recently filed application case no. PZ-21-00271-04 to Annex the approximate 1.9 acres located at the southwest corner of US Route 66 & Woody Mountain Road. See enclosed Annexation Map. In addition, we filed application case no. PZ-21-00271-05 to rezone the Property (including the 1.9 acres) from RR-RPO (Rural Residential, Resource Protection Overlay) to HR-RPO (High Density Residential, Resource Protection Overlay). Approval of these applications will allow for the development of a 214 multi-family residential dwelling unit community at a density of approximately 16.45 dwelling units per acre. The 2030 Regional Plan designates the Property as Urban-Future land use—the proposed use and density comply with this designation. Dwelling units will consist of 1, 2, and 3 bedroom units spread throughout a series of 2-story carriage units and 3-story buildings. Amenities are planned to include a centrally located resident amenity area, open space area, clubhouse, fitness center, spa, bbq area and ramadas, fire pit and seating area, pickleball court, and dog park. In addition, civic (public) space, which includes seating, landscaping, and hardscape, is planned at the northeast corner of the Property. See enclosed Site Plan and Building Elevations.

The second virtual neighborhood meeting to discuss the development proposal is scheduled as follows:

Meeting:	Liv Timber Sky—Virtual Neighborhood Meeting
Location:	Meeting to be held virtually in Zoom.
Registration Link:	**https://www.gblaw.com/livtimbersky/**
Date and Time:	February 6, 2023 at 6:00 PM

Instructions for Access to Virtual Neighborhood Meetings. The neighborhood meetings will be held on the Zoom video conferencing platform, which can be accessed through your internet browser or through the Zoom app on your mobile device via the above link. For registration assistance, please contact Taylor Manemann at **(602) 256-4454** or **tmanemann@gblaw.com**.

Please note, to access the meeting, you will be required to register. Meeting registration information will be made part of the public record and shared with the City. We will also use this information to keep you informed of future meetings and/or hearings via email, as well as traditional mail. At the beginning of the neighborhood meeting, we will provide a brief overview of the meeting procedures and instructions for asking questions once the formal presentation has concluded.

Please be advised that future hearings before the Planning & Zoning Commission and City Council will be scheduled to review this case. Specific dates have not yet been set. An additional notification letter will be provided identifying the date, time, and location of these meetings and hearings.

The City Planner assigned to this case is Ms. Genevieve Pearthree, Senior Planner. Ms. Pearthree can be reached at (928) 213-2603 or Genevieve.Pearthree@flagstaffaz.gov. She can answer your questions regarding the City's review and hearing process. Should you have any questions in the meantime or are unable to attend this neighborhood meeting and would like more information, please do not hesitate to contact me at (602) 459-9929 or walter@vintagevp.com.

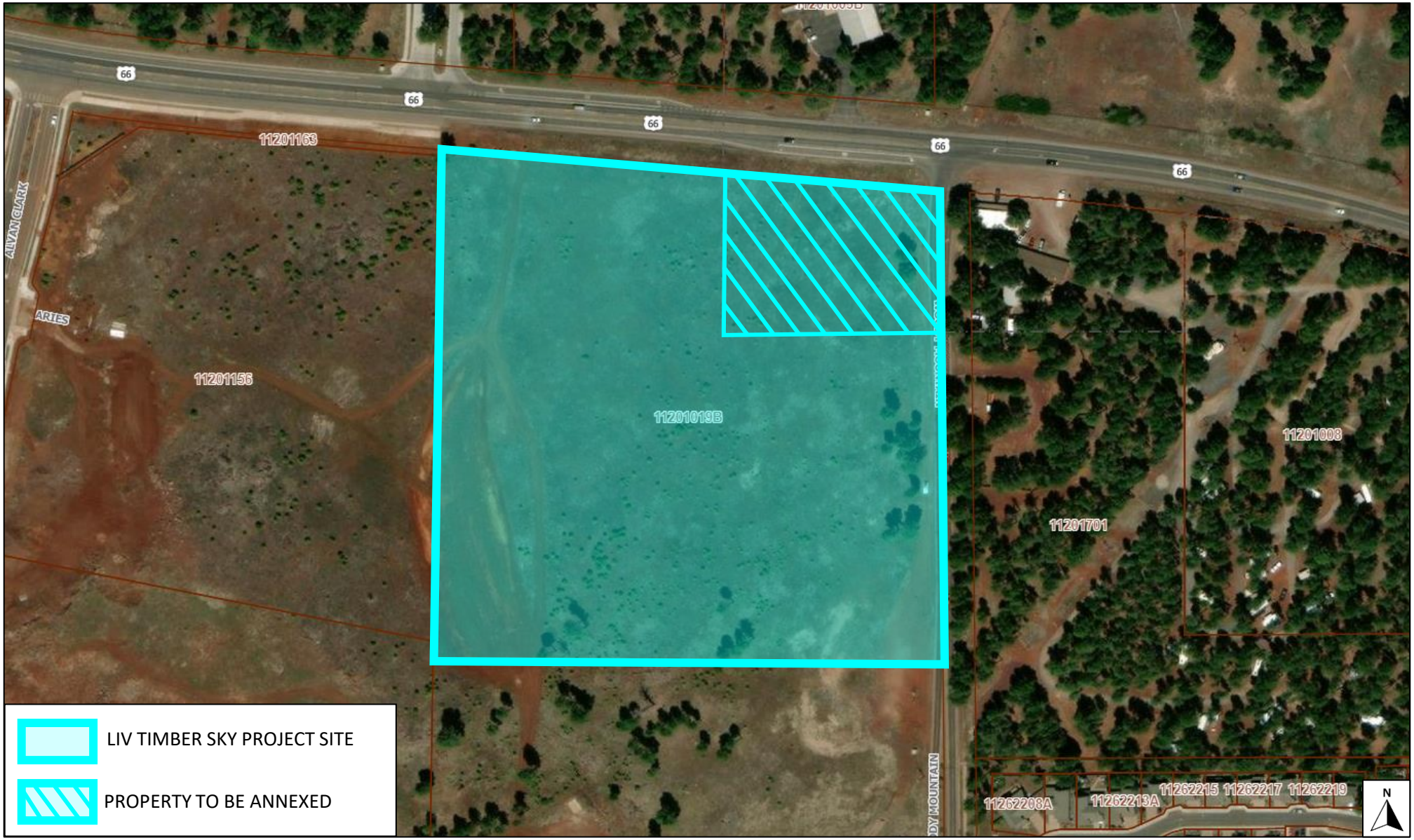
Sincerely,

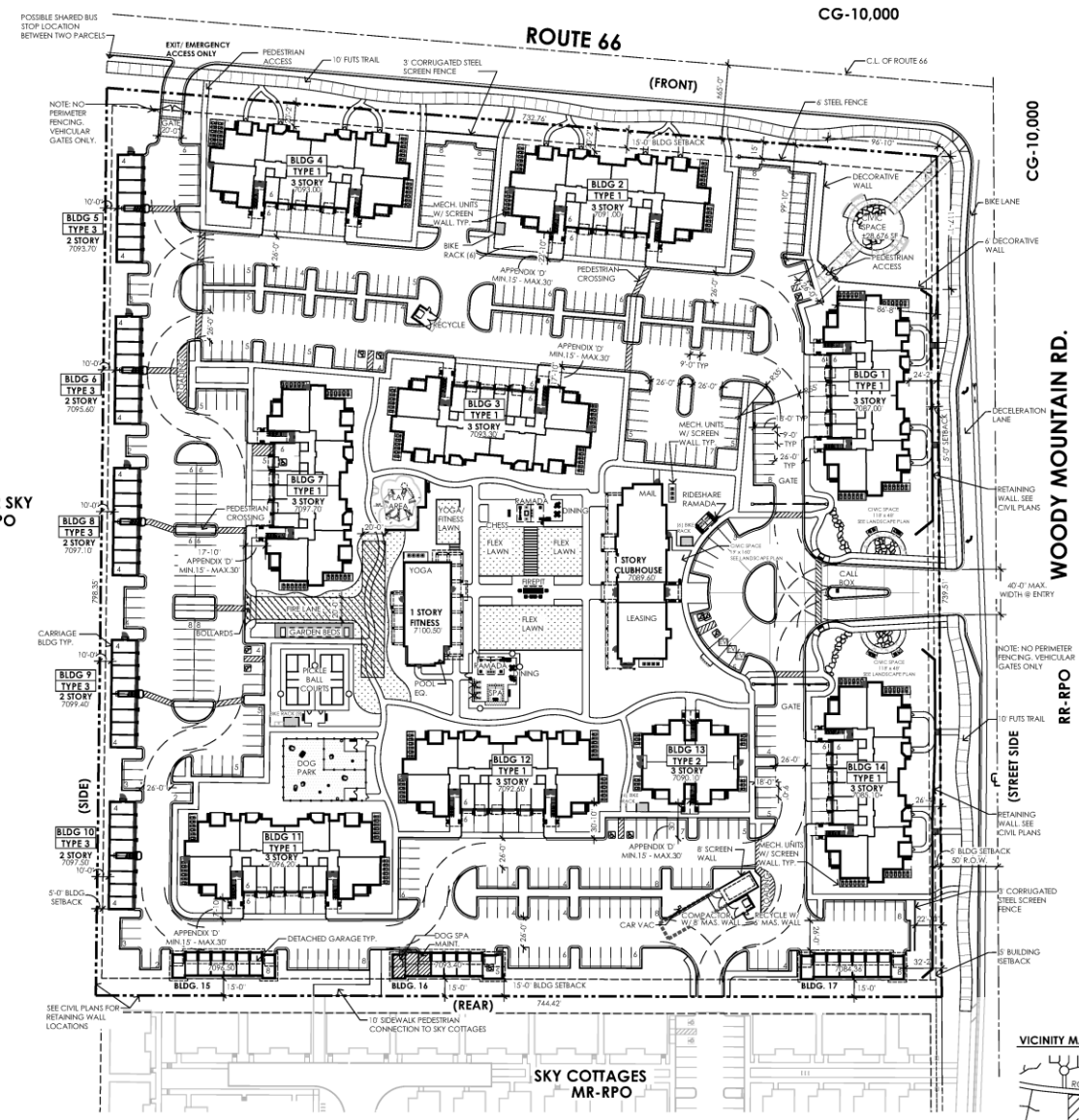
Walter Crutchfield
Vintage Partners

CONTEXT MAP


Timber Sky
Liv Timber Sky
Sky Cottages at Timber Sky
66
40
ALTAIR
ALTAIR
ARIES
ALVANGARK
ADORA
VEGA
ROCKWOOD
UNNAMED
M GALLISTER RANCH
PUTNAM
CORONADO
ZEPHER
ROCKSUND
NORTHWESTERN
RAILROAD SPRINGS
PATIO DEL PRESIDIO
PRESIDIO
MISSION TIMBER
CAUSE
KISTLE
WOODY MOUNTAIN
N

ANNEXATION MAP





DEVELOPMENT TEAM:

DEVELOPER:
LIV COMMUNITIES
1600 S. BEACON BLVD.
SUITE 260
GRAND HAVEN, MI 49417
616-846-6900

ARIZONA OFFICE:
8950 SOUTH 52ND STREET
SUITE 115
TEMPE, AZ 85284
480-739-9240

VINTAGE PARTNERS
2502 E. CAMELBACK RD.
SUITE 214
PHOENIX, AZ 85016
602-459-9929

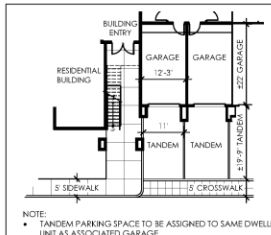
ARCHITECTURE:
TODD & ASSOCIATES
4019 N. 44TH STREET
PHOENIX, AZ 85018
602-952-8280

LANDSCAPE ARCHITECTURE:
NORRIS DESIGN
901 E. MADISON STREET
PHOENIX, AZ 85034
602-254-9600

CIVIL ENGINEER:
SHEPARD-WESNITZER, INC.
110 DALE AVENUE
FLAGSTAFF, AZ 86001
928-773-0354

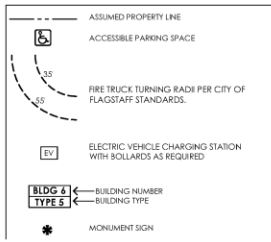
ZONING ATTORNEY:
GAMMAGE & BURNHAM
40 N. CENTRAL AVENUE
20TH FLOOR
PHOENIX, AZ 85004
602-256-0566

DETAIL AT TYPICAL ATTACHED GARAGE



NOTE:
- TANDEM PARKING SPACE TO BE ASSIGNED TO SAME DWELLING UNIT AS ASSOCIATED GARAGE.
- TANDEM PARKING SPACE COUNT HAS NOT BEEN COUNTED TOWARD THE REQUIRED PARKING.

LEGEND

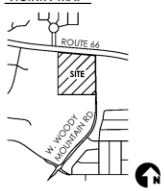


BUILDING S.F. (GROSS)

BUILDING / LEVEL	CONST. TYPE	OCC.
BLDG TYPE 1:		
1ST FLR. 10,250 S.F.	V-A	R-2
2ND FLR. 10,233 S.F.		
3RD FLR. 10,233 S.F.		
SUBTOTAL 30,716 S.F. (x 8 = 245,728 S.F.)		
BLDG TYPE 2:		
1ST FLR. 4,574 S.F.	V-A	R-2
2ND FLR. 4,574 S.F.		
3RD FLR. 4,574 S.F.		
SUBTOTAL 13,722 S.F. (x 1 = 13,722 S.F.)		
BLDG TYPE 3:		
1ST FLR. 2,299 S.F.	V-A	R-2
2ND FLR. 2,185 S.F.		
SUBTOTAL 4,484 S.F. (x 5 = 22,420 S.F.)		
TOTAL RESIDENTIAL:	**281,870 S.F.**	
CLUBHOUSE:		
1ST FLR. 6,511 S.F.	V-B	A-3 / B
SUBTOTAL 6,511 S.F. (x 1 = 6,511 S.F.)		
FITNESS:		
1ST FLR. 3,753 S.F.	V-B	A-3
SUBTOTAL 3,753 S.F. (x 1 = 3,753 S.F.)		
DETACHED GARAGES:		
TYPE 1: 2,012 S.F.	V-B	U
SUBTOTAL 2,012 S.F. (x 2 = 4,024 S.F.)		
TYPE 2: 2,148 S.F.	V-B	U
SUBTOTAL 2,148 S.F. (x 1 = 2,148 S.F.)		
TOTAL ALL BUILDINGS:	**298,306 S.F.**	

CODE COMPLIANCE:
THE FLAGSTAFF CITY COUNCIL HAS ADOPTED THE FOLLOWING BUILDING CODES WITH AMENDMENTS:
2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL FUEL GAS CODE
2018 INTERNATIONAL EXISTING BUILDING CODE
2017 NFPA 70 / NATIONAL ELECTRICAL CODE
1997 UNIFORM CODE FOR THE ABATEMENT OF DANGEROUS BUILDINGS
2018 INTERNATIONAL RESIDENTIAL CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL ENERGY CONSERVATION CODE
1997 UNIFORM ADMINISTRATIVE CODE
1997 UNIFORM HOUSE CODE
ICC A117-1-2017 ACCESSIBLE & USABLE BUILDINGS & FACILITIES

VICINITY MAP



SITE DATA:

SITE ADDRESS:
2701 South Woody Mountain Road

APN:
112-01-019B
Note: as of January 1, 2023, this parcel number will be changed to APN 112-01-712

SITE AREA:
GROSS AREA: 13.01 ACRES (567,020 SF)
NET AREA: 13.01 ACRES (567,020 SF)

LOT COVERAGE:
MAX. ALLOWED: 50% (0.50 x 567,020 SF = 283,510 SF)
PROVIDED: 23% (130,737 SF)

LOT COVERAGE CALCULATIONS:

BUILDING 1	11,461 S.F. x 8 =	91,688 S.F.
BUILDING 2	5,780 x 1 =	5,780 S.F.
CARRIAGE	2,277 S.F. x 5 =	11,385 S.F.
CLUBHOUSE	9,249 S.F.	9,249 S.F.
FITNESS	5,930 S.F.	5,930 S.F.
GARAGES	2,035 x 3 =	6,105 S.F.
RAMADAS	600 S.F.	600 S.F.

COMMON OPEN SPACE: (SEE LANDSCAPE OPEN SPACE PLAN)
REQUIRED: 15% (±85,053 SF)
PROVIDED: 16% (±91,109 SF)

CIVIC OPEN SPACE: (SEE LANDSCAPE OPEN SPACE PLAN)
REQUIRED: 3% (±28,351 SF)
PROVIDED: 3% (±28,360 SF)

ZONING:
EXISTING ZONING: COF: Rural Residential - Resource Protection Overlay (RR-RPO) (±11.31 ac.)
CC: General - 10 Ac. Minimum (±1.70 ac.)
PROPOSED: COF: High Density Residential - Resource Protection Overlay (HR-RPO)(± 13.01 ac.)

HEIGHT:
ALLOWED: 60'-0" (65'-0" ALLOWED WITH 6:12 PITCHED ROOFS)
PROVIDED: 3 STORIES - ± 50'-0" / 2 STORIES - ± 30'-0" (AT FINISH GRADE)
(Building height shall be measured vertically from top of any point of a structure or building element, including the top of parapet, top of mansard roof, screened wall or pitched roof to the natural grade directly benefits one point measured under the finished grade abutting the bldg. or structure is below the natural grade.)

UNIT MIX:

1 BEDROOM/ 1 BATH	48 D.U.	(22.4%)
2 BEDROOM/ 2 BATH	118 D.U.	(55.2%)
3 BEDROOM/ 2 BATH	48 D.U.	(22.4%)
TOTAL	**214 D.U.**	**(100%)**

CONSTRUCTION TYPE:
PROPOSED: TYPE V-A/V-B, SPRINKLERED (RESIDENTIAL APARTMENT BLDGS.)

DENSITY:
MAXIMUM ALLOWED: 29 D.U./GROSS ACRE (MAX. WITH RPO, INSIDE PEDESTRIAN SHED OF AN ACTIVITY CENTER)
PROVIDED: ±16.44 D.U./GROSS ACRE

PARKING:
REQUIRED PARKING:
1 BEDROOM/1 BATH (48 D.U. x 1.50 P.S./D.U.) = 72 P.S.
2 BEDROOM/2 BATH (118 D.U. x 2.00 P.S./D.U.) = 236 P.S.
3 BEDROOM/2 BATH (48 D.U. x 2.00 P.S./D.U.) = 96 P.S.
GUEST (2 & 3 BEDROOM - (166 D.U. x 0.25) = 42 P.S.
TOTAL REQUIRED PARKING: 446 P.S.

REQUIRED ACCESSIBLE PARKING:
REQUIRED: PER CITY OF FLAGSTAFF TABLE 10-50.80.080.B:
401-500 TOTAL P.S. = 10 ACC. P.S.
PROVIDED: 10 PARKING SPACES (9 SURFACE, 1 GARAGE)

PROVIDED PARKING:
SURFACE PARKING 390 P.S. (INCLUDES 340 SURFACE P.S., 3 EV CHARGING STATIONS & 47 TANDEM P.S.)
ATTACHED GARAGES 47 P.S.
CARRIAGE BUILDING GARAGES 40 P.S.
DETACHED GARAGE 21 P.S.
TOTAL PROVIDED PARKING 498 P.S.
INCLUDES 10 ACCESSIBLE P.S: 9 SURFACE, 1 GARAGE

GENERAL PARKING DIMENSIONS:
PARKING SPACE: 9' x 18' WITH 1.5' OVERHANG
AISLE WIDTH: 26' FIRE CODE (APPENDIX D)
LANDSCAPE ISLAND RATIO: 8 P.S. PER 1 LANDSCAPE ISLAND

BICYCLE PARKING:
REQUIRED: 5% OF REQUIRED PARKING = 5% x 446 = 22
PROVIDED: 24 BICYCLE PARKING SPACES

BUILDING SETBACK:

	REQUIRED	PROVIDED
- FRONT (ROUTE 66)	15'	±19' - BUILDING
		15' - FENCE (6')
- STREET SIDE (WOODY MTN RD)	5'	±24' - BUILDING
- SIDE (WEST PROPERTY LINE)	5'	10' - BUILDING
- REAR (SOUTH PROPERTY LINE)	15'	15' - DETACHED GARAGE

FIRE CODE:
CITY OF FLAGSTAFF FIRE DEPARTMENT HAS ADOPTED APPENDIX D WITHIN THE 2018 FIRE CODE WHICH REQUIRES THE FOLLOWING:
1. WHERE THE VERTICAL DISTANCE BETWEEN THE GRADE PLANE AND THE HIGHEST ROOF SURFACE EXCEEDS 30', APPROVED AERIAL FIRE APPARATUS ACCESS ROADS SHALL BE PROVIDED.
2. AERIAL FIRE APPARATUS ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 26'.
3. FIRE APPARATUS ACCESS ROUTES SHALL BE LOCATED NOT LESS THAN 15' AND NOT GREATER THAN 30' FROM THE BUILDING AND SHALL BE POSITIONED PARALLEL TO ONE ENTIRE SIDE OF THE BUILDING. THE SIDE OF THE BUILDING ON WHICH THE AERIAL FIRE APPARATUS ACCESS ROAD IS POSITIONED SHALL BE APPROVED BY THE FIRE CODE OFFICIAL.

FIRE TRUCK TURNING RADIUS:
INSIDE: 35'
OUTSIDE: 55'

ARCHITECTURAL SITE PLAN

0' 25' 50' 100'
SCALE: 1" = 50'-0"

PROJECT NO. 22-2003-01
LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT
LIV COMMUNITIES
8950 S 52ND ST. SUITE 115
TEMPE, AZ 85284

SEAL
REGISTERED ARCHITECT CERTIFICATE NO. 13467 GARY D. TODD 11/18/22 Date Signed ARIZONA U.S.A.

CONTACT
TODD + ASSOCIATES
CRITICAL THINKING / CREATIVE DESIGN
ARCHITECTURE. PLANNING. LANDSCAPE ARCHITECTURE.
4019 N. 44TH ST. / PHOENIX, AZ 85018
602-952-8280 / TODDASSOC.COM
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PHASE
09-22-2022
SITE PLAN REVIEW SUBMITTAL #1
11-23-2022
SITE PLAN REVIEW SUBMITTAL #2

DATA
Proj Mgr.
Dwn By:

ARCHITECTURAL SITE PLAN
A1.1.1



REAR ELEVATION



LEFT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR		SWATCH
A	Fiber Cement Siding Body 1	MFG.:	Allura Lap Siding - Horizontal Panels Traditional Texture	
		COLOR:	Maple	
B	Fiber Cement Siding Body 2	MFG.:	Allura Lap Siding - Vertical Panels Traditional Texture	
		COLOR:	Slate	
C	Fiber Cement Fascia	MFG.:	Allura - Plycem Fiber Cement Trim	
		COLOR:	Sterling Gray	
		LRV:	48.20	
D	Fiber Cement Trim	MFG.:	Allura - Plycem Fiber Cement Trim	
		COLOR:	Autumn Red	
		LRV:	12.60	
E	Stone Veneer	MFG.:	Coronado - Getty Stone	
		COLOR:	Embassy Blend	
F	Shingle Roof	MFG.:	GAF Timberline - Ultra HD Shingles	
		COLOR:	Charcoal	
G	Metal Roof	MFG.:	MBCI - Slimline Roof Panel	
		COLOR:	Signature 300 "Slate Gray"	
		LRV:	18.76	
H	Metal Railing	MFG.:	Sherwin Williams	
		COLOR:	SW 7578 "Borscht"	
		LRV:	6	

CLUBHOUSE ELEVATIONS

0" 4" 8" 16"

SCALE: 1/8" = 1'-0"

PROJECT
NO. 22-2003-01
LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT
LIV COMMUNITIES
8950 S 52ND ST. SUITE 115
TEMPE, AZ 85284

SEAL
REGISTERED ARCHITECT
13467
GARY D. TODD
11/18/22
ARIZONA, U.S.A.

CONTACT
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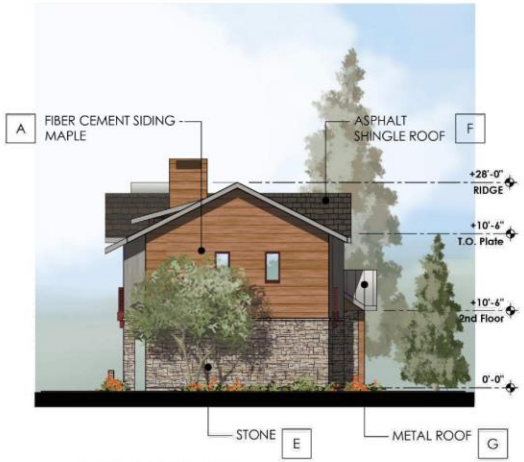
PHASE
09-22-2022
SITE PLAN REVIEW SUBMITTAL #1

11-23-2022
SITE PLAN REVIEW SUBMITTAL #2

DATA
Proj Mgr.
Dwn By:

CLUBHOUSE ELEVATIONS

A3.4.2



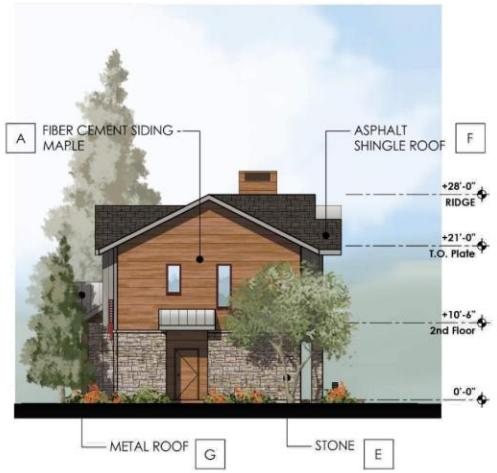
RIGHT ELEVATION



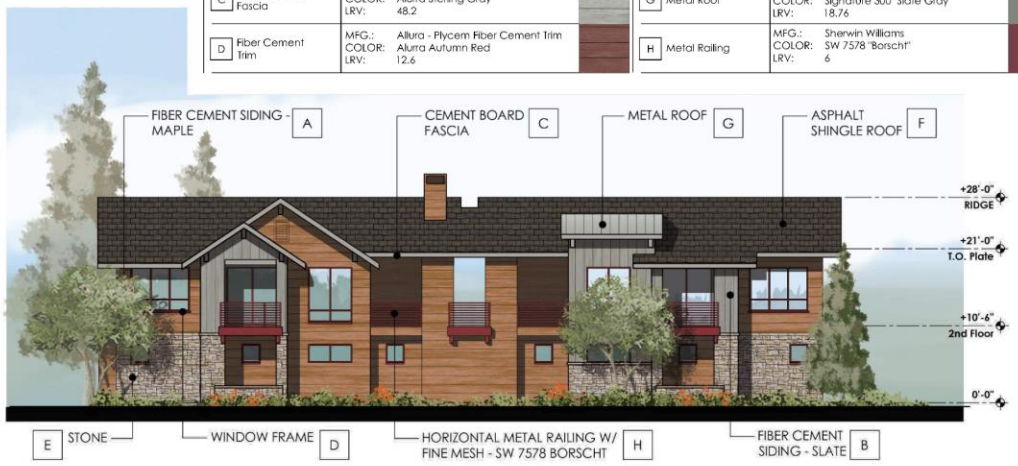
FRONT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR	SWATCH
A	Fiber Cement Siding Body 1	MFG.: Allura Lap Siding - Horizontal Panels Traditional Texture COLOR: PPG Bleached Maple (PPG1089-5) LRV: 37	
B	Fiber Cement Siding Body 2	MFG.: Allura Lap Siding - Vertical Panels Traditional Texture COLOR: PPG Cloudy Slate (PPG0996-4) LRV: 29	
C	Fiber Cement Fascia	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Sterling Gray LRV: 48.2	
D	Fiber Cement Trim	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Autumn Red LRV: 12.6	
E	Stone Veneer	MFG.: Coronado - Getty Stone COLOR: Embassy Blend LRV: 45.43	
F	Shingle Roof	MFG.: GAF Timberline - Ultra HD Shingles COLOR: Charcoal LRV: n/a	
G	Metal Roof	MFG.: MBCI - Slimline Roof Panel COLOR: Signature 300 "Slate Gray" LRV: 18.76	
H	Metal Railing	MFG.: Sherwin Williams COLOR: SW 7578 "Borscht" LRV: 6	



LEFT ELEVATION



REAR ELEVATION

TYPE 3 ELEVATIONS

0" 4" 8" 16"
SCALE: 1/8" = 1'-0"

PROJECT
NO. 22-2003-01
LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT
LIV COMMUNITIES
8950 S 52ND ST. SUITE 115
TEMPE, AZ 85284

SEAL
REGISTERED ARCHITECT
CERTIFICATE NO.
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GARY D. TODD
11/18/22
ARIZONA, U.S.A.

CONTACT
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CRITICAL THINKING / CREATIVE DESIGN
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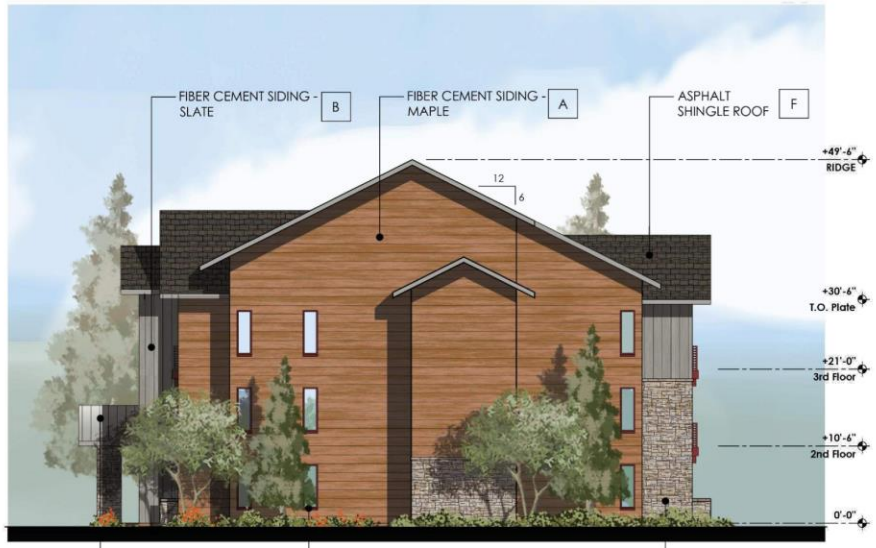
DATA
Proj Mgr.
Dwn By:

BUILDING TYPE 3 ELEVATIONS

A3.3.1



REAR ELEVATION



LEFT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR	SWATCH
A	Fiber Cement Siding Body 1	MFG.: Allura Lap Siding - Horizontal Panels Traditional Texture COLOR: PPG Bleached Maple (PPG1089-5) LRV: 37	
B	Fiber Cement Siding Body 2	MFG.: Allura Lap Siding - Vertical Panels Traditional Texture COLOR: PPG Cloudy Slate (PPG0996-4) LRV: 29	
C	Fiber Cement Fascia	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Sterling Gray LRV: 48.2	
D	Fiber Cement Trim	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Autumn Red LRV: 12.6	
E	Stone Veneer	MFG.: Coronado - Getty Stone COLOR: Embassy Blend LRV: 45.43	
F	Shingle Roof	MFG.: GAF Timberline - Ultra HD Shingles COLOR: Charcoal LRV: n/a	
G	Metal Roof	MFG.: MBCI - Slimline Roof Panel COLOR: Signature 300 "Slate Gray" LRV: 18.76	
H	Metal Railing	MFG.: Sherwin Williams COLOR: SW 7578 "Borscht" LRV: 6	

TYPE 1 ELEVATIONS

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT
NO. 22-2003-01
LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT
LIV COMMUNITIES
8950 S 52ND ST. SUITE 115
TEMPE, AZ 85284

SEAL
REGISTERED ARCHITECT
13467
GARY D. TODD
11/18/22
ARIZONA

CONTACT
TODD + ASSOCIATES
CRITICAL THINKING / CREATIVE DESIGN
ARCHITECTURE. PLANNING. LANDSCAPE ARCHITECTURE.
4019 N. 44TH ST. / PHOENIX, AZ 85018
602-952-8280 / TODDASSOC.COM
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PHASE
09-22-2022
SITE PLAN REVIEW SUBMITTAL #1

11-23-2022
SITE PLAN REVIEW SUBMITTAL #2

DATA
Proj Mgr.
Dwn By:

BUILDING TYPE 1 ELEVATIONS

A3.1.2

Property Owners within 300-feet					
Property Owner Name	**Mailing Address**	**City**	**Sate**	**ZIP**	**APN**
DUNN SHELLY R	2864 W PICO DEL MONTE CIR	FLAGSTAFF	AZ	86001	11262212A
ESTERLY BRIAN & ROSETTA	24361 N 73RD ST	SCOTTSDALE	AZ	85255	11262208A
FLAGSTAFF CITY OF	211 W ASPEN AVE	FLAGSTAFF	AZ	86001	11201002
HELIN BUILDING LLC	1800 N HEREFORD DR	FLAGSTAFF	AZ	86001	11201003A 11201003B
PRESIDIO IN THE PINES HOMEOWNER'S ASSOC INC	323 S RIVER RUN RD NO 1	FLAGSTAFF	AZ	86001	11262473B
TIMBER SKY COMMUNITY ASSOCIATION	2502 E CAMELBACK RD NO 214	PHOENIX	AZ	85016	11201163
VAN HOY FAMILY REVOCABLE TRUST DTD 01-16-02	14194 W SMOKETREE DR	SURPRISE	AZ	85387	11262207
VP 66 & WOODY MOUNTAIN LLC	2502 E CAMELBACK RD NO 214	PHOENIX	AZ	85016	11201156 11201157
WALKER WINSTON W & MARY M	13450 N KACHINA DR	ORO VALLEY	AZ	85755	11262210A
WOODY MOUNTAIN CAMPGROUND	1425 W FOREST MEADOWS	FLAGSTAFF	AZ	86001	11201701
HOAs and Neighborhood Associations within 1,000-feet					
Organization / Contact	**Mailing Address**	**City**	**Sate**	**ZIP**	
RAILROAD SPRINGS 66 LLLP	1016 W UNIVERSITY AVE NO 203	FLAGSTAFF	AZ	86001	
PRESIDIO IN THE PINES HOMEOWNER'S ASSOC INC	323 S RIVER RUN RD NO 1	FLAGSTAFF	AZ	86001	
TIMBER SKY COMMUNITY ASSOCIATION	2502 E CAMELBACK RD NO 214	PHOENIX	AZ	85016	
Registry of Persons and Groups					
Organization / Contact	**Mailing Address**	**City**	**Sate**	**ZIP**	**Email**
Friends of Flagstaff's Future	P.O. Box 23462	Flagstaff	AZ	86002	info@friendsofflagstaff.org
Friends of Flagstaff's Future ATTN: Michele A. James	P.O. Box 23462	Flagstaff	AZ	86002	
Northern Arizona Building Association	1500 East Cedar Avenue, Suite 86	Flagstaff	AZ	86004	tbociung@nazba.org
Northern Arizona Association of Realtors ATTN: Jeffrey Herd	1515 East Cedar Avenue, Suite C-4	Flagstaff	AZ	86004	naarflag@nazrealtor.com
Tish Bogan-Ozmun	5271 Mt. Pleasant Drive	Flagstaff	AZ	86004	tishflagstaff@gmail.com
Marilyn Weissman	1055 East Apple Way	Flagstaff	AZ	86001	Missymoet@aol.com
Nat White	1120 North Rockridge Road	Flagstaff	AZ	86001	white@lowell.edu
Charlie Silver	720 West Aspen Avenue	Flagstaff	AZ	86001	Cws720@gmail.com
Betsy McKellar	330 S Ash Lane	Flagstaff	AZ	86004	
David Carpenter	1109 W Beal Road	Flagstaff	AZ	86001	dc@hopeaz.com
Arizona Army National Guard, AZAA-FMO ATTN: Dorenda Coleman	5636 E McDowell Rd, M5330	Phoenix	AZ	85008	dorenda.j.coleman.nfg@mail.mil
US Navy, Intergovernmental Branch. ATTN: Mary Beth Dreusike	850 Pacific Highway Building 1 – 5th Floor, Suite 513	San Diego	CA	92132	marybeth.dreusike@navy.mil
Celia Barotz	3354 N Crest Street	Flagstaff	AZ	86001	cbarotz@gmail.com
Norm Wallen	3716 N Grandview	Flagstaff	AZ	86004	normwallenflg@gmail.com
Coconino County Community Development ATTN: Jay Christelman	2500 N Fort Valley Rd. Bldg 1	Flagstaff	AZ	86001-1287	jchristelman@coconino.az.gov
Tyler Denham	800 W Forest Meadows St, Apt 119	Flagstaff	AZ	86001	tyler.b.denham@gmail.com
Coconino County Community Development ATTN: Jess McNeely	2500 N Fort Valley Rd. Bldg 1	Flagstaff	AZ	86001-1287	wmcneely@coconino.az.gov
Flagstaff Lodging, Restaurant & Tourism Association ATTN: Steve Finch	PO Box 30622	Flagstaff	AZ	86003	sfinch@flrta.org
Rachel Bass	3083 W. Easterday Lane	Flagstaff	AZ	86001	rsilverton@gmail.com

First Neighborhood Meeting Attendees/Registrants					
Organization / Contact	**Mailing Address**	**City**	**Sate**	**ZIP**	**Email**
Lori McCorry	2462 W. Clement Cir	Flagstaff	AZ	86001	dl1664@bellsouth.net
Bryan Deley	2914 S Presidio de Calabasas	Flagstaff	AZ	86001	bdeley@tricom-solutions.com
Crystal Graziano	2433 W Bruce Balle Dr	Flagstaff	AZ	86001	crystal.graziano@nau.edu
H & K Mountain	2462 South Polaris Way	Flagstaff	AZ	86001	highlandmary@gmail.com
Leah Rosenfeld	2921 W Paz De Avenida	Flagstaff	AZ	86001	Ldr5020@gmail.com
Richard Pogue	2924 S Camel Dr	Flagstaff	AZ	86001	poguera@gmail.com
Brent Ballard	10838 N 10th Place	Phoenix	AZ	85020	arizonalifestyle@aol.com
Martha Johnson	2845 W. Pico del Monte Circle	Flagstaff	AZ	86001	mej0017@gmail.com
Robert Davis	2912 W Paz de Avenida	Flagstaff	AZ	86001	radavis15@mac.com
Nancy & Bruce Helin	1800 N Hereford Dr	Flagstaff	AZ	86001	bnhelin@msn.com
Dennis Bellamy	2542 W Pollo Circle	Flagstaff	AZ	86001	slammer737@gmail.com
Chris Hedlund	2524 W Josselyn Dr	Flagstaff	AZ	85001	ched12345@aol.com
Axel Anderson	2502 E Camelback Rd #214, Phoenix, AZ 85016	Phoenix	AZ	85016	axel.e.anderson@gmail.com
Barry and Susanna Lutz and Maxwell	3340 S Skye Way	Flagstaff	AZ	86005	maxwell.lutz@gmail.com
John Gartin	2461 W Pollo Cir	Flagstaff	AZ	86001	johnggartin@gmail.com
Neal Kenmore	2562 W Josselyn Dr	Flagstaff	AZ	86001	beartrap4junk@gmail.com
Christina George	2959 S Pepita Dr	Flagstaff	AZ	86001	Christina.george610@gmail.com
Other Interested Parties					
Organization / Contact	**Mailing Address**	**City**	**Sate**	**ZIP**	**Email**
City of Flagstaff Community Development ATTN: Genevieve Pearthree	211 W. Aspen Ave	Flagstaff	AZ	86001	gpearthree@flagstaffaz.gov
Gammage & Burnham, PLC ATTN: Nick Sobraske	40 N Central, 20th Floor	Phoenix	AZ	85004	nsobraske@gblaw.com

TAB C

First Virtual Neighborhood Meeting Attendee List



December 12, 2022 First Virtual Neighborhood Meeting Attendees				
Registrants Name	**Address**	**City**	**State**	**ZIP**
Bryan Deley	2914 S Presidio de Calabasas	Flagstaff	AZ	86001
Crystal Graziano	2433 W Bruce Balle Dr	Flagstaff	AZ	86001
Kevin Mountain	2462 South Polaris Way	Flagstaff	AZ	86001
Leah Rosenfeld	2921 W Paz De Avenida	Flagstaff	AZ	86001
Lori McCorry	2462 W. Clement Cir	Flagstaff	AZ	86001
Mary Highland	2462 South Polaris Way	Flagstaff	AZ	86001
Barry and Susanna Lutz and Maxwell	3340 S Skye Way	Flagstaff	AZ	86005
Brent Ballard	2948 S Camel Dr	Flagstaff	AZ	86001
Bruce Helin	1800 N Hereford Dr	Flagstaff	AZ	86001
Chris Hedlund	2524 W Josselyn Dr	Flagstaff	AZ	85001
Christina George	2959 S Pepita Dr	Flagstaff	AZ	86001
Dennis Bellamy	2542 W Pollo Circle	Flagstaff	AZ	86001
John Gartin	2461 W Pollo Cir	Flagstaff	AZ	86001
Martha Johnson	2845 W. Pico del Monte Circle	Flagstaff	AZ	86001
Nancy Helin	1800 N Hereford Dr	Flagstaff	AZ	86001
Neal Kenmore	2562 W Josselyn Dr	Flagstaff	AZ	86001
Richard Pogue	2924 S Camel Dr	Flagstaff	AZ	86001
Robert Davis	2912 W Paz de Avenida	Flagstaff	AZ	86001

TAB D

Second Virtual Neighborhood Meeting Attendee List

February 6, 2023 Second Virtual Neighborhood Meeting Attendees				
Registrants Name	**Address**	**City**	**State**	**ZIP**
Nancy Helin	2800 W Rt 66	Flagstaff	AZ	86001
Bruce Helin	2800 W Rt 66	Flagstaff	AZ	86001
Robert Davis	2912 W Paz de Avenida	Flagstaff	AZ	86001
David Danker	2400 S Luginbuhl St	Flagstaff	AZ	86001

TAB E

Neighborhood Meetings Summary Letter

April 11, 2023

Dear Property Owner, Resident, Neighborhood Association, or Interested Citizen:

Thank you for your interest in Liv Timber Sky, the development proposal at the southwest corner of US Route 66 & Woody Mountain Road (the "Property"). You are receiving this letter because you attended either or both of the neighborhood meetings for this project. In accordance with the City's requirements for neighborhood meeting proceedings, please find enclosed a summary of the two virtual neighborhood meetings.

Should you have any questions, please do not hesitate to contact me at (602) 256-4471 or lschube@gblaw.com. Thank you, again.

Sincerely,

GAMMAGE & BURNHAM, PLC



Lindsay C. Schube

LIV TIMBER SKY—Summary of Neighborhood Meetings

Southwest corner of US Route 66 & Woody Mountain Road
Case Nos.: PZ-21-00271-04 and -05

Neighborhood Meeting

Vintage Partners and the Development Team held two virtual neighborhood meetings. The first meeting was held on December 12, 2022; the second meeting was held on February 6, 2023. The format for both meetings included a formal presentation followed by questions, comments, and discussion. In general, the formal presentation included an overview of the: (1) applications; (2) site plan; (3) building elevations, architecture, and materials; (4) existing and proposed zoning; (5) Regional Plan land use designation; (6) open space and amenities; and (7) process.

Questions, Comments, and Discussion

Generally, the participants in both meetings were supportive of the use and complimentary of the proposed site plan and architecture. The participants acknowledged a lack of housing in Flagstaff and the need for a diversity of housing opportunities for the community.

Participants primarily commented on the existing traffic at the intersection of US Route 66 & Woody Mountain Road. Vintage Partners has offered to install a traffic light at this intersection for years. The Development Team responded by explaining that a traffic impact analysis was being reviewed by the City and ADOT, which determined that with development of Liv Timber Sky, installation of the traffic signal is warranted. The Development Team further explained to participants that there are benefits of a traffic signal, including increased safety and efficiencies.

Participants that live in Timber Sky or Presidio also inquired about commercial uses at the hard corner of US Route 66 & Woody Mountain Road. The Development Team explained that these uses generally generate more traffic (compared to the proposed multi-family residential use). Instead, the Development Team is planning for civic space open to the public at the hard corner. During the second neighborhood meeting, Vintage Partners announced to participants that it has purchased property at the southeast corner of US Route 66 & Woody Mountain Road (opposite of Liv Timber Sky), and is looking into redevelopment with some commercial uses, which may include the possibility of service uses (e.g., restaurant, retail, etc.). The Development Team expressed that the southeast corner of US Route 66 & Woody Mountain Road is a better location for commercial uses.

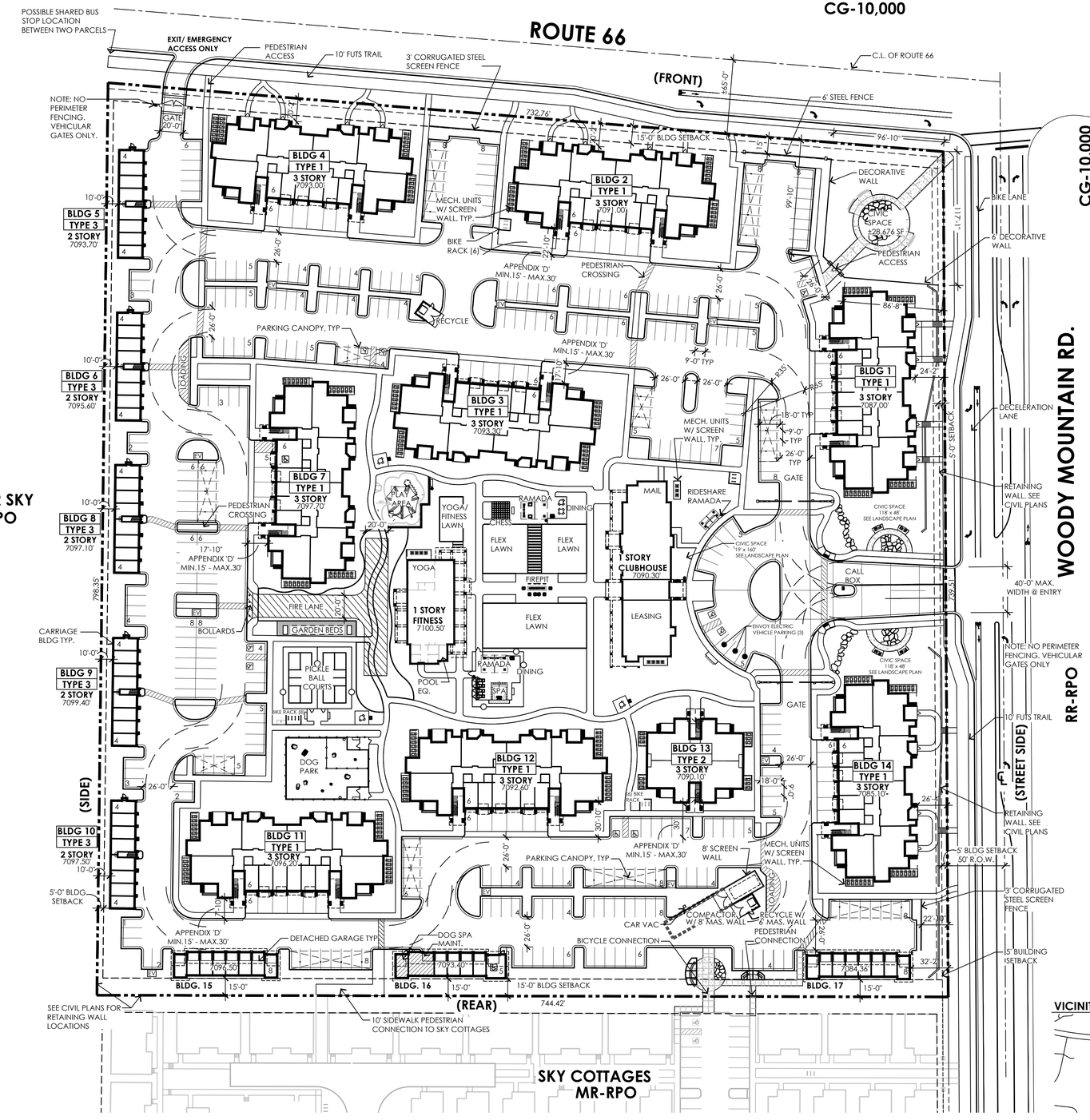
Other topics participants inquired about included vehicular access and circulation for the development proposal, density and conformance with the Regional Plan, and possibility of student housing.

A participant inquired about revising the development proposal to provide a right-out only access driveway along US Route 66. In response to this comment, Vintage Partners agreed it would revise the development proposal, provided it was acceptable to both the City and ADOT. The Development Team continues to work with the City and ADOT to see if this is acceptable. However, the Development Team cannot commit to the access point.

The City's Regional Plan designates the Property an Urban Activity Center (U7) with the intent of promoting increased density. This designation calls for a minimum of 13 dwelling units per acre (du/ac) with no maximum density. Vintage Partners acknowledges the delicate balance of meeting the requirements of the Regional Plan, while respecting the community desires. As such, Liv Timber Sky is proposed at a low density, while ensuring compliance with the Regional Plan, with 214 multi-family units at approximately

16.45 du/ac. At this density, the Development Team believes it has found the balance between providing the density desired by the Regional Plan, while balancing the community's interest.

Liv Timber Sky has been designed to attract families and young professionals in the City. Student housing developments have specific programming elements and amenities, such as pool and spa, clubhouse, game room, study room, fitness center, and lobby, as well as units with 4- and 5-bedroom units. Liv Timber Sky features none of these student-targeted amenities. Rather, at Liv Timber Sky, there is a focus on open space and recreation, pedestrian connectivity, and the natural environment.



DEVELOPMENT TEAM:

DEVELOPER:
LIV COMMUNITIES
1600 S. BEACON BLVD.
SUITE 260
GRAND HAVEN, MI 49417
616-846-6900

ARIZONA OFFICE:
8950 SOUTH 52ND STREET
SUITE 115
TEMPE, AZ 85284
480-739-9240

VINTAGE PARTNERS
2502 E. CAMELBACK RD.
SUITE 214
PHOENIX, AZ 85016
602-459-9929

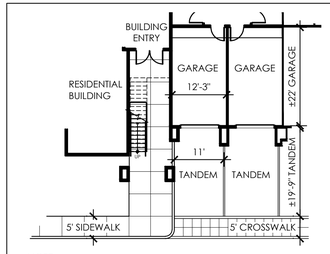
ARCHITECTURE:
TODD & ASSOCIATES
4019 N. 44TH STREET
PHOENIX, AZ 85018
602-952-8280

LANDSCAPE ARCHITECTURE:
NORRIS DESIGN
901 E. MADISON STREET
PHOENIX, AZ 85034
602-254-9600

CIVIL ENGINEER:
SHEPARD-WESNITZER, INC.
110 DALE AVENUE
FLAGSTAFF, AZ 86001
928-773-0354

ZONING ATTORNEY:
GAMMAGE & BURNHAM
40 N. CENTRAL AVENUE
20TH FLOOR
PHOENIX, AZ 85004
602-256-0566

DETAIL AT TYPICAL ATTACHED GARAGE



NOTE:
- TANDEM PARKING SPACE TO BE ASSIGNED TO SAME DWELLING UNIT AS ASSOCIATED GARAGE.
- TANDEM PARKING SPACE COUNT HAS NOT BEEN COUNTED TOWARD THE REQUIRED PARKING.

LEGEND

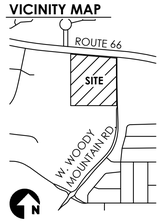
- PARKING CANOPY
- ASSUMED PROPERTY LINE
- ACCESSIBLE PARKING SPACE
- FIRE TRUCK TURNING RADII PER CITY OF FLAGSTAFF STANDARDS. (35', 55')
- EV — DUAL PORT ELECTRIC VEHICLE CHARGING STATION WITH BOLLARDS AS REQUIRED
- BLDG 6 / TYPE 5 — BUILDING NUMBER / BUILDING TYPE
- ✱ MONUMENT SIGN

BUILDING S.F. (GROSS)

BUILDING / LEVEL	CONST. TYPE	OCC.
BLDG TYPE 1:		
1ST FLR. 10,250 S.F.	V-A	R-2
2ND FLR. 10,233 S.F.		
3RD FLR. 10,233 S.F.		
SUBTOTAL 30,716 S.F. (x 8 = 245,728 S.F.)		
BLDG TYPE 2:		
1ST FLR. 4,574 S.F.	V-A	R-2
2ND FLR. 4,574 S.F.		
3RD FLR. 4,574 S.F.		
SUBTOTAL 13,722 S.F. (x 1 = 13,722 S.F.)		
BLDG TYPE 3:		
1ST FLR. 2,299 S.F.	V-A	R-2
2ND FLR. 2,185 S.F.		
SUBTOTAL 4,484 S.F. (x 5 = 22,420 S.F.)		
TOTAL RESIDENTIAL:	**281,870 S.F.**	
CLUBHOUSE:		
1ST FLR. 6,511 S.F.	V-B	A-3 / B
SUBTOTAL 6,511 S.F. (x 1 = 6,511 S.F.)		
FITNESS:		
1ST FLR. 3,753 S.F.	V-B	A-3
SUBTOTAL 3,753 S.F. (x 1 = 3,753 S.F.)		
DETACHED GARAGES:		
TYPE 1: 2,012 S.F.	V-B	U
SUBTOTAL 2,012 S.F. (x 2 = 4,024 S.F.)		
TYPE 2: 2,148 S.F.	V-B	U
SUBTOTAL 2,148 S.F. (x 1 = 2,148 S.F.)		
TOTAL ALL BUILDINGS:	**298,306 S.F.**	

CODE COMPLIANCE:
THE FLAGSTAFF CITY COUNCIL HAS ADOPTED THE FOLLOWING BUILDING CODES WITH AMENDMENTS:
2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL FUEL GAS CODE
2018 INTERNATIONAL EXISTING BUILDING CODE
2017 NFPA 70 / NATIONAL ELECTRICAL CODE
1997 UNIFORM CODE FOR THE ABATEMENT OF DANGEROUS BUILDINGS
2018 INTERNATIONAL RESIDENTIAL CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL ENERGY CONSERVATION CODE
1997 UNIFORM ADMINISTRATIVE CODE
1997 UNIFORM HOUSE CODE
ICC A117-1-2017 ACCESSIBLE & USABLE BUILDINGS & FACILITIES

VICINITY MAP



SITE DATA:

SITE ADDRESS:
2701 South Woody Mountain Road

APN:
112-01-712

SITE AREA:
GROSS AREA: 13.01 ACRES (567,020 SF)
NET AREA: 13.01 ACRES (567,020 SF)

LOT COVERAGE:
MAX. ALLOWED: 50% (0.50 x 567,020 SF = 283,510 SF)
PROVIDED: 23% (130,737 SF)

LOT COVERAGE CALCULATIONS:

BUILDING 1	11,461S.F. x 8 =	91,688 S.F.
BUILDING 2	5,780 x 1 =	5,780 S.F.
CARRIAGE	2,277 S.F. x 5 =	11,385 S.F.
CLUBHOUSE	9,249 S.F.	9,249 S.F.
FITNESS	5,930 S.F.	5,930 S.F.
GARAGES	2,035 x 3 =	6,105 S.F.
RAMADAS	600 S.F.	600 S.F.

COMMON OPEN SPACE: (SEE LANDSCAPE OPEN SPACE PLAN)
REQUIRED: 15% (±85,053 SF)
PROVIDED: 16% (±91,109 SF)

CIVIC OPEN SPACE: (SEE LANDSCAPE OPEN SPACE PLAN)
REQUIRED: 5% (±28,351 SF)
PROVIDED: 5% (±28,360 SF)

ZONING:
EXISTING ZONING: COF: Rural Residential - Resource Protection Overlay (RR-RPO) (±11.31 ac.)
CC: General - 10 Ac. Minimum (±1.70 ac.)
PROPOSED: COF: High Density Residential - Resource Protection Overlay (HR-RPO)(± 13.01 ac.)

HEIGHT:
ALLOWED: 60'-0" (65'-0" ALLOWED WITH 6:12 PITCHED ROOFS)
PROVIDED: 3 STORIES - ± 50'-0" / 2 STORIES - ± 30'-0" (AT FINISH GRADE)
(Building height shall be measured vertically from top of any point of a structure or building element, including the top of parapet, top of mansard roof, screened wall or pitched roof to the natural grade directly benefits one point measured under the finished grade abutting the bldg. or structure is below the natural grade.)

UNIT MIX:

1 BEDROOM/ 1 BATH	48 D.U.	(22.4%)
2 BEDROOM/ 2 BATH	118 D.U.	(55.2%)
3 BEDROOM/ 2 BATH	48 D.U.	(22.4%)
TOTAL	**214 D.U.**	**(100%)**

CONSTRUCTION TYPE:
PROPOSED: TYPE V-A/V-B, SPRINKLERED (RESIDENTIAL APARTMENT BLDGS.)

DENSITY:
MAXIMUM ALLOWED: 29 D.U./GROSS ACRE (MAX. WITH RPO, INSIDE PEDESTRIAN SHED OF AN ACTIVITY CENTER)
PROVIDED: ±16.44 D.U./GROSS ACRE

PARKING:
REQUIRED PARKING:

1 BEDROOM/1 BATH (48 D.U. x 1.50 P.S./D.U.) =	72 P.S.
2 BEDROOM/2 BATH (118 D.U. x 2.00 P.S./D.U.) =	236 P.S.
3 BEDROOM/2 BATH (48 D.U. x 2.00 P.S./D.U.) =	96 P.S.
GUEST (2 & 3 BEDROOM - 166 D.U. x 0.25) =	42 P.S.
TOTAL REQUIRED PARKING:	**446 P.S.**

REQUIRED ACCESSIBLE PARKING:
REQUIRED, PER CITY OF FLAGSTAFF TABLE 10-50.80.080.B:
401-500 TOTAL P.S. = 10 ACC. P.S.
PROVIDED: 10 PARKING SPACES (9 SURFACE, 1 GARAGE)

PROVIDED PARKING:

SURFACE PARKING	314 P.S. (INCLUDES 267 SURFACE P.S., & 47 TANDEM P.S.)
CARPORTS	70 P.S.
ATTACHED GARAGES	47 P.S.
CARRIAGE BUILDING GARAGES	40 P.S.
DETACHED GARAGE	21 P.S.
TOTAL PROVIDED PARKING	**492 P.S.**

INCLUDES 10 ACCESSIBLE P.S; 7 SURFACE, 2 CARPORT, 1 GARAGE

PROVIDED EV CHARGING:
SURFACE/CARPORT CHARGING 9 DUAL-PORT CHARGERS
GARAGE CHARGING 108 GARAGE 220V OUTLETS

GENERAL PARKING DIMENSIONS:
PARKING SPACE: 9' x 18' WITH 1.5" OVERHANG
AISLE WIDTH: 26' FIRE CODE (APPENDIX D)
LANDSCAPE ISLAND RATIO: 8 P.S. PER 1 LANDSCAPE ISLAND

BICYCLE PARKING:
REQUIRED: 5% OF REQUIRED PARKING = 5% x 446 = 22
PROVIDED: 26 BICYCLE PARKING SPACES

BUILDING SETBACK:

	REQUIRED	PROVIDED
- FRONT (ROUTE 66)	15'	±19' - BUILDING 15' - FENCE (6')
- STREET SIDE (WOODY MTN RD)	5'	±24' - BUILDING
- SIDE (WEST PROPERTY LINE)	5'	10' - BUILDING
- REAR (SOUTH PROPERTY LINE)	15'	15' - DETACHED GARAGE

FIRE CODE:
CITY OF FLAGSTAFF FIRE DEPARTMENT HAS ADOPTED APPENDIX D WITHIN THE 2018 FIRE CODE WHICH REQUIRES THE FOLLOWING:
1. WHERE THE VERTICAL DISTANCE BETWEEN THE GRADE PLANE AND THE HIGHEST ROOF SURFACE EXCEEDS 30', APPROVED AERIAL FIRE APPARATUS ACCESS ROADS SHALL BE PROVIDED.
2. AERIAL FIRE APPARATUS ACCESS ROADS SHALL HAVE A MINIMUM UNOBSTRUCTED WIDTH OF 26'.
3. FIRE APPARATUS ACCESS ROUTES SHALL BE LOCATED NOT LESS THAN 15' AND NOT GREATER THAN 30' FROM THE BUILDING ANDSHALL BE POSITIONED PARALLEL TO ONE ENTIRE SIDE OF THE BUILDING. THE SIDE OF THE BUILDING ON WHICH THE AERIAL FIRE APPARATUS ACCESS ROAD IS POSITIONED SHALL BE APPROVED BY THE FIRE CODE OFFICIAL.

FIRE TRUCK TURNING RADIUS:
INSIDE: 35'
OUTSIDE: 55'

ARCHITECTURAL SITE PLAN

0" 25' 50' 100'
SCALE: 1" = 50'-0"

PROJECT NO. 22-2003-01

LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT
LIV COMMUNITIES
8950 S 52ND ST, SUITE 115
TEMPE, AZ 85284

SEAL
REGISTERED ARCHITECT CERTIFICATE NO. 13467 GARY D. TODD 5/11/23 Date Signed ARIZONA, USA

CONTACT
TODD + ASSOCIATES
CRITICAL THINKING / CREATIVE DESIGN
ARCHITECTURE. PLANNING. LANDSCAPE ARCHITECTURE.
4019 N. 44TH ST. / PHOENIX, AZ 85018
602-952-8280 / TODDASSOC.COM

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PHASE
09-22-2022
SITE PLAN REVIEW SUBMITTAL #1
11-23-2022
SITE PLAN REVIEW SUBMITTAL #2
01-05-2023
SITE PLAN REVIEW SUBMITTAL #3
02-16-2023
SITE PLAN REVIEW SUBMITTAL #4
05-11-2023
SITE PLAN REVIEW SUBMITTAL #5

ARCHITECTURAL SITE PLAN

A1.1.1

PLOTTED: May 11, 2023–8:23am

CIVIL SITE PLAN

FOR

LIV TIMBER SKY

FLAGSTAFF, ARIZONA

LOCATED IN SECTION 19, TOWNSHIP 21 NORTH, RANGE 7 EAST GILA AND SALT RIVER MERIDIAN, COCONINO COUNTY, FLAGSTAFF, ARIZONA

PROPERTY DEVELOPER:

LIV COMMUNITIES, LLC.
8950 S. 52ND STREET, SUTIE 115
TEMPE, AZ 85284
CONTACT: BETH HEATH
(480) 750–7269

VINTAGE PARTNERS 2.0, LLC.
2502 E. CAMELBACK ROAD, SUITE 214
PHOENIX, AZ 85016
CONTACT: MARK ORTMAN
(602) 459–9929

PROPERTY OWNER:

LIV SC FLAGSTAFF, LLC
8950 S. 52ND STREET, SUTIE 115
TEMPE, AZ 85284
CONTACT: BETH HEATH
(480) 750–7269

VP66 & WOODY MOUNTAIN, LLC.
2502 E. CAMELBACK ROAD, SUITE 214
PHOENIX, AZ 85016
CONTACT: WALTER CRUTCHFIELD
(480) 231–0814

PROJECT ARCHITECT

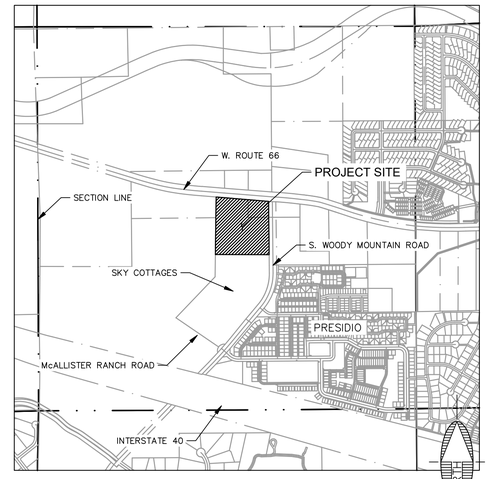
TODD & ASSOCIATES
4019 N. 44TH ST.
PHOENIX, AZ 85018
CONTACT: SCOTT PIEART
(602) 952–8280

PROJECT ENGINEER:

SHEPHARD–WESNITZER INC.
110 WEST DALE AVE
FLAGSTAFF, AZ 86001
CONTACT: STEPHEN IRWIN, PE
(928) 773–0354

PROJECT INFORMATION

SITE ADDRESS:	2701 S. WOODY MOUNTAIN ROAD FLAGSTAFF, AZ 86001
APN:	112–01–712
AREA:	NET: 13.01 ACRES (567,020 SF) GROSS: 13.01 ACRES (567,020 SF)
EXISTING ZONING:	COF: RURAL RESIDENTIAL – RESOURCE PROTECTION OVERLAY (RR–RPO)(+/– 11.45 ACRES) CC: GENERAL– 10 ACRE MINIMUM(+/– 1.56 ACRES)
PROPOSED ZONING:	COF: HIGH DENSITY RESIDENTIAL – RESOURCE PROTECTION OVERLAY (HR–RPO)(+/– 13.01 ACRES)



VICINITY MAP

N.T.S.

LEGEND

- ROW
- EASEMENT
- LOT LINE
- SETBACK
- 6"SS — GRAVITY SEWER LINE
- 6"W — PUBLIC WATER LINE
- G — EX. GAS
- UGE — EX. UNDERGROUND ELEC
- W — EX. WATER LINE
- SS — EX. SEWER LINE
- FIRE HYDRANT
- GATE VALVE
- EX SEWER MANHOLE
- EXISTING FLOW ARROW

FEMA DESIGNATION:

THIS PROJECT IS LOCATED WITHIN ZONE X OF FEMA FIRM MAP #04005C6812G, EFFECTIVE SEPTEMBER 2, 2010. ZONE X IS DESCRIBED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

SOURCE OF PROJECT INFORMATION:

BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY ALTA/ACSM LAND TITLE SURVEY BY WOODSON ENGINEERING AND SURVEY, INC. DATED NOVEMBER 14, 2014. SUPPLEMENTAL TOPOGRAPHY AND TREE SURVEY PREPARED BY SHEPHARD–WESNITZER, INC. DATED NOVEMBER 2020 AND APRIL 2022.

RESOURCE PRESERVATION:

THE PROJECT FALLS WITHIN THE CITY OF FLAGSTAFF RESOURCE PROTECTION OVERLAY ZONE AND THERE ARE RESOURCE WITHIN THE PROJECT THAT REQUIRE PRESERVATION.

BASIS OF BEARING:

NORTH 89–34–20 EAST, 2655.62' FROM THE NORTHWEST CORNER OF SECTION 24 TO THE NORTH QUARTER CORNER OF SECTION 24, TOWNSHIP 21 NORTH, RANGE 7 EAST OF THE GILA AND SALT RIVER MERIDIAN, COCONINO COUNTY, ARIZONA, ACCORDING TO AN ALTA SURVEY PREPARED BY SHEPHARD–WESNITZER, INC. IN MAY 2003, INSTRUMENT NUMBER 3203783, OFFICIAL RECORDS OF COCONINO COUNTY, ARIZONA.

IMPERVIOUS AREA:

LID AND RETENTION ARE REQUIRED AND WILL BE PROVIDED IN UNDERGROUND CHAMBER SYSTEMS.

Impervious Area & LID Analysis

						LID Required Depth (ft)
						0.0833
Basin ID	Existing Basin Area (sf)	Proposed Basin Area (sf)	Existing Basin Impervious Area for LID (sf)	Proposed Basin Impervious Area for LID (sf)	Net Impervious Area (sf)	Required LID Volume (cf)
B1	560,512	542,918	33,378	241,891	275,269	22,939
B2	289,990	307,584	4,232	160,380	164,612	13,718
TOTAL	850,502	850,502	37,610	402,271	439,881	36,657

1. Gross required 1" LID volume is for impervious area including proposed half street improvements (Woody Mtn and Route 66), onsite drive aisles, parking, sidewalks, and buildings.

PRELIMINARY

NOT FOR CONSTRUCTION, BIDDING OR RECORDING

C.O.F. #PZ-21-00271-02

FLAGSTAFF ARIZONA

LIV TIMBER SKY

CIVIL SITE PLAN

JOB NO:	22045
DATE:	MAY 23
SCALE:	AS SHOWN
DRAWN:	HAS
DESIGN:	KMF
CHECKED:	SDI

NO.	DESCRIPTION	DATE	BY
REVISIONS			

110 W. Dale Avenue
Flagstaff, AZ 86001
928.773.0354
928.774.6934 fax
www.swoz.com

Shephard Wesnitzer, Inc.

Call at least two full working days before you dig in Arizona
ARIZONA811
Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)

DRAWING NO.
SP01

SHT NO. 1 OF 2

SCALE 1" : 50'
0 25 50

FILE: P:\2022\22045\DRAWINGS\SITE PLANS\22045 – SITE PLAN.DWG EXEISER

PLOTTED: May 11, 2023–8:23am

DRIVEWAY CLEAR VIEW ZONE CALCULATIONS

ID #	MAJOR STREET	MANEUVER DIRECTION	DESIGN SPEED (V_{MAJOR})[1]	TIME GAP $t_{g\,(unadjusted)}$[2]	Grade ≤ 3%	MULTIPLE LANE CROSSINGS	NO. OF LANES[4]	TIME GAP $t_{g(adjusted)}$[2]	INTERSECTION SIGHT DISTANCE (ISD[3])	STOPPING SIGHT DISTANCE (SSD)
D1	Woody Mountain Road	Right	40	6.5	Yes	No	2	7.0	410	305
D2	Woody Mountain Road	Left	40	7.5	Yes	Yes	3	9.0	550	305
D3	Route 66	Right	50	6.5	Yes	No	2	7.0	515	425

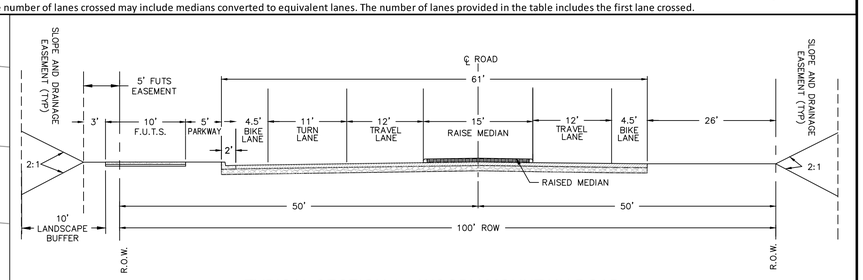
Notes:

(1) The major road speed limits (V_{MAJOR} in MPH) are based on existing conditions in the project vicinity.

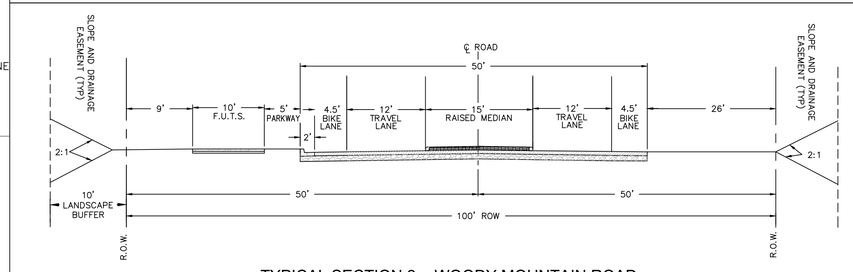
(2) The time gap values, adjusted ($t_{g\,(adjusted)}$ in seconds) and unadjusted ($t_{g\,(unadjusted)}$ in seconds), are based on the current site plan and the *AASHTO-Geometric Design of Highways and Streets* Exhibits 9-54 and 9-57. The first lane crossed does not warrant an adjustment to the time gap.

(3) The intersection site distance (ISD in feet) calculations are based on Equation 9-1 in the *AASHTO-Geometric Design of Highways and Streets*. Equation 9-1: $ISD=1.47*V_{MAJOR}*t_g$

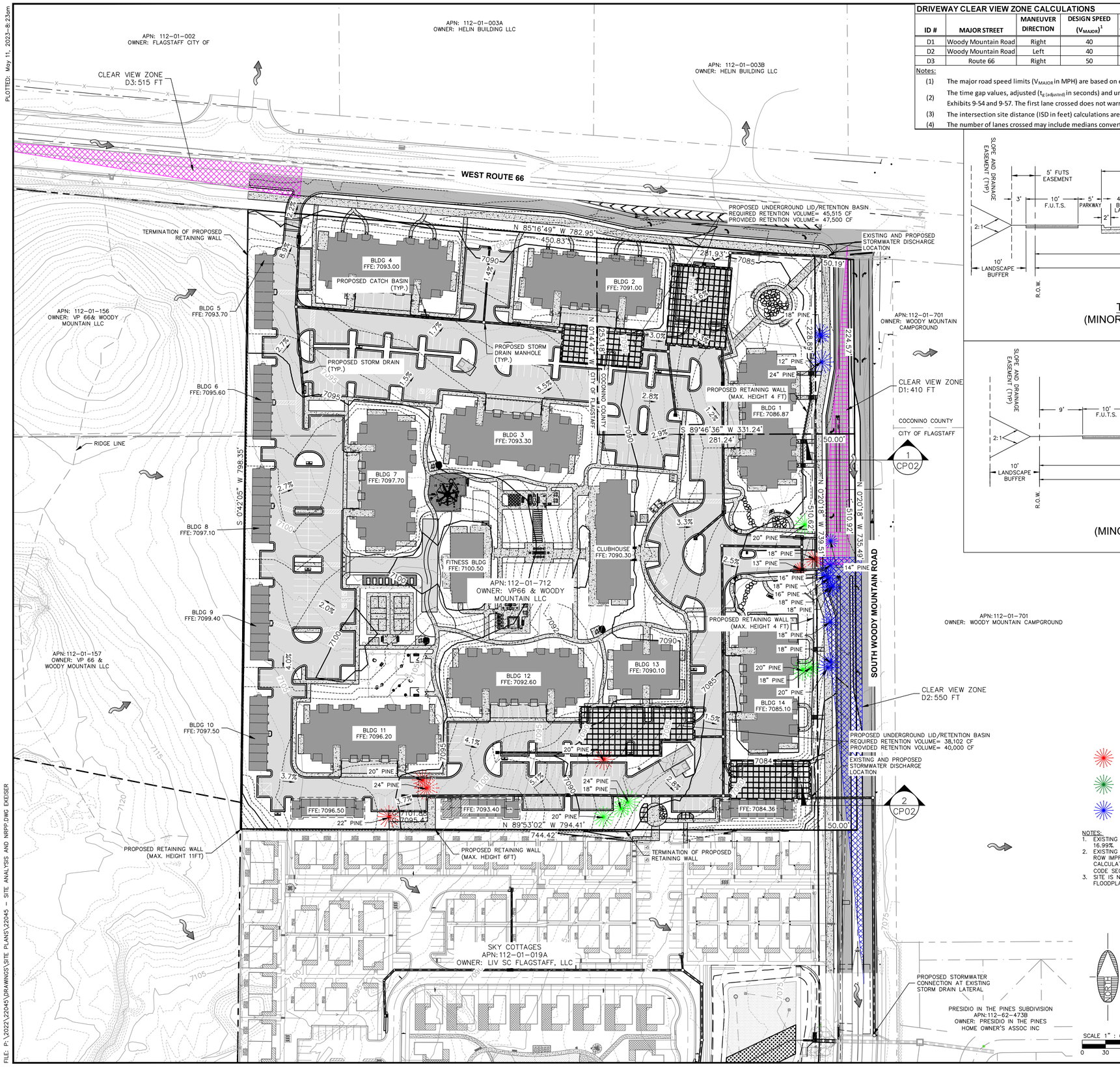
(4) The number of lanes crossed may include medians converted to equivalent lanes. The number of lanes provided in the table includes the first lane crossed.



TYPICAL SECTION 1 - WOODY MOUNTAIN ROAD
(MINOR ARTERIAL PER MODIFIED C.O.F. STD. DTL. 10-09-032)
N.T.S.



TYPICAL SECTION 2 - WOODY MOUNTAIN ROAD
(MINOR ARTERIAL PER MODIFIED C.O.F. STD. DTL. 10-09-032)
N.T.S.



LEGEND

- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO BE SAVED
- EXISTING TREE WITHIN WOODY MTN ROW OR AFFECTED BY ROW IMPROVEMENTS

NOTES:
1. EXISTING SLOPES ON THE SITE DO NOT EXCEED 16.99%.
2. EXISTING TREES WITHIN ROW OR AFFECTED BY ROW IMPROVEMENTS DO NOT APPLY TO CALCULATION PER CITY OF FLAGSTAFF CITY CODE SECTION 10-50.90.020 (B).
3. SITE IS NOT WITHIN A RURAL OR URBAN FLOODPLAIN.

TOTAL ONSITE TREE RESOURCES

TYPE	PINE	PINE	PINE	PINE	PINE
DIAMETER (IN)	6-8	9-12	13-17	18-24	>25
NUMBER EXISTING	0	0	1	11	0
POINTS	1	2	4	8	20
SUM OF POINTS	0	0	4	88	0
				SUBTOTAL TREE POINTS=	92

POST-DEVELOPMENT TREES

TYPE	PINE	PINE	PINE	PINE	PINE
DIAMETER (IN)	6-8	9-12	13-17	18-24	>25
NUMBER EXISTING	0	0	0	6	0
POINTS	1	2	4	8	20
SUM OF POINTS	0	0	0	48	0
				TOTAL TREE POINTS=	92
				TOTAL PRESERVED TREE POINTS=	48
				REQUIRED PRESERVATION RATE=	50%
				PRESERVATION RATE=	**52.2%**

NOTE:
1) PER CITY OF FLAGSTAFF ZONING CODE SECTION 10-50.90.060 RESIDENTIAL ZONES PRESERVATION RATE IS 50%.

PRELIMINARY

NOT FOR CONSTRUCTION, BIDDING OR RECORDING

C.O.F. #PZ-21-00271-02

FLAGSTAFF ARIZONA

LIV TIMBER SKY

GRADING AND DRAINAGE

JOB NO:	22045
DATE:	MAY 23
SCALE:	AS SHOWN
DRAWN:	HAS
DESIGN:	KMF
CHECKED:	SCI

Shepard Wesnitzer, Inc.
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Flagstaff, AZ 86001
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928.774.8934 fax
www.swoz.com

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DRAWING NO. SP02

SHT NO. 2 OF 2

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

FILE: P:\2022\22045\DRAWINGS\SITE PLANS\22045 – SITE ANALYSIS AND NRPP.DWG EXEISER

SITE AMENITIES SCHEDULE

DESCRIPTION	QTY.	MANUFACTURER	CONTACT	MODEL NUMBER	COLOR/FINISH	NOTES
BIKE RACK	13	DUMOR SITE FURNISHINGS www.dumor.com OR APPROVED EQUAL	JUSTIN GALION EXERPLAY, INC. (800)457-5444	BIKE RACK 292-00/S-2	ARGENTO	SURFACE MOUNTED. CONTRACTOR SHALL READ AND UNDERSTAND THE INSTRUCTIONS PROVIDED ON THE MANUFACTURER'S WEBSITE PRIOR TO WORK ASSOCIATED WITH INSTALLING THE EQUIPMENT. CONSULT OWNER'S REPRESENTATIVE FOR FINAL LOCATIONS PRIOR TO INSTALL.
BENCH	13	DUMOR SITE FURNISHINGS www.dumor.com OR APPROVED EQUAL	JUSTIN GALION EXERPLAY, INC. (800)457-5444	BENCH 472-60I-2AR/S-2	SEATING: IPE STEEL FRAME: ARGENTO	SURFACE MOUNTED. CONTRACTOR SHALL READ AND UNDERSTAND THE INSTRUCTIONS PROVIDED ON THE MANUFACTURER'S WEBSITE PRIOR TO WORK ASSOCIATED WITH INSTALLING THE EQUIPMENT. CONSULT OWNER'S REPRESENTATIVE FOR FINAL LOCATIONS PRIOR TO INSTALL.
TRASH RECEPTACLE	5	DUMOR SITE FURNISHINGS www.dumor.com OR APPROVED EQUAL	JUSTIN GALION EXERPLAY, INC. (800)457-5444	287-32SH 32 GALLON STEEL RECEPTACLR WITH SHIELD, SIDE DEPOSIT	ARGENTO	SURFACE MOUNTED. CONTRACTOR SHALL READ AND UNDERSTAND THE INSTRUCTIONS PROVIDED ON THE MANUFACTURER'S WEBSITE PRIOR TO WORK ASSOCIATED WITH INSTALLING THE EQUIPMENT. CONSULT OWNER'S REPRESENTATIVE FOR FINAL LOCATIONS PRIOR TO INSTALL.
FIXED TABLE AND CHAIR SET	2 2	DUMOR SITE FURNISHINGS www.dumor.com OR APPROVED EQUAL	JUSTIN GALION EXERPLAY, INC. (800)457-5444	TABLE 296-42-40I/S-2 42" DIA STEEL TABLE, 4 SEATS, IPE TABLE 296-42-30I/S-2 42" DIA ADA STEEL TABLE, 3 SEATS, IPE	SEATING: IPE STEEL FRAME: ARGENTO SEATING: IPE STEEL FRAME: ARGENTO	SURFACE OR EMBEDMENT MOUNTED PER PLAN. CONTRACTOR SHALL READ AND UNDERSTAND THE INSTRUCTIONS PROVIDED ON THE MANUFACTURER'S WEBSITE PRIOR TO WORK ASSOCIATED WITH INSTALLING THE EQUIPMENT. CONSULT OWNER'S REPRESENTATIVE FOR FINAL LOCATIONS PRIOR TO INSTALL.
PET WASTE STATION	2	DOG WASTE DEPOT www.dogwastedepot.com OR APPROVED EQUAL	DOG WASTE DEPOT www.dogwastedepot.com (800)678.1612	DOG WASTE STATION MODEL: Depot-006-B-GRN	GREEN	EMBEDMENT MOUNTED PER PLAN. CONTRACTOR SHALL READ AND UNDERSTAND THE INSTRUCTIONS PROVIDED ON THE MANUFACTURER'S WEBSITE PRIOR TO WORK ASSOCIATED WITH INSTALLING THE EQUIPMENT. CONSULT OWNER'S REPRESENTATIVE FOR FINAL LOCATIONS PRIOR TO INSTALL.
PLAYGROUND ASSEMBLY	1	LANDSCAPE STRUCTURES www.landscapestructures.com OR APPROVED EQUAL	JUSTIN GALION EXERPLAY, INC. (800)457-5444	MODEL: 220495A	COLOR SCHEME "BO"	PLAYGROUND EQUIPMENT TO BE INSTALLED BY A LICENSED PROFESSIONAL PER MANUFACTURER'S INSTRUCTIONS.
GARDEN TROUGH	8	BEHLEN COUNTRY www.behlencountry.com OR APPROVED EQUAL	BEHLEN COUNTRY ON-LINE SALES TEAM	226 GALVANIZED ROUND END TANK SKU# 50130048	CORRUGATED STEEL	TANK TO SIT ON FINISH GRADE AND DECOMPOSED GRANITE PAD TO BE PLACED AROUND BASE OF TANK TO ANCHOR TANK IN PLACE. CONTRACTOR SHALL READ AND UNDERSTAND THE INSTRUCTIONS PROVIDED ON THE MANUFACTURER'S WEBSITE PRIOR TO WORK ASSOCIATED WITH INSTALLING THE EQUIPMENT. CONSULT OWNER'S REPRESENTATIVE FOR FINAL LOCATIONS PRIOR TO INSTALL.
CHESS/CHECKER BOARD	32 32	MESA PRECAST www.mesaprecast.com OR APPROVED EQUAL MESA PRECAST www.mesaprecast.com OR APPROVED EQUAL	MESA PRECAST (480)968-5400 MESA PRECAST (480)968-5400	MODEL FC-20-4 MODEL FC-20-4	INTEGRAL COLOR - DAVIS GRAPHITE INTEGRAL COLOR - DAVIS PEWTER	
STUMP JUMP DOG PARK EQUIPMENT	3	Dog On It Parks® dog-on-it-parks.com	Dog On It Parks® dog-on-it-parks.com 877-348-3647	NATUREDOG BIG STUMP JUMP (1) AND LITTLE STUMP JUMP (2)		SURFACE MOUNT, INSTALL PER MANUFACTURES RECOMMENDATIONS
LOG TUNNEL DOG PARK EQUIPMENT UGH	1	Dog On It Parks® dog-on-it-parks.com	Dog On It Parks® dog-on-it-parks.com 877-348-3647	NATUREDOG THROUGH THE LOG		SURFACE MOUNT, INSTALL PER MANUFACTURES RECOMMENDATIONS
BIKE REPAIR STATION	1	DERO DERO.COM	DERO DERO.COM (888) 337-6729	AIR KIT PRIME	POWDER COAT - IRON GRAY	SURFACE MOUNT, INSTALL PER MANUFACTURES RECOMMENDATIONS

MATERIALS SCHEDULE

DESCRIPTION	MANUFACTURER	CONTACT	TYPE / FINISH	NOTES
STANDARD GRAY CONCRETE FLATWORK	N/A	N/A	STANDARD GRAY, MEDIUM BROOM FINISH WITH STANDARD MAG TOOLED SCORE JOINTS	REFER TO CIVIL DRAWINGS FOR MORE INFORMATION
ENHANCED CONCRETE FLATWORK	DAVIS COLORS www.daviscolors.com OR APPROVED EQUAL	DAVIS COLORS www.daviscolors.com 323-265-8323	INTEGRALLY COLORED STANDARD DAVIS COLOR: OMAHA TAN 5084 OR APPROVED EQUAL, MEDIUM BROOM FINISH	REFER TO CIVIL DRAWINGS FOR MORE INFORMATION
DECOMPOSED GRANITE	FLAGSTAFF LANDSCAPE PRODUCTS OR APPROVED EQUAL	FLAGSTAFF LANDSCAPE PRODUCTS 6500 HISTORIC ROUTE 66 E FLAGSTAFF, AZ 86004 FLAGLANDSCAPE.COM	1" TABLE MESA BROWN ROCK MULCH, CLEAN/SCREENED	3" DEPTH MIN. W/ NO WEED BARRIER
STABILIZED DECOMPOSED GRANITE	FLAGSTAFF LANDSCAPE PRODUCTS OR APPROVED EQUAL	FLAGSTAFF LANDSCAPE PRODUCTS 6500 HISTORIC ROUTE 66 E FLAGSTAFF, AZ 86004 FLAGLANDSCAPE.COM	STABILIZED 1/4" MINUS MADISON GOLD DECOMPOSED GRANITE	4" DEPTH MIN. W/ NO WEED BARRIER - SEE DETAIL 8/L-300 FOR MORE INFORMATION
BOULDERS	NORTHERN ARIZONA SANDSTONE northernarizonasandstone.com OR APPROVED EQUAL	NORTHERN ARIZONA SANDSTONE northernarizonasandstone.com (928) 862-0216	MOSS 5'x5'x5', 4'x4'x4', 3'x3'x3'	CONTRACTOR SHALL CONTACT LANDSCAPE ARCHITECT TO APPROVE BOULDERS PRIOR TO FINAL PLACEMENT. SEE DETAIL 9/L-300 FOR MORE DETAIL
STONE VENEER	CORONADO STONE	www.coronado.com (602)732-6558	MODEL: GETTY STONE COLOR: EMBASSY BLEND	INSTALL PER ARCHITECT'S SPECIFICATIONS. STONE VENEER AND GROUT SHALL MATCH STONE VENEER ON BUILDING.
STEEL EDGER	COLMET www.colmet.corp OR APPROVED EQUAL	www.colmet.corp	3/16" THICK, 4" DEPTH, POWDER COATED BROWN	
CONCRETE LANDSCAPE EDGER	N/A	N/A	STANDARD GRAY OR OMAHA TAN 5084 MEDIUM BROOM FINISH WITH STANDARD MAG TOOLED SCORE JOINTS	
ENGINEERED WOOD FIBER	ZEAGER BROS. INC ZEAGER.COM OR APPROVED EQUAL	ZEAGER BROS. INC ZEAGER.COM 800-346-8524	12" DEPTH	
FLAGSTONE	NORTHERN ARIZONA SANDSTONE northernarizonasandstone.com OR APPROVED EQUAL	NORTHERN ARIZONA SANDSTONE northernarizonasandstone.com (928) 862-0216	2"-4" MOSS SELECT	INSTALL PER SUPPLIERS SPECIFICATIONS. GROUT SHALL MATCH STONE VENEER ON BUILDING.
GRASSPAVE	INVISIBLE STRUCTURES INVISIBLESTRUCTURES.COM	BORDER CONSTRUCTION SPECIALTIES (602) 437-1900 WWW.BORDERCORP.COM	GRASSPAVE2	INSTALL PER MANUFACTURER SPECIFICATIONS WITH FESCUE TURF.
ARTIFICIAL TURF	FOREVERLAWN® FOREVERLAWN.COM	FOREVER LAWN DANTE ANGELO RAFFIN DANTE@FOREVERLAWN.COM 330.499.8873	K9 GRASS	INSTALL PER MANUFACTURER SPECIFICATIONS.
POOL COPING	BELGARD	KELLY O'SHAUGHNESSY 480-433-0564	STYLE: LAGUNA POOL COPING COLOR: BELLA	INSTALL PER MANUFACTURER SPECIFICATIONS.
SPA HANDRAIL	SRSMITH	www.srsmith.com	SPA RAIL	INSTALL PER MANUFACTURER SPECIFICATIONS.
SPA WATERLINE TILE AND WATER WALL FACING TILE	MSI STONE	www.srsmith.com	STYLE:AKAYA COPPER INTERLOCKING GLASS TILE	INSTALL PER MANUFACTURER SPECIFICATIONS.
SPA INTERIOR FINISH	PEBBLETEC OR APPROVED BY CLIENT	N/A	COLOR: BLUE LAGOON	INSTALL PER MANUFACTURER SPECIFICATIONS.
WATERWALL CAP	ANASAZI STONE	www.anasazistone.com	TYPE: QUARTZITE COLOR: BLACK GOLD	INSTALL PER SUPPLIERS SPECIFICATIONS. GROUT SHALL MATCH STONE VENEER ON BUILDING.
WATER WALL SCUPPER	BOBE WATER AND FIRE	www.bobewaterandfire.com	MODEL: WEDGE WS-12 COLOR: STAINLESS STEEL QUANTITY: 3	INSTALL PER SUPPLIERS SPECIFICATIONS.

CHECKED BY: AB,CS
DRAWN BY: DP,KW

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www.norris-design.com

TIMBER SKY
LIV - TIMBER SKY
FLAGSTAFF, AZ

OWNER:
VINTAGE PARTNERS
C/O WALTER CRUTCHFIELD
2502 E. CAMELBACK RD.
SUITE 214
602.459.9931

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
36936
CHRIS STEBE
Date Signed
ARIZONA, USA
EXPIRES 12/31/2022

NOT FOR CONSTRUCTION

DATE:
4/20/2021 1ST CONCEPT PLAN SUBMITTAL
6/9/2022 2ND CONCEPT PLAN SUBMITTAL
08/29/22 1ST SITE PLAN SUBMITTAL
11/22/22 2ND SITE PLAN RESUBMITTAL
01/05/23 3RD SITE PLAN RESUBMITTAL
02/15/23 4TH SITE PLAN RESUBMITTAL

SHEET TITLE:
MATERIALS & AMENITIES SCHEDULES

LA-100B

SITE LANDSCAPE CALCULATIONS

ITEM	REQUIRED	PROVIDED	NOTES
R.O.W. - WOODY MOUNTAIN ROAD (TOTAL LINEAR FEET: 740 (including driveway); TOTAL LANDSCAPE AREA: 11,108 SF)			
TREES: 1 PER 45 LINEAR FEET (2" CAL MIN.**) SHRUBS: 25% (3 GAL MIN) GROUNDCOVER: 25%	16 2,777SF 2,777 SF	17 2,779 SF 2,781 SF	
R.O.W. - W. ROUTE 66 (TOTAL LINEAR FEET: 733 (including driveway); TOTAL LANDSCAPE AREA: 12,170 SF)			
TREES: 1 PER 45 LINEAR FEET (2" CAL MIN.**) SHRUBS: 25% (3 GAL MIN) GROUNDCOVER: 25%	16 3,043 SF 3,043 SF	16 3,046 SF 3,081 SF	
STREET BUFFER - WOODY MOUNTAIN ROAD (TOTAL LINEAR FEET: 740 (including driveway))			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	30 60 60	30* 60 60	TOTAL INCLUDES 29 NURSERY TREES AND 1 EXISTING TREE @18" CALIPER. PLANT QUANTITIES CALCULATION OVERLAPS WITH BUILDING 2 & 4 BUILDING FOUNDATION FOR 374 FEET.
STREET BUFFER - W. ROUTE 66 (TOTAL LINEAR FEET: 733 (including driveway))			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	29 58 58	29 63 58	PLANT QUANTITIES CALCULATION OVERLAPS WITH BUILDING 2 & 4 BUILDING FOUNDATION FOR 374 FEET.
PARKING AREA (TOTAL PARKING SPACES: 390)			
TREES: 2 PER 8 PARKING SPACES (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE MINIMUM LANDSCAPED AREA: (30 SF PER SPACE)	98 196 196 11,700 SF	98* 294 202 29,045 SF	TOTAL INCLUDES 95 NURSERY TREES AND 3 EXISTING TREES (1 @ 18" CALIPER, 1 @ 20" CALIPER, 1 @ 24" CALIPER)
PERIPHERAL BUFFER (TOTAL LINEAR FEET: 1,518)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	61 122 122	61 124 122	
BUILDING FOUNDATION - CLUBHOUSE (TOTAL LINEAR FEET: 461)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	18 36 36	19 87 40	
BUILDING FOUNDATION - FITNESS (TOTAL LINEAR FEET: 266)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	11 22 22	12 64 31	
BUILDING FOUNDATION - RESIDENCE BUILDING 1 (TOTAL LINEAR FEET: 460)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	11 22 22	11 48 35	PLANT QUANTITIES CALCULATION OVERLAPS WITH WOODY MOUNTAIN ROAD STREET BUFF FOR 187 FEET.
BUILDING FOUNDATION - RESIDENCE BUILDING 2 (TOTAL LINEAR FEET: 460)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	11 22 22	15 42 30	PLANT QUANTITIES CALCULATION OVERLAPS WITH ROUTE 66 STREET BUFF FOR 187 FEET.
BUILDING FOUNDATION - RESIDENCE BUILDING 3 (TOTAL LINEAR FEET: 460)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	18 36 36	18 73 37	
BUILDING FOUNDATION - RESIDENCE BUILDING 4 (TOTAL LINEAR FEET: 460)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	11 22 22	11 37 28	PLANT QUANTITIES CALCULATION OVERLAPS WITH ROUTE 66 STREET BUFF FOR 187 FEET.
BUILDING FOUNDATION - RESIDENCE BUILDING 7 (TOTAL LINEAR FEET: 460)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	18 36 36	18 69 38	
BUILDING FOUNDATION - RESIDENCE BUILDING 11 (TOTAL LINEAR FEET: 460)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	18 36 36	18 63 37	
BUILDING FOUNDATION - RESIDENCE BUILDING 12 (TOTAL LINEAR FEET: 460)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	18 36 36	18 55 37	
BUILDING FOUNDATION - RESIDENCE BUILDING 13 (TOTAL LINEAR FEET: 300)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	12 24 24	12 46 24	
BUILDING FOUNDATION - RESIDENCE BUILDING 14 (TOTAL LINEAR FEET: 460)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	11 22 22	15* 56 34	TOTAL INCLUDES 14 NURSERY TREES AND 1 EXISTING TREE @ 18" CALIPER. PLANT QUANTITIES CALCULATION OVERLAPS WITH WOODY MOUNTAIN ROAD STREET BUFF FOR 187 FEET.
BUILDING FOUNDATION - BUILDINGS 5, 6, 8, 9, & 10 (TOTAL LINEAR FEET: 705)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	1 2 2	1 3 4	PLANT QUANTITIES CALCULATION OVERLAPS WITH PLANT IN THE PERIPHERAL BUFF & PARKING LANDSCAPE FOR 682 FEET.
BUILDING FOUNDATION - DETACHED GARAGES (TOTAL LINEAR FEET: 414)			
TREES: 1 PER 25 LINEAR FEET (15 GALLON MIN.**) SHRUBS: 2 PER TREE GROUNDCOVER: 2 PER TREE	2 4 4	2 5 4	PLANT QUANTITIES CALCULATION OVERLAPS WITH PLANT IN THE PERIPHERAL BUFF & PARKING LANDSCAPE FOR 370 FEET.

* EACH EXISTING TREE THAT IS 6"-10" IN DIAMETER AT BREAST HEIGHT (DBH) MAY SUBSTITUTE FOR THE REQUIREMENT OF ONE LANDSCAPE TREE. EACH EXISTING TREE THAT IS 10"-18" DBH MAY SUBSTITUTE FOR THE REQUIREMENT OF TWO LANDSCAPE TREES. EACH EXISTING TREE THAT IS 18" DBH MAY SUBSTITUTE FOR THE REQUIREMENT OF THREE LANDSCAPE TREES. FOR EACH EXISTING TREE RETAINED IN A LANDSCAPE AREA, THE REQUIREMENT FOR SHRUBS AND GROUNDCOVERS ASSOCIATED WITH THAT TREE WILL BE WAIVED. (CITY OF FLAGSTAFF LANDSCAPING STANDARDS SECTION 10-50.60.050.A)

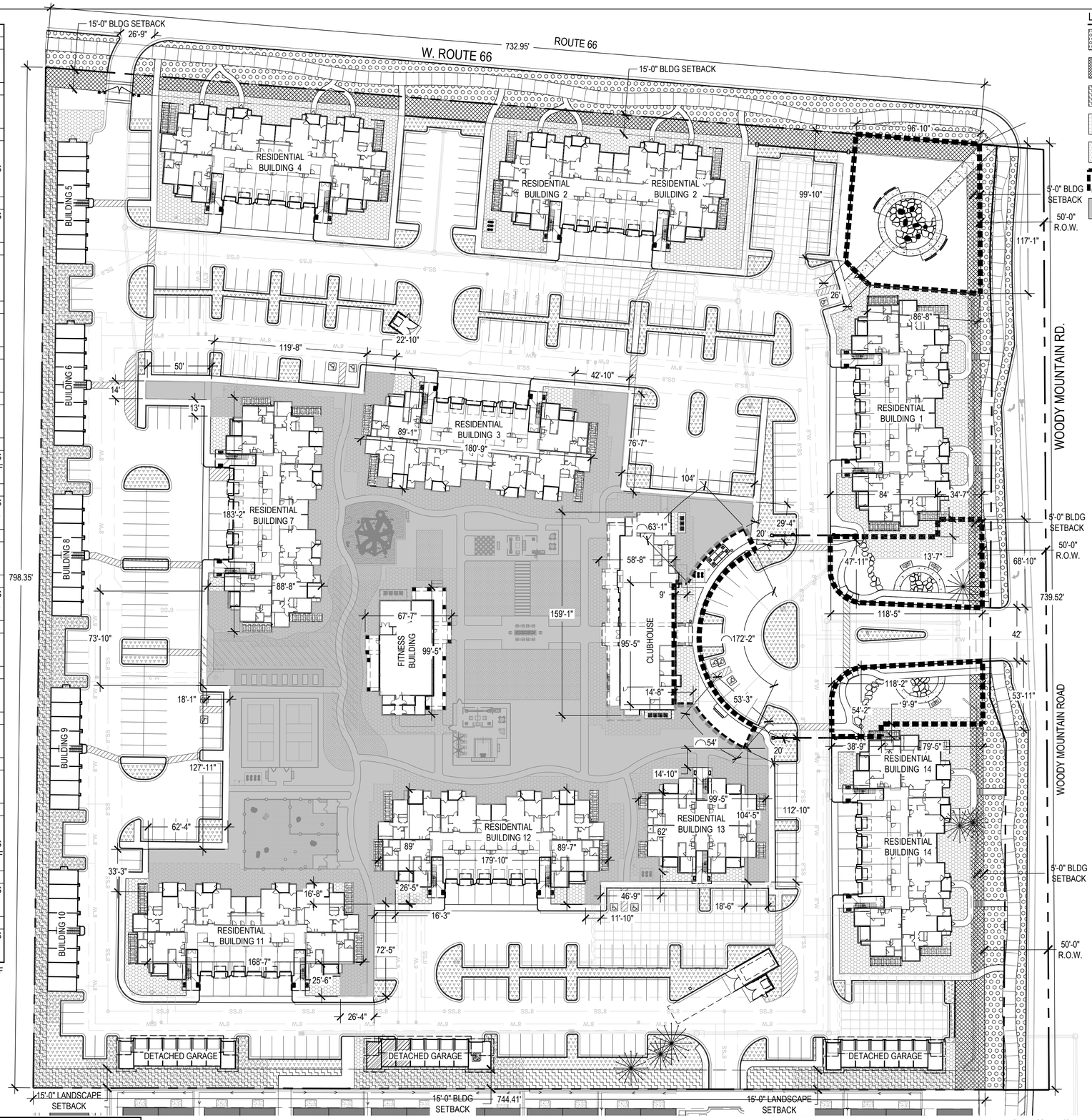
** FOR ON SITE PLANTS, EACH PROPOSED NATIVE TREE TO BE 15 GAL MIN., EACH PROPOSED NON-NATIVE TREE TO BE 6' TALL OR 2" CAL MIN. FOR OFF SITE PLANTS, PROPOSED SINGLE TRUNK TREES TO BE 2" CAL MIN. AND CONIFER TREES TO BE 6' TALL. (CITY OF FLAGSTAFF CHAPTER 13-18 LANDSCAPING STANDARDS FOR RIGHTS-OF-WAY DIVISIONS: 13-18-003)

OVERALL LANDSCAPE CALCULATIONS				
	ON SITE		RIGHTS-OF-WAY	
	REQUIRED	PROPOSED	REQUIRED	PROPOSED
TREE	378	460	32	33
SHRUB	756	1,743	5,820 SF	5,820 SF
GC	756	1,049	5,820 SF	5,862 SF

OPEN SPACE TREES, PLANTS AND GROUNDCOVER QUANTITIES ARE NOT INCLUDED IN THIS OVERALL LANDSCAPE CALCULATION.

SITE DEVELOPMENT REQUIREMENTS	GROSS / NET AREA: 13.01 ac (567,020 sf)	
	REQUIRED	PROVIDED
PEDESTRIAN AMENITY SPACE/CIVIC SPACE	28,351 sf (5.0% of TOTAL AREA)	28,360 sf
OPEN SPACE	85,053 sf (15.0% of TOTAL AREA)	91,109 sf

OASIS CALCULATION
PROPOSED: 18,400 SF (3.24% OF TOTAL AREA) - TURF: 14,947 SF; ARTIFICIAL TURF: 3,453 SF
MAX ALLOWABLE AREA: 28,357 SF (5% OF TOTAL AREA)



LEGEND

- RIGHT OF WAY
- STREET BUFFER
- PERIPHERAL BUFFER
- BUILDING FOUNDATION
- PARKING LOT LANDSCAPING
- CIVIC SPACE
- OPEN SPACE

NORTH

0 20 40 80

SCALE 1" = 40'

811

AB.CS
DP-KW

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SUITE 214
602.459.9931

REGISTERED LANDSCAPE ARCHITECT
CERTIFICATE NO.
36936
CHRIS STEBE
Not valid unless signed.
ARIZONA, USA
EXPIRES 12/31/2024

CONSTRUCTION

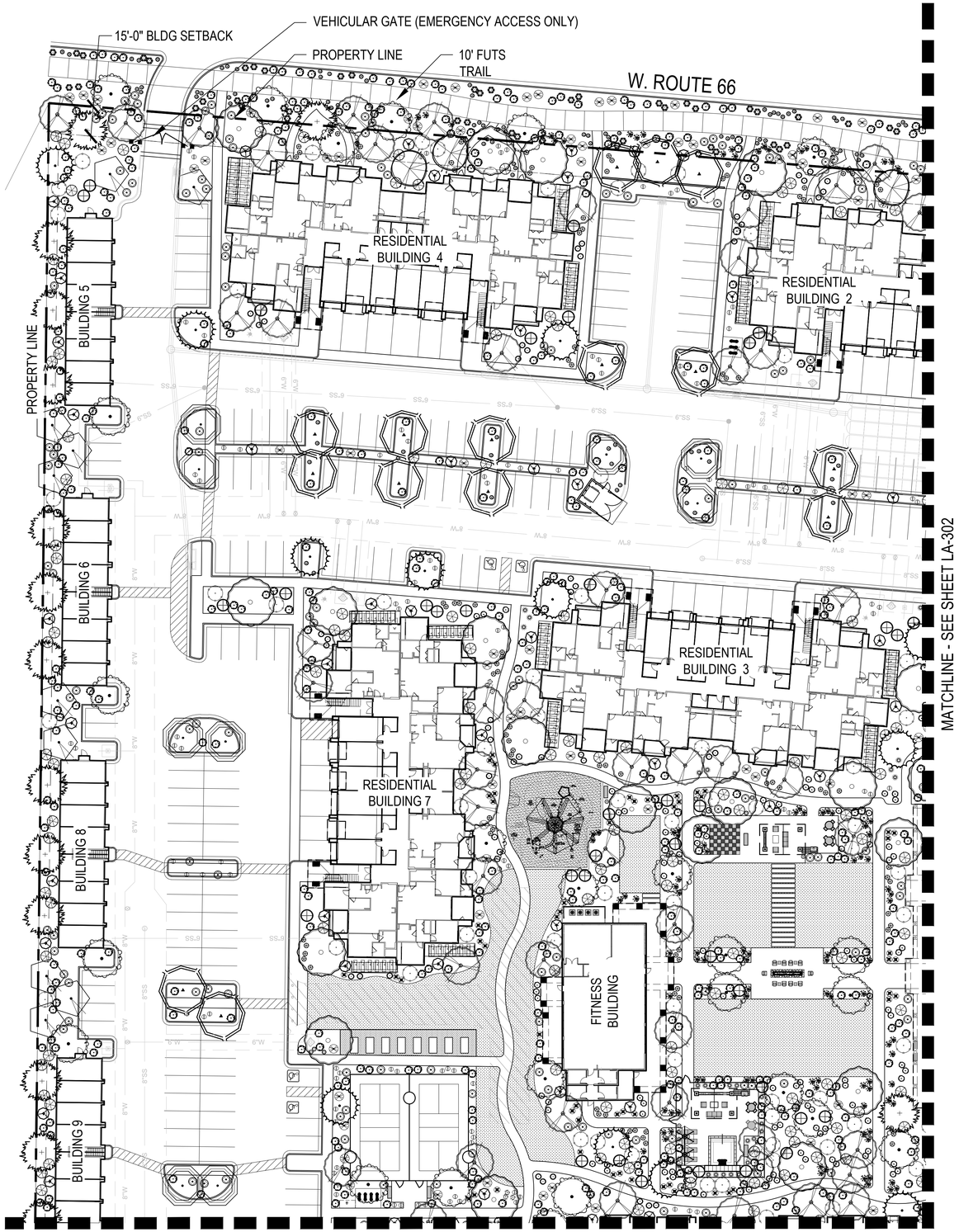
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02/15/23 4TH SITE PLAN RESUBMITTAL

SHEET TITLE:

LANDSCAPE CALCULATIONS

LA-100C



NORTH

0 15 30 60

SCALE 1" = 30'

TOPDRESS SCHEDULE

TYPE 1 - DECOMPOSED GRANITE
ALL PERIMETER LANDSCAPE AREAS
SOURCE: FLAGSTAFF LANDSCAPE PRODUCTS OR APPROVED EQUAL
SIZE: 1" CLEAN/SCREENED
COLOR: TABLE MESA BROWN

TYPE 2 - ENGINEERED WOOD FIBER
SOURCE: ZEAGER BROS. INC
TYPE: WOOD CARPET

TYPE 3 - TURF
TYPE: FESCUE SOD

TYPE 4 - TURF WITH GRASS PAVE 2
TYPE: FESCUE SOD
VEHICULAR RATED

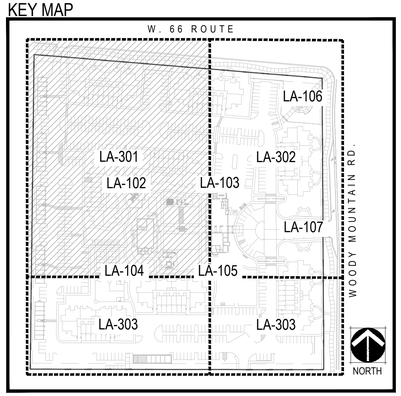
TYPE 5 - ARTIFICIAL TURF - DOG PARK
SUPPLIER: FOREVER LAWN
TYPE: K9 GRASS OR APPROVED EQUAL

TYPE 6 - STABALIZED DG
SUPPLIER: FLAGSTAFF LANDSCAPE PRODUCTS OR APPROVED EQUAL
SIZE: 1/4" MINUS
COLOR: MADISON GOLD

TYPE 7 - BOULDERS
SOURCE: FLAGSTAFF LANDSCAPE PRODUCTS OR APPROVED EQUAL
SIZE: SEE HARDSCAPE PLAN FOR BOULDER SIZES

NOTES:
1. CONTRACTOR TO PROVIDE SAMPLES OF ALL TOPDRESS MATERIALS TO LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
2. INSTALL 2" DEPTH OF DECOMPOSED GRANITE IN ALL PLANTING AREAS.

KEY MAP



PLANT LEGEND

EXISTING TREES	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	EXISTING TREE TO REMAIN					6	
DECIDUOUS CANOPY	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Acer x freemanii Autumn Blaze Maple	2" CAL, B&B	45` H x 30` W	NAT.	AS SHOWN	39	
	Gleditsia triacanthos inermis `Skyline` TM Skyline Thornless Honey Locust	2" CAL, B&B	45` H x 35` W	NAT.	AS SHOWN	27	
	Populus x acuminata Lanceleaf Poplar	2" CAL, B&B	50` H X 40` W	NAT.	AS SHOWN	23	3
DECIDUOUS ORNAMENTAL	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Cercis occidentalis Western Redbud	2.5" CAL, B&B	15`H X 15`W			106	7
	Populus tremuloides Quaking Aspen	2" CAL, B&B	50`H X 20`W	Y	AS SHOWN	24	7
	Prunus americana American Plum	2.5" CAL, B&B	20`H X 20`W	NAT.		21	
	Robinia x ambigua 'Purple Robe' Pink Flowering Locust	2.5" CAL, B&B	30`H X 20`W	NAT.		59	13
EVERGREEN TREES	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Juniperus scopulorum Rocky Mountain Juniper	6` HT, B&B	15`H X 6`W	Y	AS SHOWN	97	
	Picea pungens `Glauca` Colorado Blue Spruce	6` HT, B&B	40`H X 20`W	NAT.	AS SHOWN	21	
	Pinus ponderosa Ponderosa Pine	6` HT, B&B	60`H X 25`W	Y	AS SHOWN	37	3
DECIDUOUS SHRUBS - LARGE 7`-9`	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Cornus stolonifera Red Twig Dogwood	5 gal	8`H X 8`W	NAT.		140	17
DECIDUOUS SHRUBS - MEDIUM 5`-7`	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Caryopteris x clandonensis Blue Mist Spirea	5 gal	3`H X 6`W	NAT.		255	
	Prunus besseyi `Pawnee Buttes` Pawnee Buttes Sandcherry	5 gal	2` H X 6` W	Y		136	68
	Rhus trilobata `Autumn Amber` * Autumn Amber Sumac	5 gal	2` H X 6` W	NAT.		52	
DECIDUOUS SHRUBS - SMALL 2`-5`	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Euonymus alatus 'Compactus' Compact Burning Bush	5 gal	3`H X 3`W	Y		85	
	Perovskia abrotanoides * Russian Sage	5 gal	4` H X 4` W	NAT.		332	57
	Potentilla fruticosa `Gold Drop` Gold Drop Potentilla	3 gal	3` H X 3` W	Y		353	5
EVERGREEN SHRUBS	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Arctostaphylos x coloradoensis `Panchito` Panchito Manzanita	2 gal	1` H X 3` W	Y		161	
	Mahonia aquifolium Oregon Grape	5 gal	1`H X 6`W	NAT.			112
ORNAMENTAL GRASSES	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Bouteloua gracilis 'Blonde Ambition' *** Blonde Ambition Blue Grama Grass	3 gal	3` H X 3` W	Y		110	59
	Muhlenbergia rigens Deer Grass	1 gal	4` H X 4` W	Y		58	
	Panicum virgatum 'Shenandoah' Shenandoah Switch Grass	1 gal	3` H X 3` W	Y		31	
	Schizachyrium scoparium Little Bluestem	1 gal	3` H X 3` W	Y		60	
PERENNIALS & GROUNDCOVERS	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Achillea tomentosa Woolly Yarrow	1 gal	6" H X 12" W	Y		9	25
	Cerastium tomentosum Snow In Summer	1 gal	1` H X 3` W	NAT.		225	13
	Festuca glauca Blue Fescue	1 gal	12"H X 12"W	NAT.		94	130
	Juniperus horizontalis 'Blue Chip' Blue Chip Juniper	5 gal	1`H X 6`W	NAT.		705	201
ACCENT PERENNIALS	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Gaillardia pulchella * Annual Gaillardia	5 gal	16"H X 16"W	Y		16	

*POLLINATOR FRIENDLY PLANT SPECIES
***POLLINATOR NESTING PLANT SPECIES

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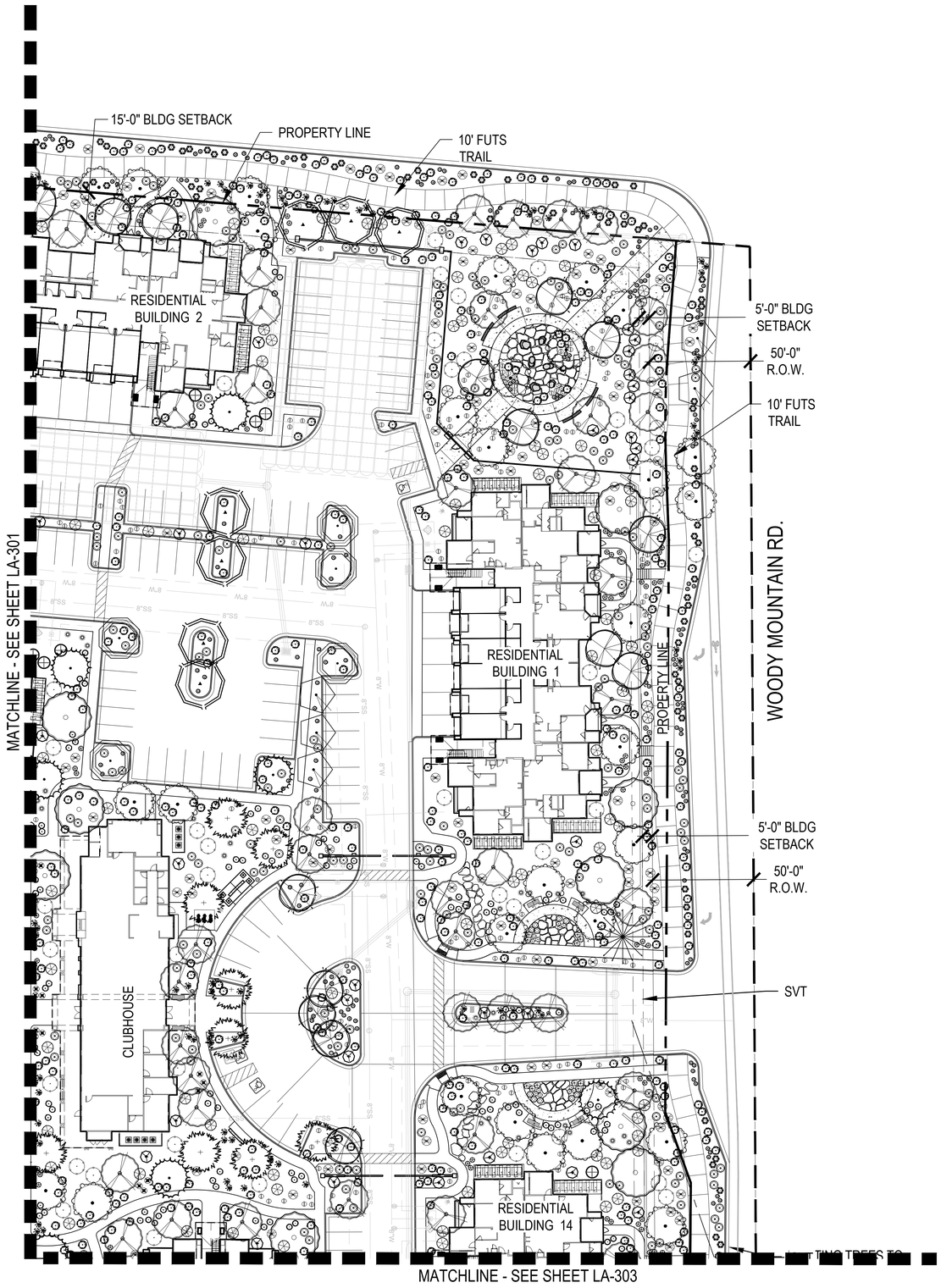
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01/05/23 3RD SITE PLAN RESUBMITTAL
02/15/23 4TH SITE PLAN RESUBMITTAL

SHEET TITLE:
LANDSCAPE PLAN

LA-301

CHECKED BY: AB,CS
DRAWN BY: DP,KW



TOPDRESS SCHEDULE

TYPE 1 - DECOMPOSED GRANITE
ALL PERIMETER LANDSCAPE AREAS
SOURCE: FLAGSTAFF LANDSCAPE PRODUCTS OR APPROVED EQUAL
SIZE: 1" CLEAN/SCREENED
COLOR: TABLE MESA BROWN

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TYPE: WOOD CARPET

TYPE 3 - TURF
TYPE: FESCUE SOD

TYPE 4 - TURF WITH GRASS PAVE 2
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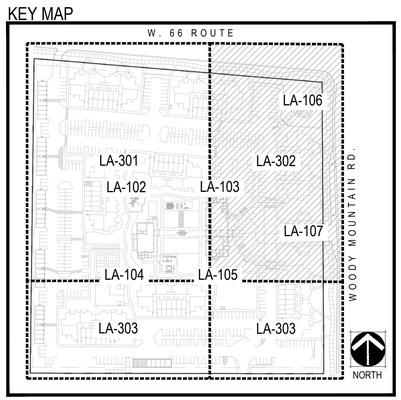
TYPE 5 - ARTIFICIAL TURF - DOG PARK
SUPPLIER: FOREVER LAWN
TYPE: K9 GRASS OR APPROVED EQUAL

TYPE 6 - STABALIZED DG
SUPPLIER: FLAGSTAFF LANDSCAPE PRODUCTS OR APPROVED EQUAL
SIZE: 1/4" MINUS
COLOR: MADISON GOLD

TYPE 7 - BOULDERS
SOURCE: FLAGSTAFF LANDSCAPE PRODUCTS OR APPROVED EQUAL
SIZE: SEE HARDSCAPE PLAN FOR BOULDER SIZES

NOTES:
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2. INSTALL 2" DEPTH OF DECOMPOSED GRANITE IN ALL PLANTING AREAS.

KEY MAP



PLANT LEGEND

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	EXISTING TREE TO REMAIN					6	
DECIDUOUS CANOPY	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Acer x freemanii Autumn Blaze Maple	2" CAL, B&B	45` H x 30` W	NAT.	AS SHOWN	39	
	Gleditsia triacanthos inermis `Skyline` TM Skyline Thornless Honey Locust	2" CAL, B&B	45` H x 35` W	NAT.	AS SHOWN	27	
	Populus x acuminata Lanceleaf Poplar	2" CAL, B&B	50` H X 40` W	NAT.	AS SHOWN	23	3
DECIDUOUS ORNAMENTAL	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
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	Populus tremuloides Quaking Aspen	2" CAL, B&B	50`H X 20`W	Y	AS SHOWN	24	7
	Prunus americana American Plum	2.5" CAL, B&B	20`H X 20`W	NAT.		21	
	Robinia x ambigua 'Purple Robe' Pink Flowering Locust	2.5" CAL, B&B	30`H X 20`W	NAT.		59	13
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	Prunus besseyi `Pawnee Buttes` Pawnee Buttes Sandcherry	5 gal	2` H X 6` W	Y		136	68
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	Potentilla fruticosa `Gold Drop` Gold Drop Potentilla	3 gal	3` H X 3` W	Y		353	5
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	Panicum virgatum 'Shenandoah' Shenandoah Switch Grass	1 gal	3` H X 3` W	Y		31	
	Schizachyrium scoparium Little Bluestem	1 gal	3` H X 3` W	Y		60	
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	Gaillardia pulchella * Annual Gaillardia	5 gal	16"H X 16"W	Y		16	

*POLLINATOR FRIENDLY PLANT SPECIES
***POLLINATOR NESTING PLANT SPECIES

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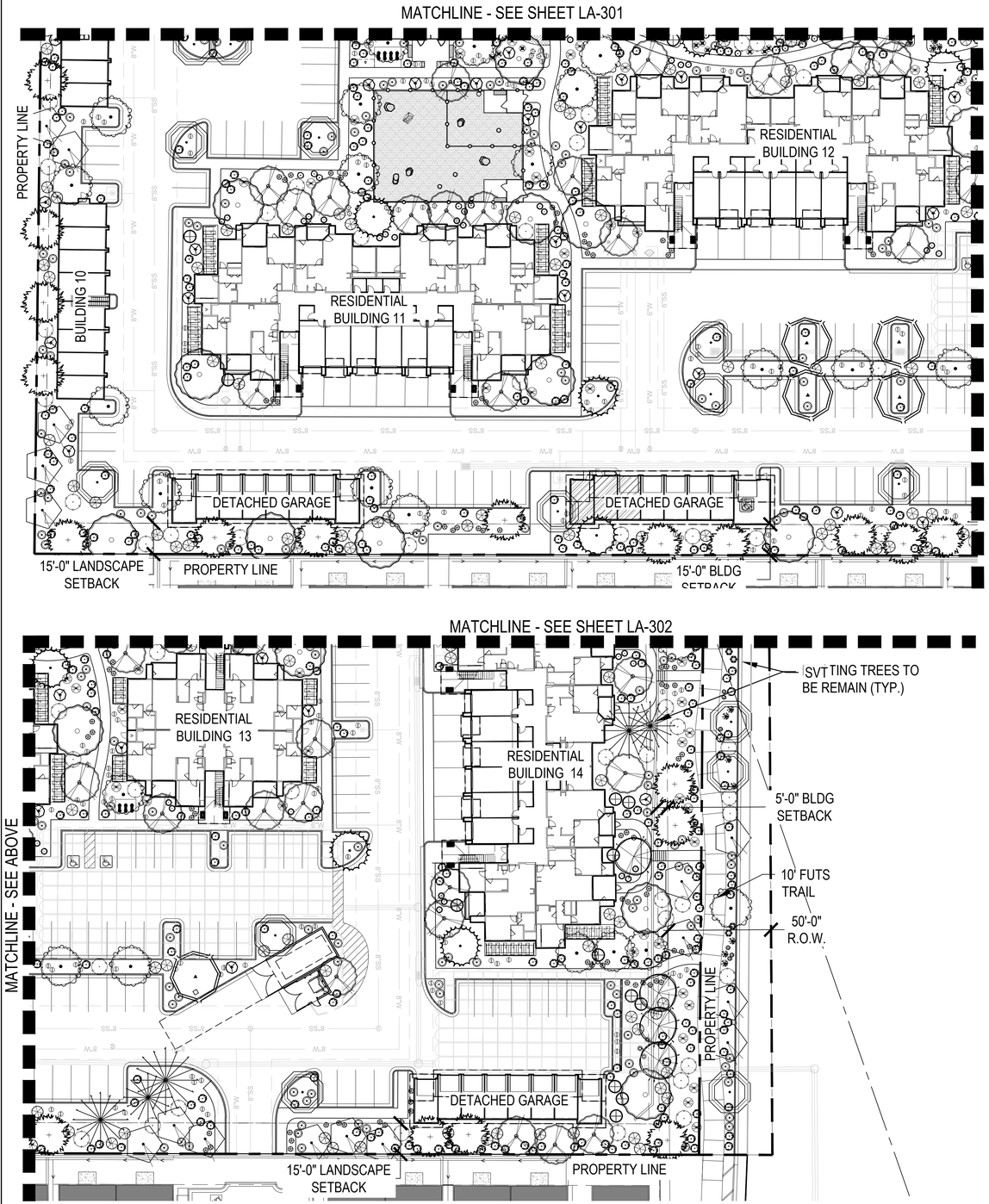
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02/15/23 4TH SITE PLAN RESUBMITTAL

SHEET TITLE:
LANDSCAPE PLAN

811

LA-302



TOPDRESS SCHEDULE

TYPE 1 - DECOMPOSED GRANITE
ALL PERIMETER LANDSCAPE AREAS
SOURCE: FLAGSTAFF LANDSCAPE PRODUCTS OR APPROVED EQUAL
SIZE: 1" CLEAN/SCREENED
COLOR: TABLE MESA BROWN

TYPE 2 - ENGINEERED WOOD FIBER
SOURCE: ZEAGER BROS. INC
TYPE: WOOD CARPET

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TYPE: FESCUE SOD

TYPE 4 - TURF WITH GRASS PAVE 2
TYPE: FESCUE SOD
VEHICULAR RATED

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TYPE: K9 GRASS OR APPROVED EQUAL

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SIZE: 1/4" MINUS
COLOR: MADISON GOLD

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SOURCE: FLAGSTAFF LANDSCAPE PRODUCTS OR APPROVED EQUAL
SIZE: SEE HARDSCAPE PLAN FOR BOULDER SIZES

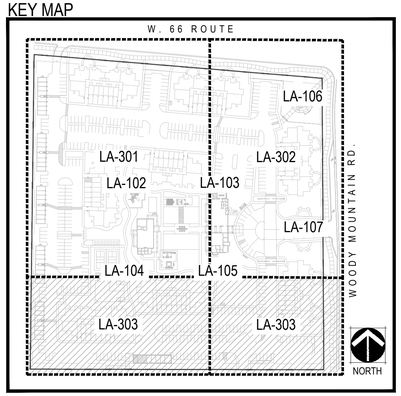
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PLANT LEGEND

EXISTING TREES	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
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	Picea pungens `Glauca` Colorado Blue Spruce	6` HT, B&B	40`H X 20`W	NAT.	AS SHOWN	21	
	Pinus ponderosa Ponderosa Pine	6` HT, B&B	60`H X 25`W	Y	AS SHOWN	37	3
DECIDUOUS SHRUBS - LARGE 7`-9`	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Cornus stolonifera Red Twig Dogwood	5 gal	8`H X 8`W	NAT.		140	17
DECIDUOUS SHRUBS - MEDIUM 5`-7`	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Caryopteris x clandonensis Blue Mist Spirea	5 gal	3`H X 6`W	NAT.		255	
	Prunus besseyi `Pawnee Buttes` Pawnee Buttes Sandcherry	5 gal	2` H X 6` W	Y		136	68
	Rhus trilobata `Autumn Amber` * Autumn Amber Sumac	5 gal	2` H X 6` W	NAT.		52	
DECIDUOUS SHRUBS - SMALL 2`-5`	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Euonymus alatus 'Compactus' Compact Burning Bush	5 gal	3`H X 3`W	Y		85	
	Perovskia abrotanoides * Russian Sage	5 gal	4` H X 4` W	NAT.		332	57
	Potentilla fruticosa `Gold Drop` Gold Drop Potentilla	3 gal	3` H X 3` W	Y		353	5
EVERGREEN SHRUBS	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Arctostaphylos x coloradoensis `Panchito` Panchito Manzanita	2 gal	1` H X 3` W	Y		161	
	Mahonia aquifolium Oregon Grape	5 gal	1`H X 6`W	NAT.			112
ORNAMENTAL GRASSES	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Bouteloua gracilis 'Blonde Ambition' *** Blonde Ambition Blue Grama Grass	3 gal	3` H X 3` W	Y		110	59
	Muhlenbergia rigens Deer Grass	1 gal	4` H X 4` W	Y		58	
	Panicum virgatum 'Shenandoah' Shenandoah Switch Grass	1 gal	3` H X 3` W	Y		31	
	Schizachyrium scoparium Little Bluestem	1 gal	3` H X 3` W	Y		60	
PERENNIALS & GROUNDCOVERS	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Achillea tomentosa Woolly Yarrow	1 gal	6" H X 12" W	Y		9	25
	Cerastium tomentosum Snow In Summer	1 gal	1` H X 3` W	NAT.		225	13
	Festuca glauca Blue Fescue	1 gal	12"H X 12"W	NAT.		94	130
	Juniperus horizontalis 'Blue Chip' Blue Chip Juniper	5 gal	1`H X 6`W	NAT.		705	201
ACCENT PERENNIALS	BOTANICAL / COMMON NAME	SIZE	EST`D MAT. SIZE	NATIVE	SPACING	ONSITE QTY	ROW QTY
	Gaillardia pulchella * Annual Gaillardia	5 gal	16"H X 16"W	Y		16	

*POLLINATOR FRIENDLY PLANT SPECIES
***POLLINATOR NESTING PLANT SPECIES

KEY MAP



CHECKED BY: AB,CS
DRAWN BY: DP,KW

811

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FLAGSTAFF, AZ

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VINTAGE PARTNERS
C/O WALTER CRUTCHFIELD
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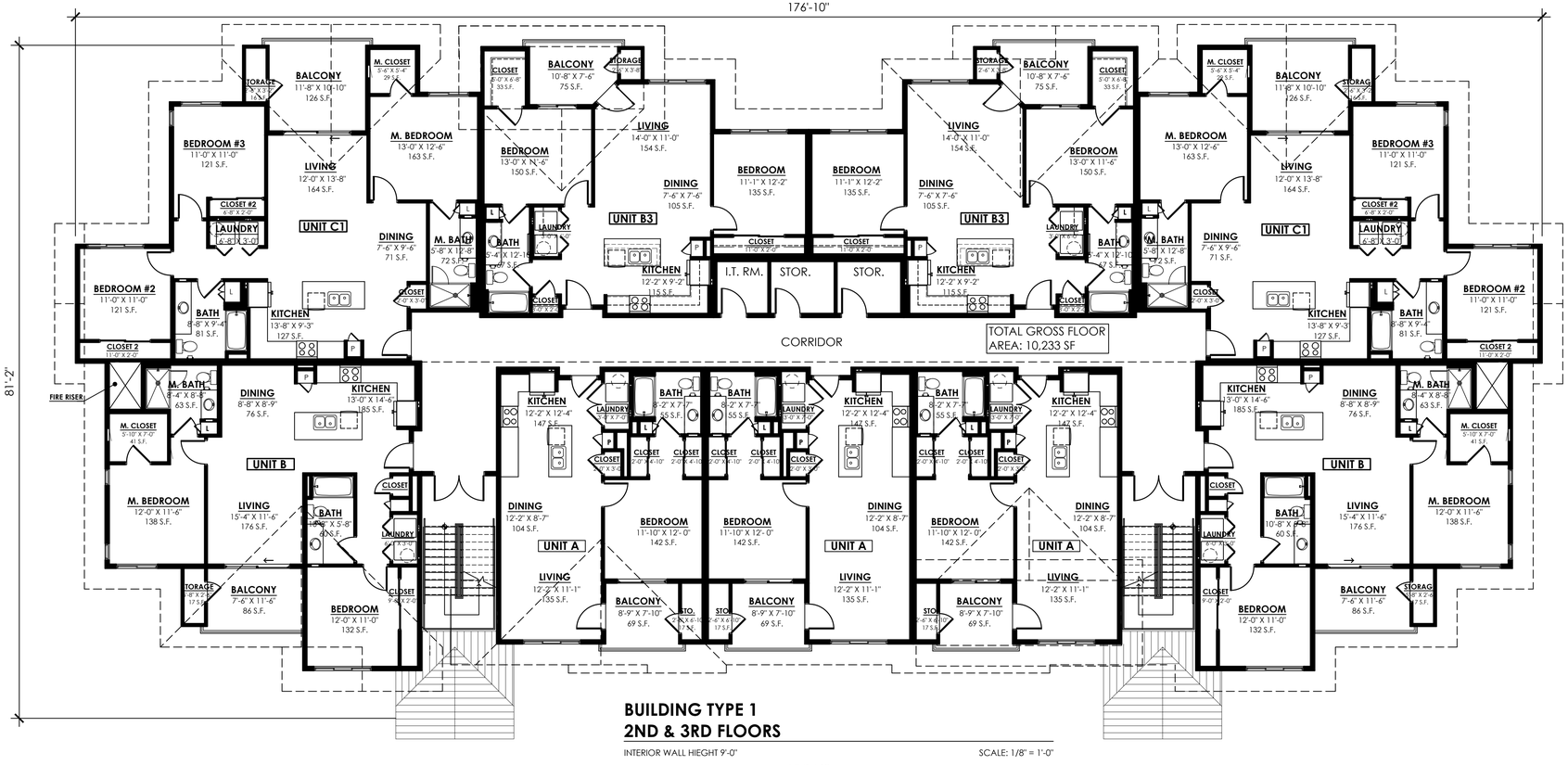
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CERTIFICATE NO.
36936
CHRIS STEBE
ARIZONA, USA
EXPIRES 12/31/2024

CONSTRUCTION

DATE:
4/20/2021 1ST CONCEPT PLAN SUBMITTAL
6/9/2022 2ND CONCEPT PLAN SUBMITTAL
08/29/22 1ST SITE PLAN SUBMITTAL
11/22/22 2ND SITE PLAN RESUBMITTAL
01/05/23 3RD SITE PLAN RESUBMITTAL
02/15/23 4TH SITE PLAN RESUBMITTAL

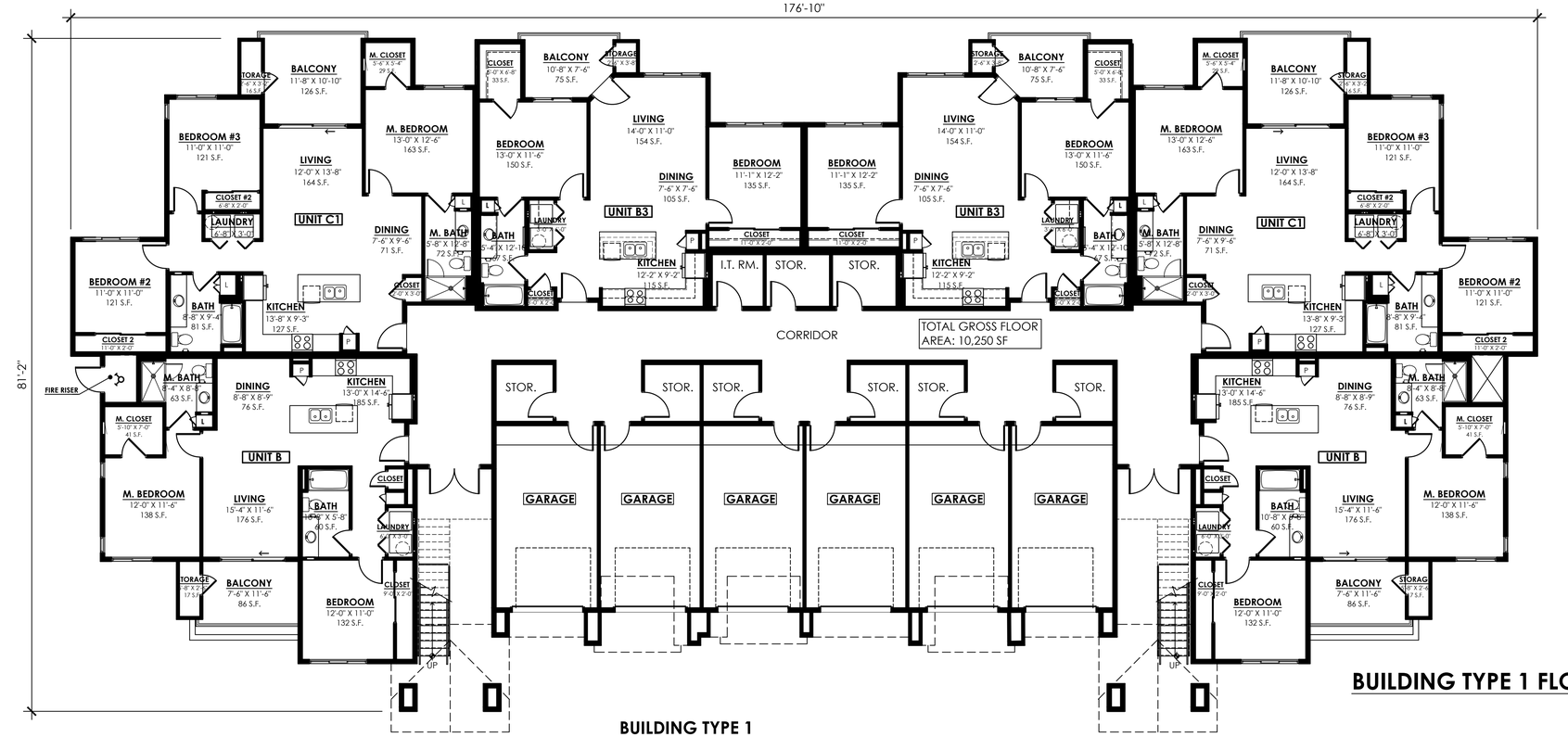
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LANDSCAPE PLAN

LA-303



BUILDING TYPE 1
2ND & 3RD FLOORS

INTERIOR WALL HIEGHT 9'-0" SCALE: 1/8" = 1'-0"



BUILDING TYPE 1
1ST FLOOR

INTERIOR WALL HIEGHT 9'-0" SCALE: 1/8" = 1'-0"

BUILDING TYPE 1 FLOOR PLANS

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT
NO. 22-2003-01
LIV
TIMBER SKY

FLAGSTAFF, AZ

CLIENT
LIV COMMUNITIES

8950 S 52ND ST, SUITE 115
TEMPE, AZ 85284

SEAL



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TODD + ASSOCIATES
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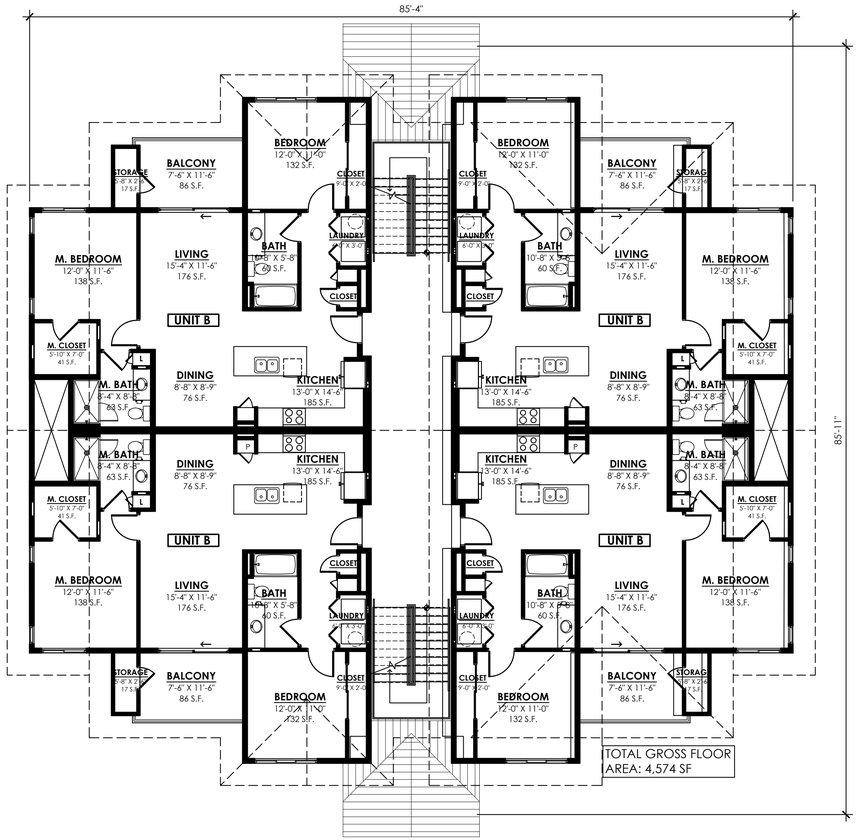
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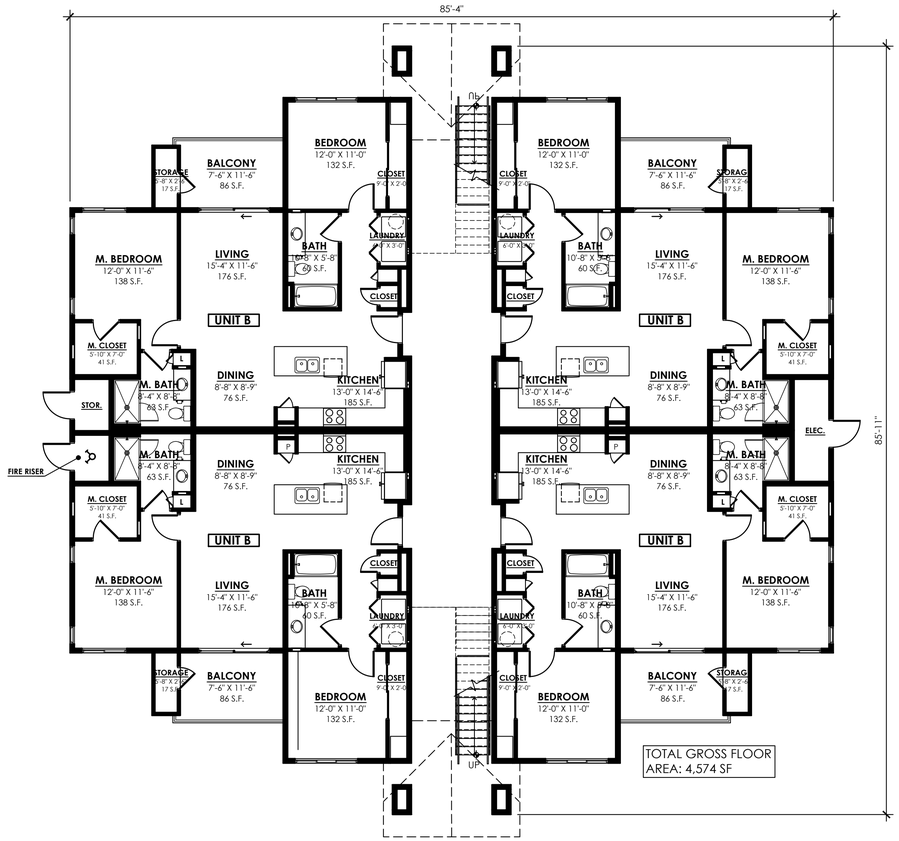
BUILDING TYPE 1
FLOOR PLANS

A2.1.1



BUILDING TYPE 2
2ND & 3RD FLOORS

INTERIOR WALL HIEGHT 9'-0" SCALE: 1/8" = 1'-0"



BUILDING TYPE 2
1ST FLOOR

INTERIOR WALL HIEGHT 9'-0" SCALE: 1/8" = 1'-0"

BUILDING TYPE 2 FLOOR PLANS

0" 4' 8' 16'
SCALE: 1/8" = 1'-0"

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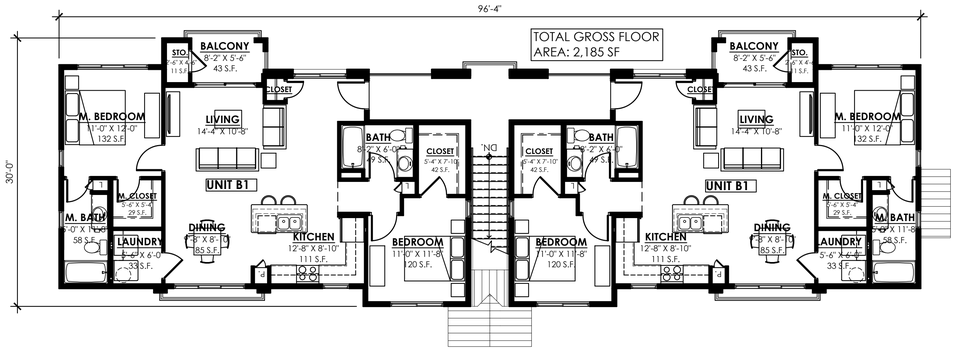
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BUILDING TYPE 2
FLOOR PLANS

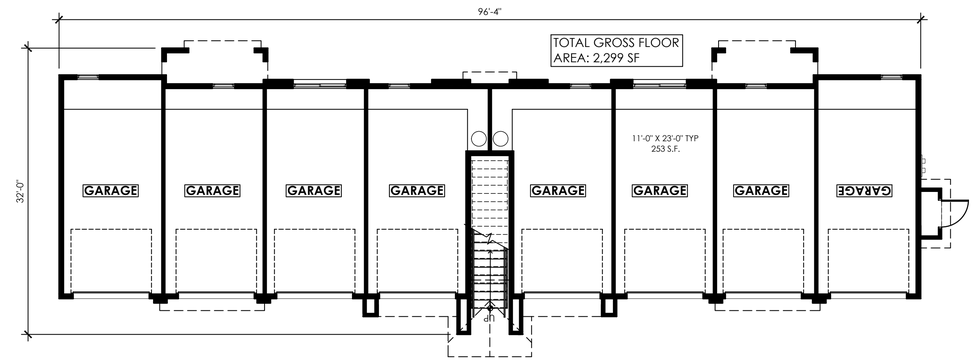
A2.2.1



BUILDING TYPE 3
2ND FLOOR

INTERIOR WALL HIEGHT 9'-0"

SCALE: 1/8" = 1'-0"



BUILDING TYPE 3
1ST FLOOR

INTERIOR WALL HIEGHT 9'-0"

SCALE: 1/8" = 1'-0"

BUILDING TYPE 3 FLOOR PLANS

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

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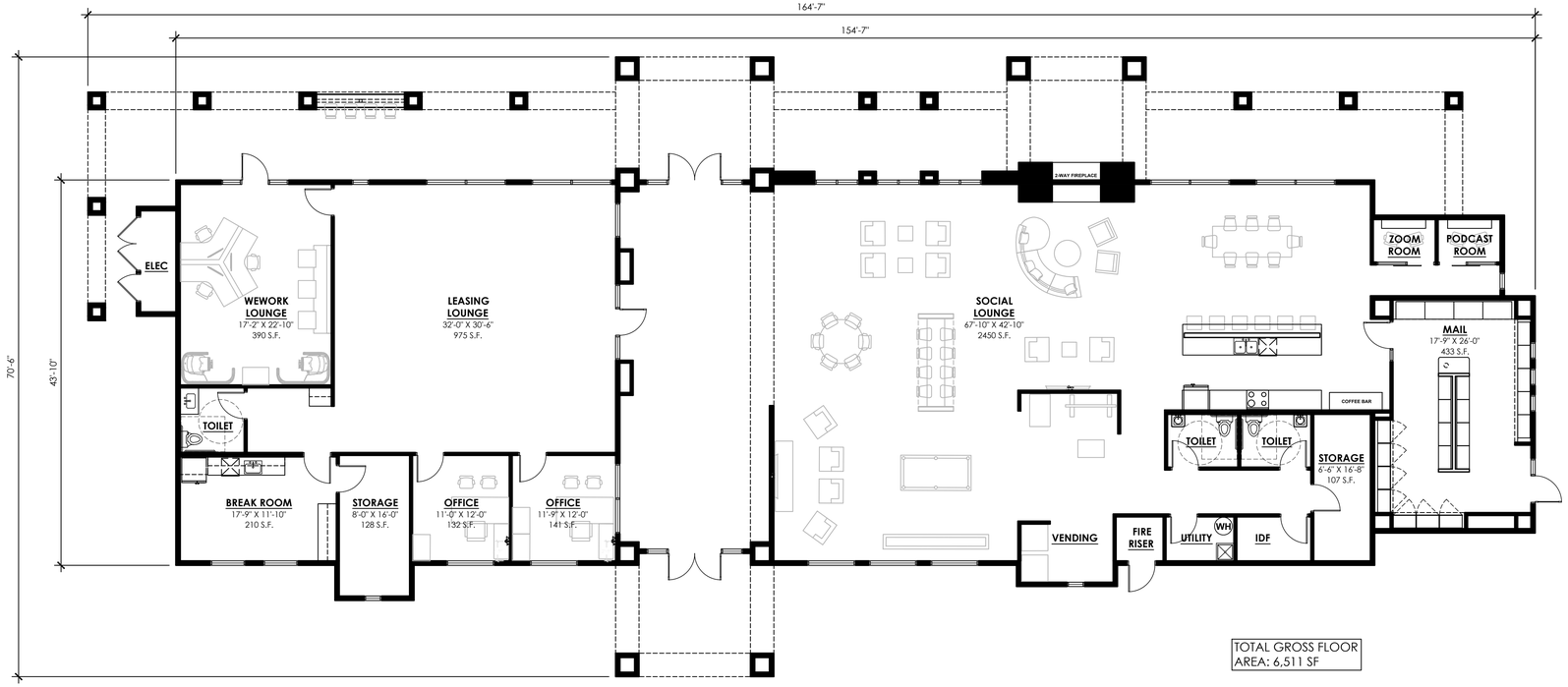
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DATA

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Dwn By:

BUILDING TYPE 3
FLOOR PLANS

A2.3.1



CLUBHOUSE FLOOR PLAN

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

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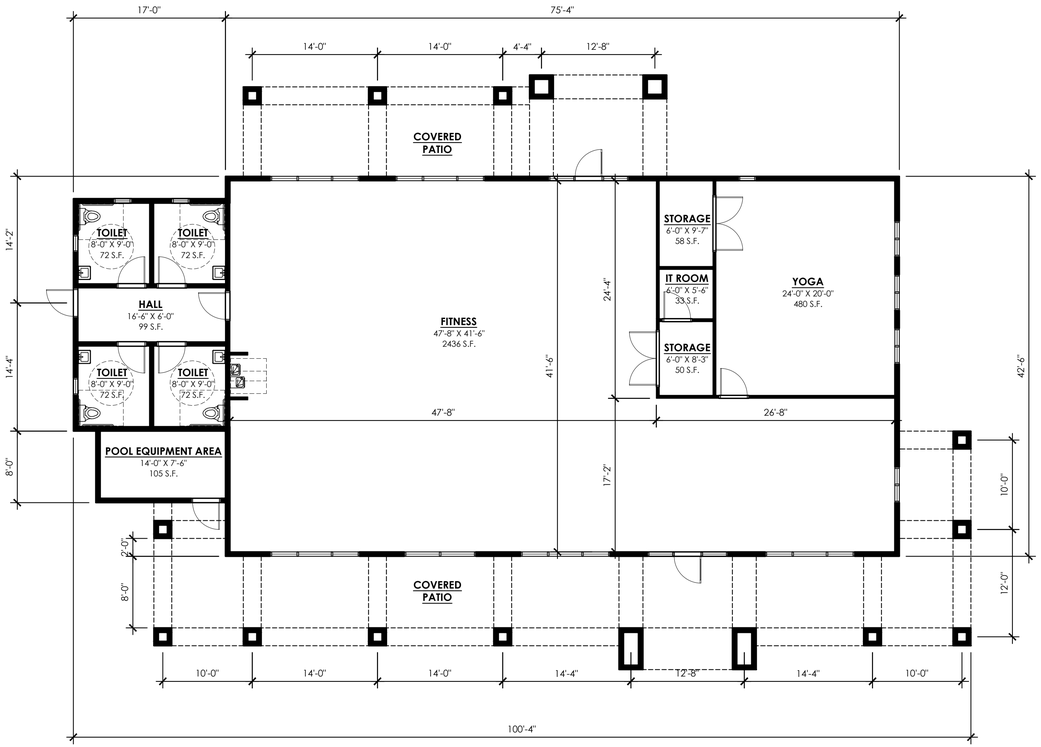
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CLUBHOUSE FLOOR PLAN

A2.4.1



TOTAL GROSS FLOOR AREA: 3,760 SF

FITNESS FLOOR PLAN

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

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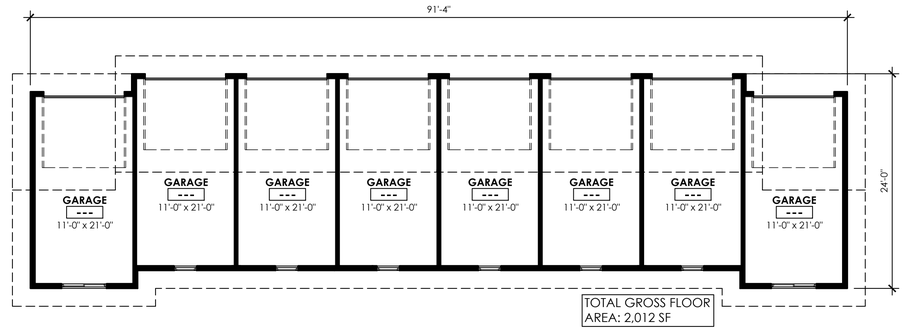
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FITNESS
FLOOR PLAN

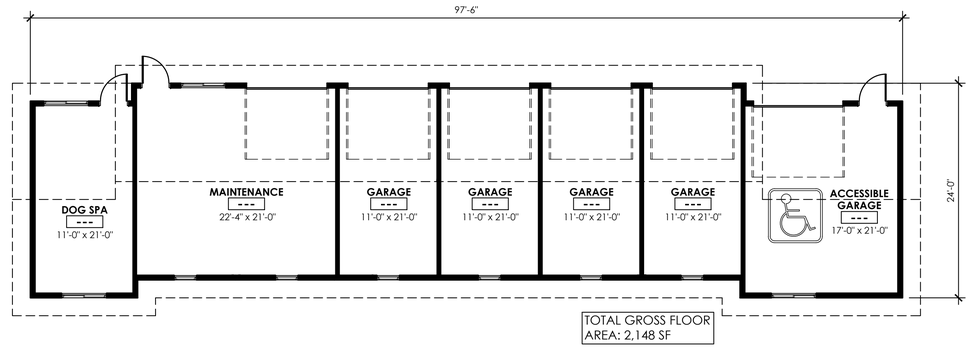
A2.5.1



DETACHED GARAGE 1 FLOOR PLAN

INTERIOR WALL HIEGHT 9'-0"

SCALE: 1/8" = 1'-0"



DETACHED GARAGE 2 FLOOR PLAN

INTERIOR WALL HIEGHT 9'-0"

SCALE: 1/8" = 1'-0"

DETACHED GARAGE FLOOR PLANS

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

N

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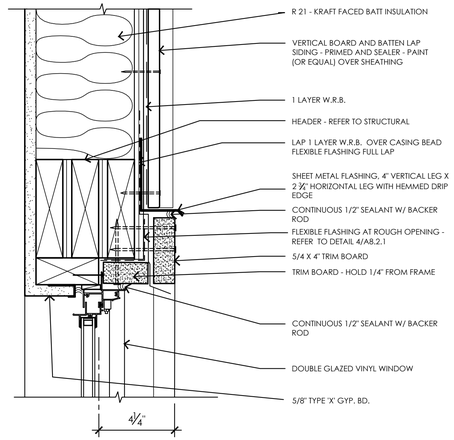
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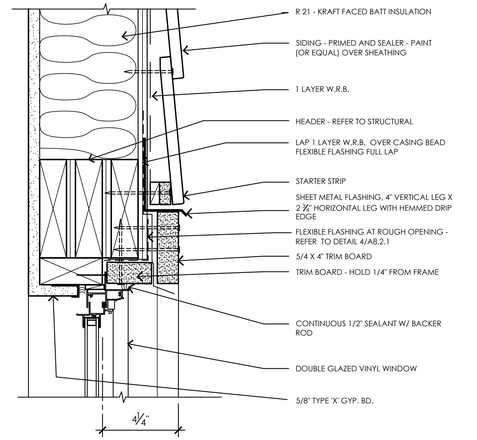
DETACHED GARAGE
FLOOR PLANS

A2.6.1



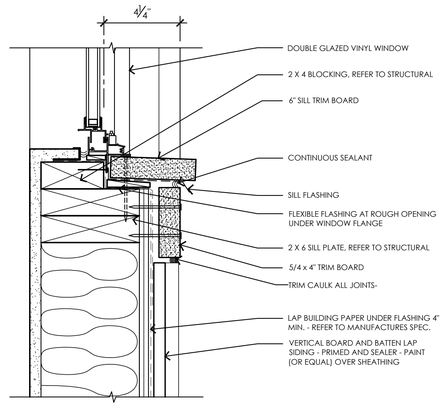
4 WINDOW HEAD AT VER. CEMENT PANEL

SCALE: 3" = 1'-0"



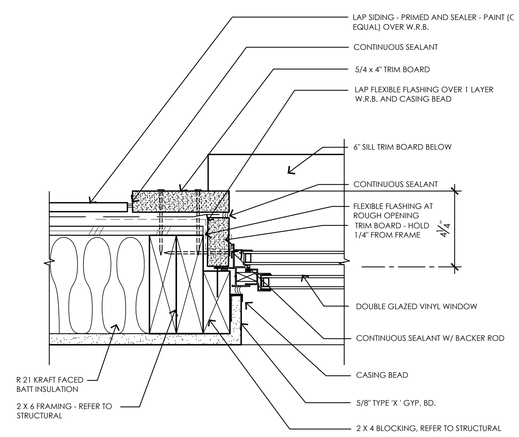
1 WINDOW HEAD AT HOR. SIDING LAP

SCALE: 3" = 1'-0"



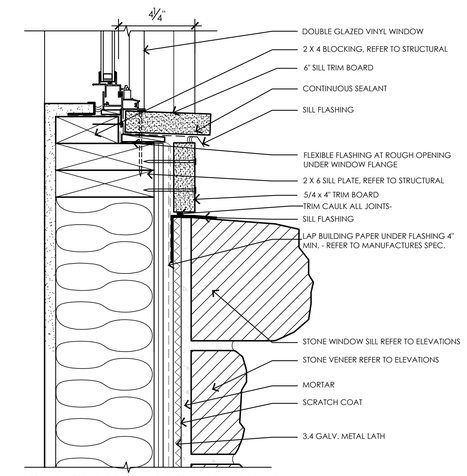
5 WINDOW SILL AT VER. CEMENT PANEL

SCALE: 3" = 1'-0"



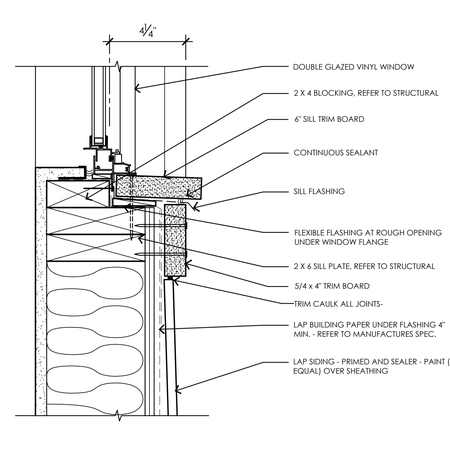
2 WINDOW JAMB AT HOR. / VER. SIDING

SCALE: 3" = 1'-0"



6 WINDOW SILL - STONE VENEER

SCALE: 3" = 1'-0"



3 WINDOW SILL AT HOR. SIDING LAP

SCALE: 3" = 1'-0"

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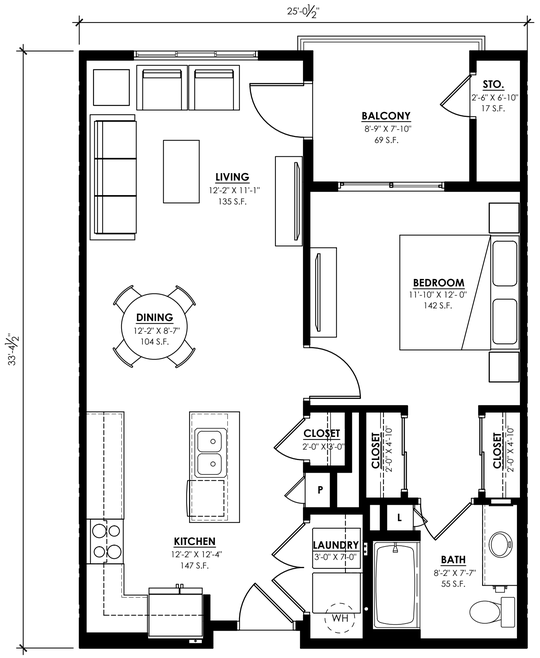
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TYPICAL WINDOW DETAILS

A3.7.1



UNIT A - 1 BEDROOM / 1 BATH

ACCESSIBILITY SCOPING:

FHAG: COVERED DWELLING UNIT, SPECIFICATION B BATHROOM
IBC: ANSI TYPE B DWELLING UNIT, OPTION B BATHROOM

NET RENTABLE	**743 S.F.**
BALCONY / PATIO	**69 S.F.**
STORAGE	**23 S.F.**
-	**- S.F.**
TOTAL:	**835 S.F.**

NOTE: NET RENTABLE AREA IS CALCULATED FROM CENTERLINE OF DOUBLE STUD AIR SPACE TO OUTSIDE FACE OF EXTERIOR WALLS TO THE OUTSIDE FACE OF THE CORRIDOR WALL AND INCLUDES ALL INTERNAL WALLS AND CAVITIES.

UNIT PLANS

SCALE: 1/4"=1'-0"

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NO. 22-2003-01

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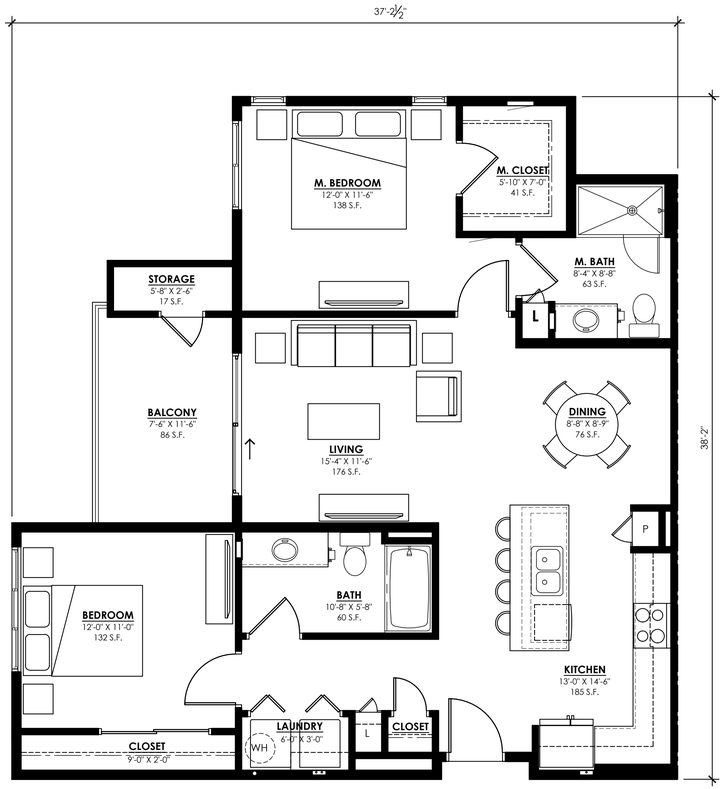
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A & A1 ENLARGED
UNIT PLANS

A6.1.1

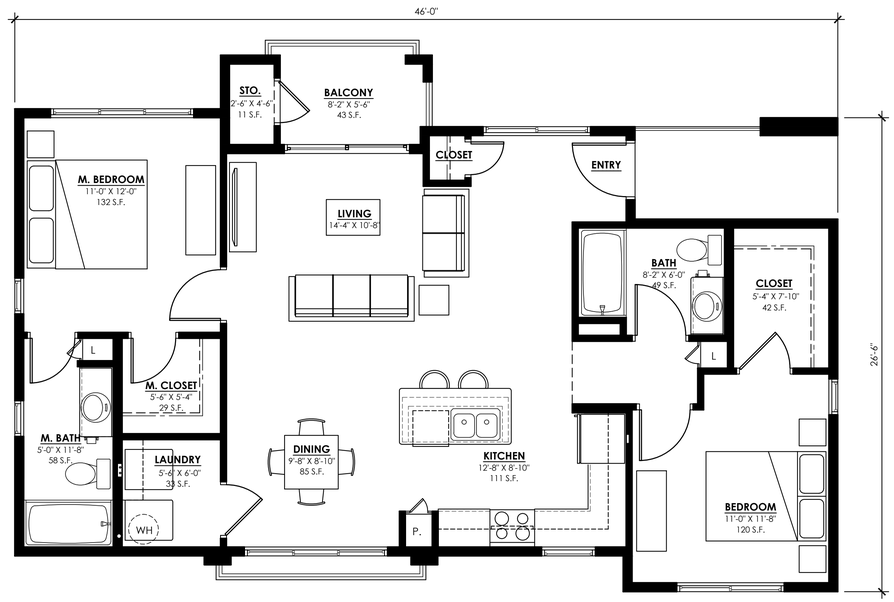


UNIT B - 2 BEDROOM / 2 BATH

ACCESSIBILITY SCOPING:
FHAG: COVERED DWELLING UNIT, SPECIFICATION A BATHROOMS
IBC: ANSI TYPE B DWELLING UNIT, OPTION A BATHROOMS

NET RENTABLE AREA	**1,096 S.F.**
BALCONY / PATIO	**86 S.F.**
STORAGE	**22 S.F.**
-	**- S.F.**
TOTAL:	**1,204 S.F.**

NOTE: NET RENTABLE AREA IS CALCULATED FROM CENTERLINE OF DOUBLE STUD AIR SPACE TO OUTSIDE FACE OF EXTERIOR WALLS TO THE OUTSIDE FACE OF THE CORRIDOR WALL AND INCLUDES ALL INTERNAL WALLS AND CAVITIES.



UNIT B1
2 BEDROOM / 2 BATH (CARRIAGE UNIT)

ACCESSIBILITY SCOPING:
FHAG: NO ACCESSIBILITY REQUIREMENTS
IBC: NO ACCESSIBILITY REQUIREMENTS

GROSS AREA	**1,071 S.F. S.F.**
BALCONY	**43 S.F. S.F.**
STORAGE	**11 S.F.**
	S.F.
TOTAL:	**1,125 S.F. S.F.**

UNIT PLANS

SCALE: 1/4"=1'-0"

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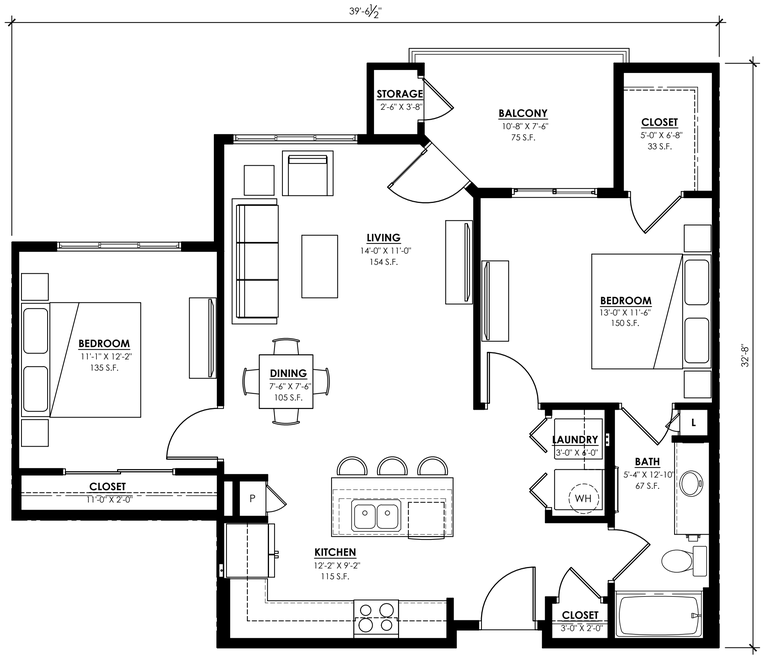
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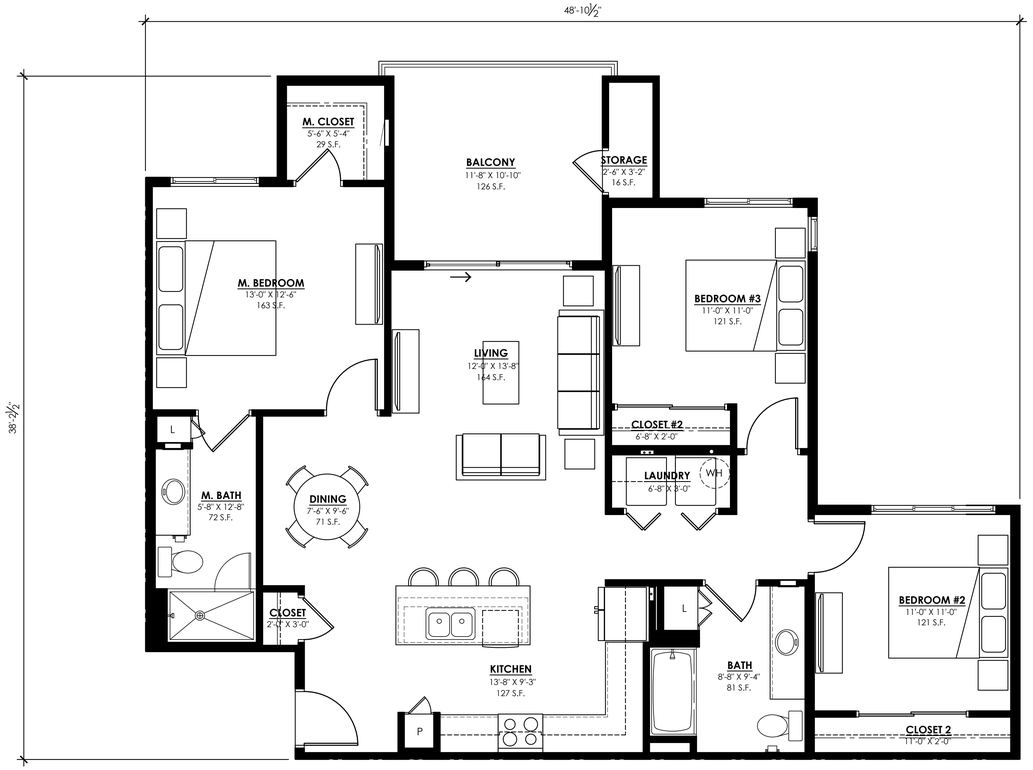
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Rev.	Date:	Description:
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B & B1 ENLARGED
UNIT PLANS

A6.1.2





UNIT B3 - 2 BEDROOM / 1 BATH

ACCESSIBILITY SCOPING:
FHAG: COVERED DWELLING UNIT, SPECIFICATION A BATHROOMS
IBC: ANSI TYPE B DWELLING UNIT, OPTION A BATHROOMS

NET RENTABLE AREA	**975 S.F.**
BALCONY / PATIO	**75 S.F.**
STORAGE	**13 S.F.**
-	**- S.F.**
TOTAL:	**1,063 S.F.**

UNIT C1 - 3 BEDROOM / 2 BATH

ACCESSIBILITY SCOPING:
FHAG: COVERED DWELLING UNIT, SPECIFICATION B BATHROOM
IBC: ANSI TYPE B DWELLING UNIT, OPTION B BATHROOM

NET RENTABLE AREA	**1,300 S.F.**
BALCONY / PATIO	**126 S.F.**
STORAGE	**11 S.F.**
-	**- S.F.**
TOTAL:	**1,437 S.F.**

NOTE: NET RENTABLE AREA IS CALCULATED FROM CENTERLINE OF DOUBLE STUD AIR SPACE TO OUTSIDE FACE OF EXTERIOR WALLS TO THE OUTSIDE FACE OF THE CORRIDOR WALL AND INCLUDES ALL INTERNAL WALLS AND CAVITIES.

UNIT PLANS

SCALE: 1/4"=1'-0"

PROJECT
NO. 22-2003-01
LIV
TIMBER SKY

FLAGSTAFF, AZ

CLIENT
LIV COMMUNITIES

8950 S 52ND ST, SUITE 115
TEMPE, AZ 85284

SEAL

REGISTERED ARCHITECT
CERTIFICATE NO.
13467
GARY D.
TODD
11/18/22
Date Signed
REGISTERED ARIZONA U.S.A.

CONTACT

TODD + ASSOCIATES
CRITICAL THINKING / CREATIVE DESIGN
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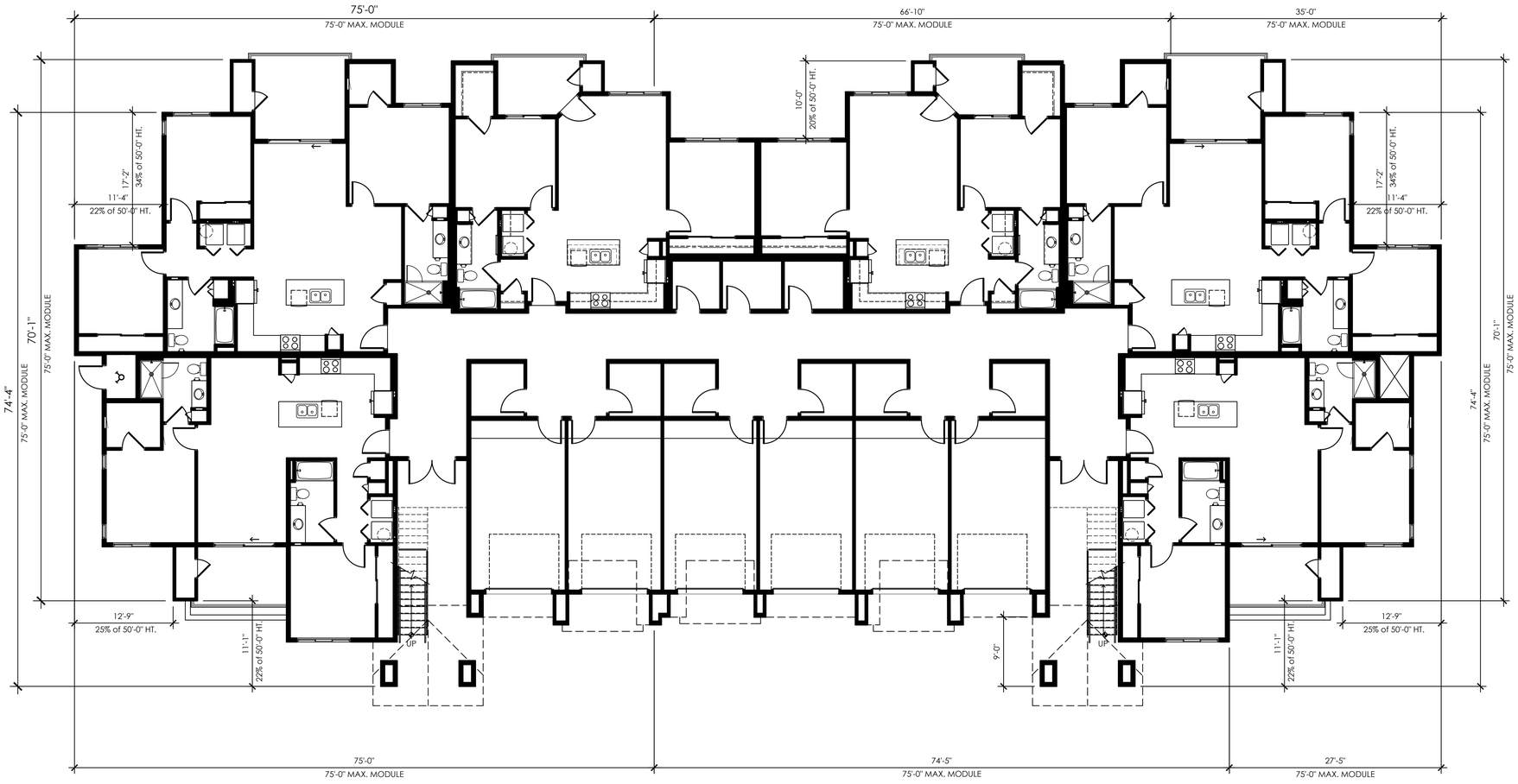
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SUBMITTAL #1

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SUBMITTAL #2

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Proj Mgr.
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Rev. Date: Description:

B3 & C1 ENLARGED
UNIT PLANS

A6.1.3



-

BUILDING TYPE 1

-

SCALE: 1/8" = 1'-0"

20% MINIMUM WALL OFFSET
ACHIEVED AT ALL FOUR ELEVATIONS
PER ORDINANCE 10-50.20.030 (2)

BUILDING TYPE 1 MASSING STUDY

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT

NO. 22-2003-01

LIV
TIMBER SKY

FLAGSTAFF, AZ

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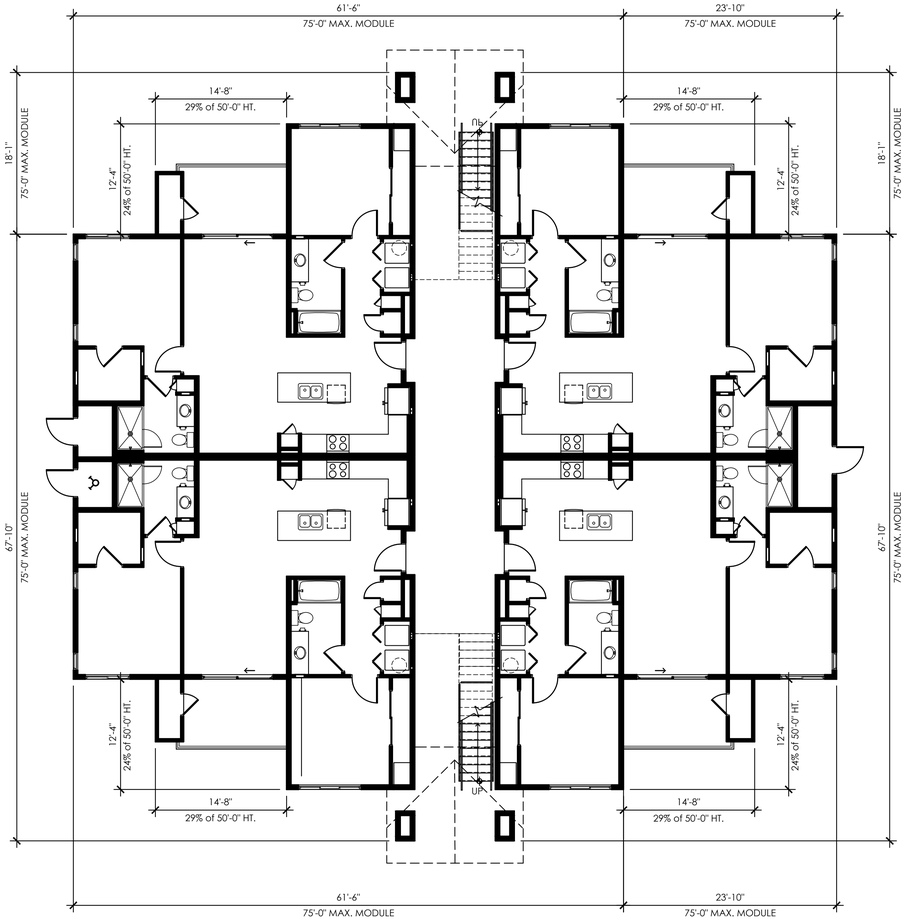
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SUBMITTAL #2

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BUILDING TYPE 1
MASSING STUDY

A7.1.1



BUILDING TYPE 2

SCALE: 1/8" = 1'-0"

20% MINIMUM WALL OFFSET
ACHIEVED AT ALL FOUR ELEVATIONS
PER ORDINANCE 10-50.20.030 (2)

BUILDING TYPE 2 MASSING STUDY

0" 4' 8' 16'
SCALE: 1/8" = 1'-0"

PROJECT
NO. 22-2003-01
LIV
TIMBER SKY

FLAGSTAFF, AZ

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8950 S 52ND ST, SUITE 115
TEMPE, AZ 85284

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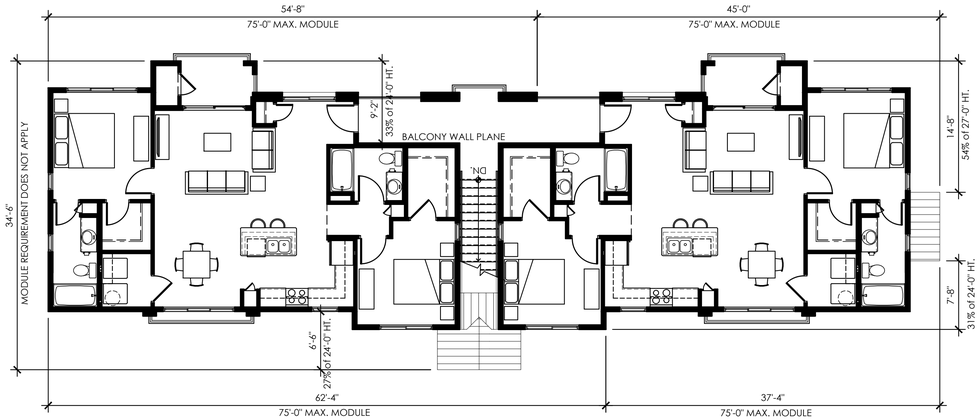
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SUBMITTAL #2

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BUILDING TYPE 2
MASSING STUDY

A7.2.1



-

BUILDING TYPE 3

-

SCALE: 1/8" = 1'-0"

20% MINIMUM WALL OFFSET ACHIEVED
AT FRONT AND REAR ELEVATIONS PER
ORDINANCE 10-50.20.030 (2)

BUILDING TYPE 3 MASSING STUDY

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT

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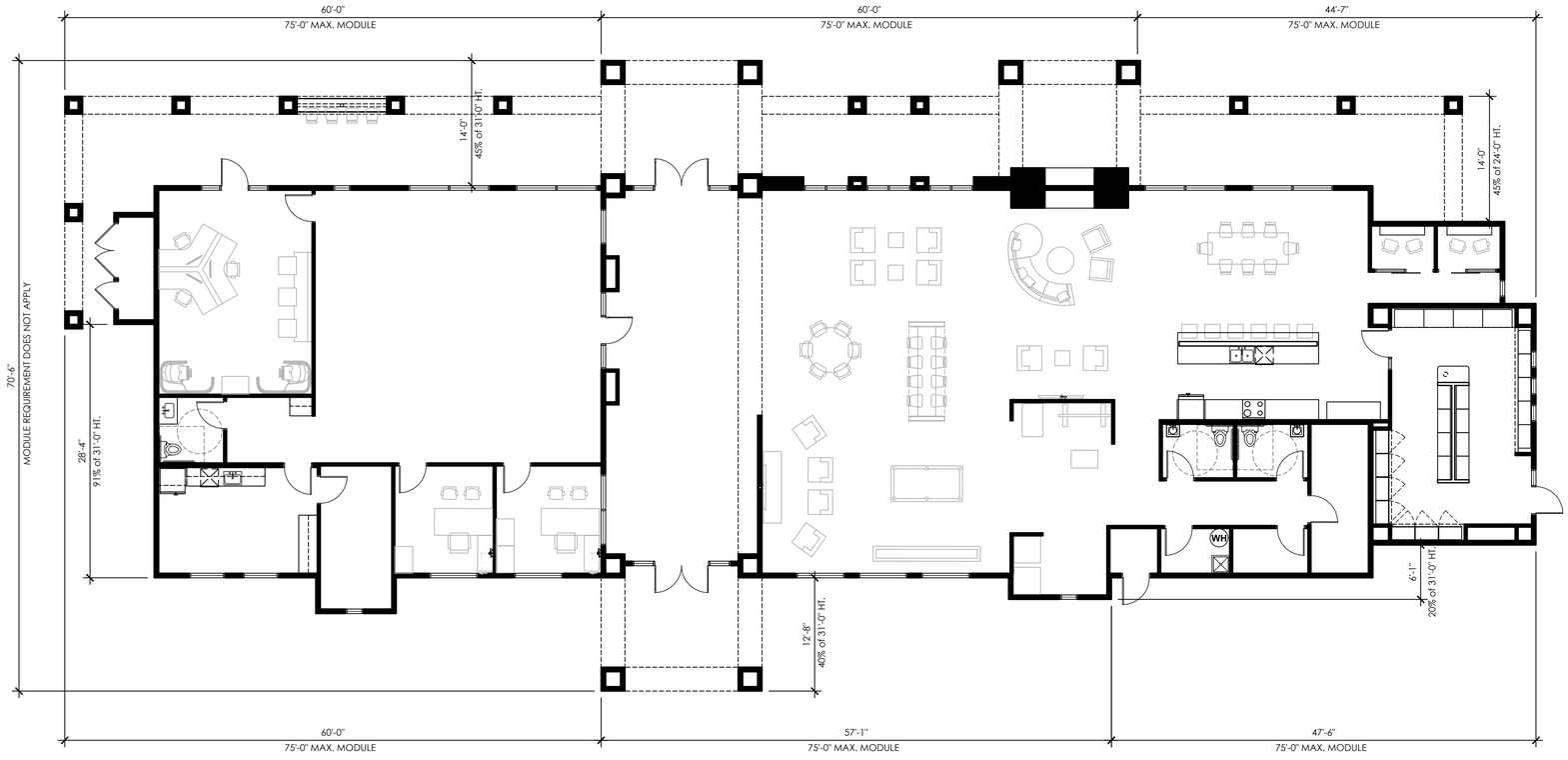
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BUILDING TYPE 3
MASSING STUDY

A7.3.1



-

CLUBHOUSE BUILDING

-

SCALE: 1/8" = 1'-0"

20% MINIMUM WALL OFFSET ACHIEVED
AT FRONT AND REAR ELEVATIONS PER
ORDINANCE 10-50.20.030 (2)

CLUBHOUSE MASSING STUDY

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT

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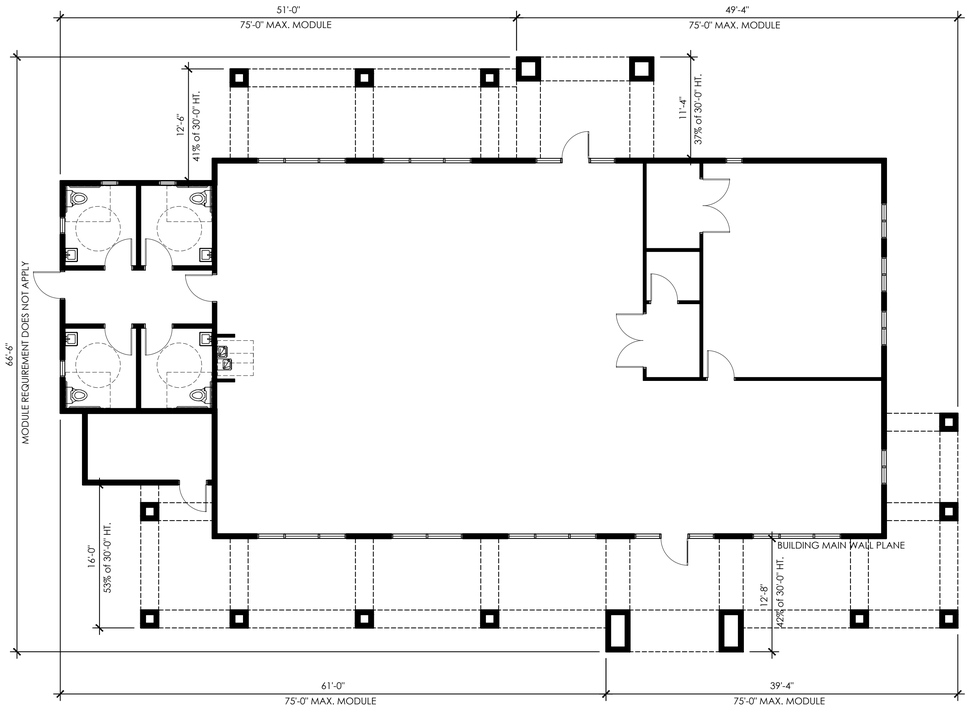
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SUBMITTAL #2

Proj Mgr.
Dwn By:

CLUBHOUSE
MASSING STUDY

A7.4.1



-

FITNESS BUILDING

-

SCALE: 1/8" = 1'-0"

20% MINIMUM WALL OFFSET ACHIEVED
AT FRONT AND REAR ELEVATIONS PER
ORDINANCE 10-50.20.030 (2)

FITNESS MASSING STUDY

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT

NO. 22-2003-01

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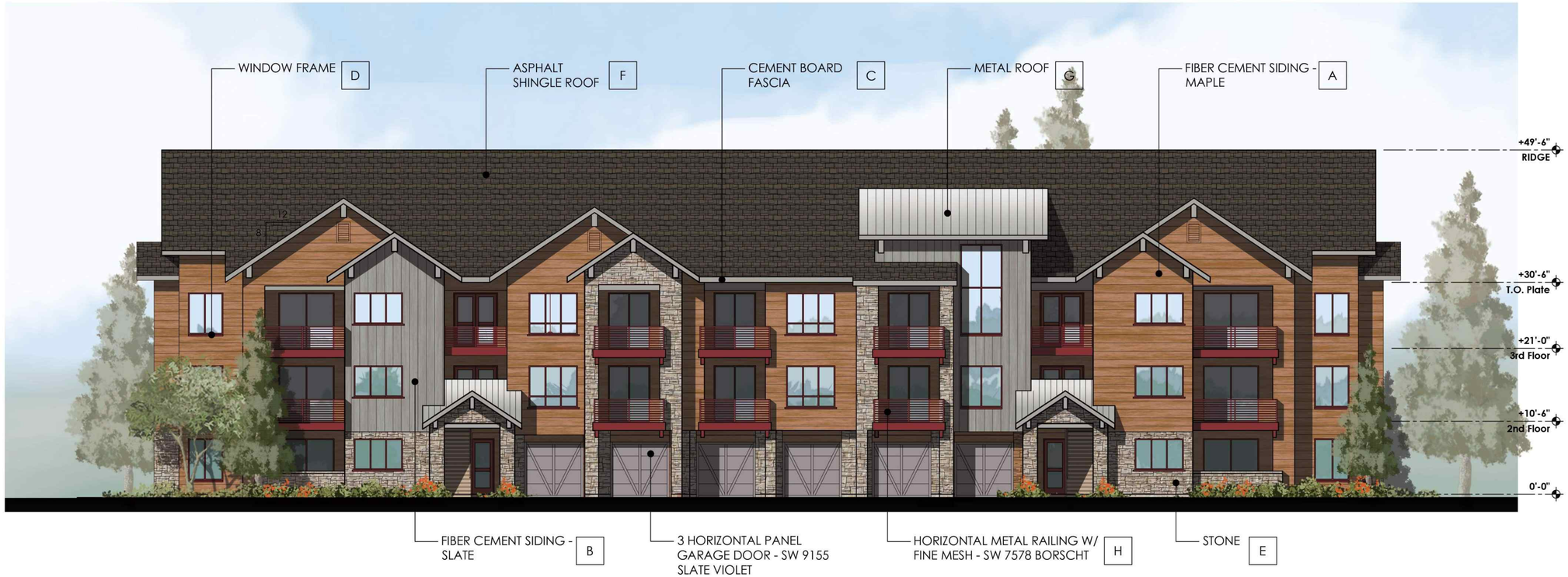
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SUBMITTAL #2

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Dwn By:

FITNESS
MASSING STUDY

A7.5.1



FRONT ELEVATION



RIGHT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR	SWATCH
A	Fiber Cement Siding Body 1	MFG.: Allura Lap Siding - Horizontal Panels Traditional Texture COLOR: PPG Bleached Maple (PPG1089-5) LRV: 37	
B	Fiber Cement Siding Body 2	MFG.: Allura Lap Siding - Vertical Panels Traditional Texture COLOR: PPG Cloudy Slate (PPG0996-4) LRV: 29	
C	Fiber Cement Fascia	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Sterling Gray LRV: 48.2	
D	Fiber Cement Trim	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Autumn Red LRV: 12.6	
E	Stone Veneer	MFG.: Coronado - Getty Stone COLOR: Embassy Blend LRV: 45.43	
F	Shingle Roof	MFG.: GAF Timberline - Ultra HD Shingles COLOR: Charcoal LRV: n/a	
G	Metal Roof	MFG.: MBCI - Slimline Roof Panel COLOR: Signature 300 "Slate Gray" LRV: 18.76	
H	Metal Railing	MFG.: Sherwin Williams COLOR: SW 7578 "Borscht" LRV: 6	

TYPE 1 ELEVATIONS

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT

NO. 22-2003-01

LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT

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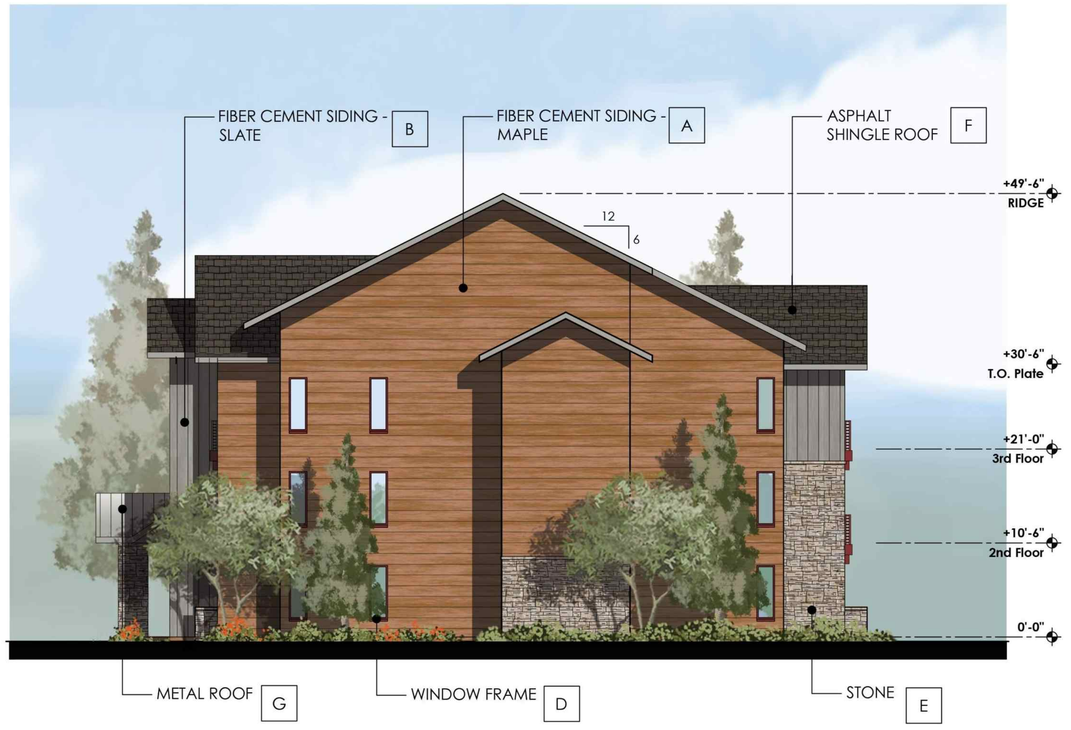
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BUILDING TYPE 1 ELEVATIONS

A3.1.1



REAR ELEVATION



LEFT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR		SWATCH
A	Fiber Cement Siding Body 1	MFG.: COLOR: LRV:	Allura Lap Siding - Horizontal Panels Traditional Texture PPG Bleached Maple (PPG1089-5) 37	
B	Fiber Cement Siding Body 2	MFG.: COLOR: LRV:	Allura Lap Siding - Vertical Panels Traditional Texture PPG Cloudy Slate (PPG0996-4) 29	
C	Fiber Cement Fascia	MFG.: COLOR: LRV:	Allura - Plycem Fiber Cement Trim Alurra Sterling Gray 48.2	
D	Fiber Cement Trim	MFG.: COLOR: LRV:	Allura - Plycem Fiber Cement Trim Alurra Autumn Red 12.6	
E	Stone Veneer	MFG.: COLOR: LRV:	Coronado - Getty Stone Embassy Blend 45.43	
F	Shingle Roof	MFG.: COLOR: LRV:	GAF Timberline - Ultra HD Shingles Charcoal n/a	
G	Metal Roof	MFG.: COLOR: LRV:	MBCI - Slimline Roof Panel Signature 300 "Slate Gray" 18.76	
H	Metal Railing	MFG.: COLOR: LRV:	Sherwin Williams SW 7578 "Borscht" 6	

TYPE 1 ELEVATIONS

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT

NO. 22-2003-01

LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT

LIV COMMUNITIES

8950 S 52ND ST, SUITE 115
TEMPE, AZ 85284

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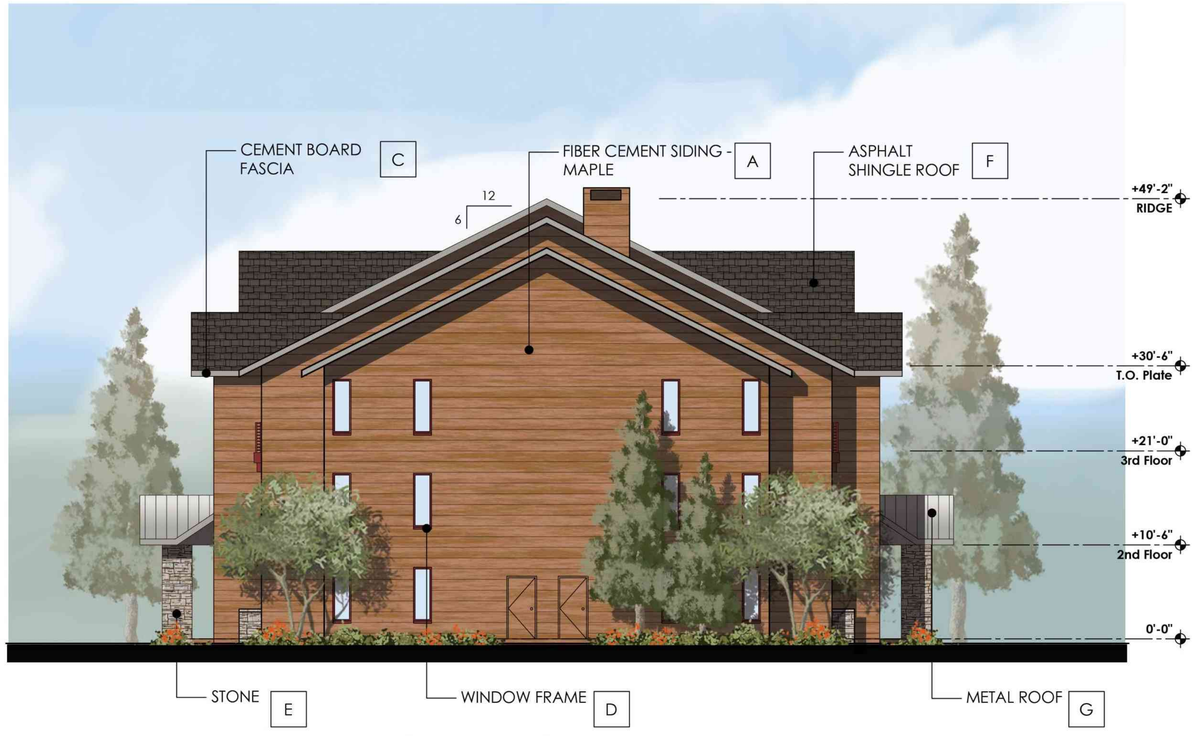
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BUILDING TYPE 1 ELEVATIONS

A3.1.2



FRONT ELEVATION



RIGHT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR		SWATCH
A	Fiber Cement Siding Body 1	MFG.: COLOR: LRV:	Allura Lap Siding - Horizontal Panels Traditional Texture PPG Bleached Maple (PPG1089-5) 37	
B	Fiber Cement Siding Body 2	MFG.: COLOR: LRV:	Allura Lap Siding - Vertical Panels Traditional Texture PPG Cloudy Slate (PPG0996-4) 29	
C	Fiber Cement Fascia	MFG.: COLOR: LRV:	Allura - Plycem Fiber Cement Trim Alurra Sterling Gray 48.2	
D	Fiber Cement Trim	MFG.: COLOR: LRV:	Allura - Plycem Fiber Cement Trim Alurra Autumn Red 12.6	
E	Stone Veneer	MFG.: COLOR: LRV:	Coronado - Getty Stone Embassy Blend 45.43	
F	Shingle Roof	MFG.: COLOR: LRV:	GAF Timberline - Ultra HD Shingles Charcoal n/a	
G	Metal Roof	MFG.: COLOR: LRV:	MBCI - Slimline Roof Panel Signature 300 "Slate Gray" 18.76	
H	Metal Railing	MFG.: COLOR: LRV:	Sherwin Williams SW 7578 "Borscht" 6	

TYPE 2 ELEVATIONS

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT

NO. 22-2003-01

LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT

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8950 S 52ND ST, SUITE 115
TEMPE, AZ 85284

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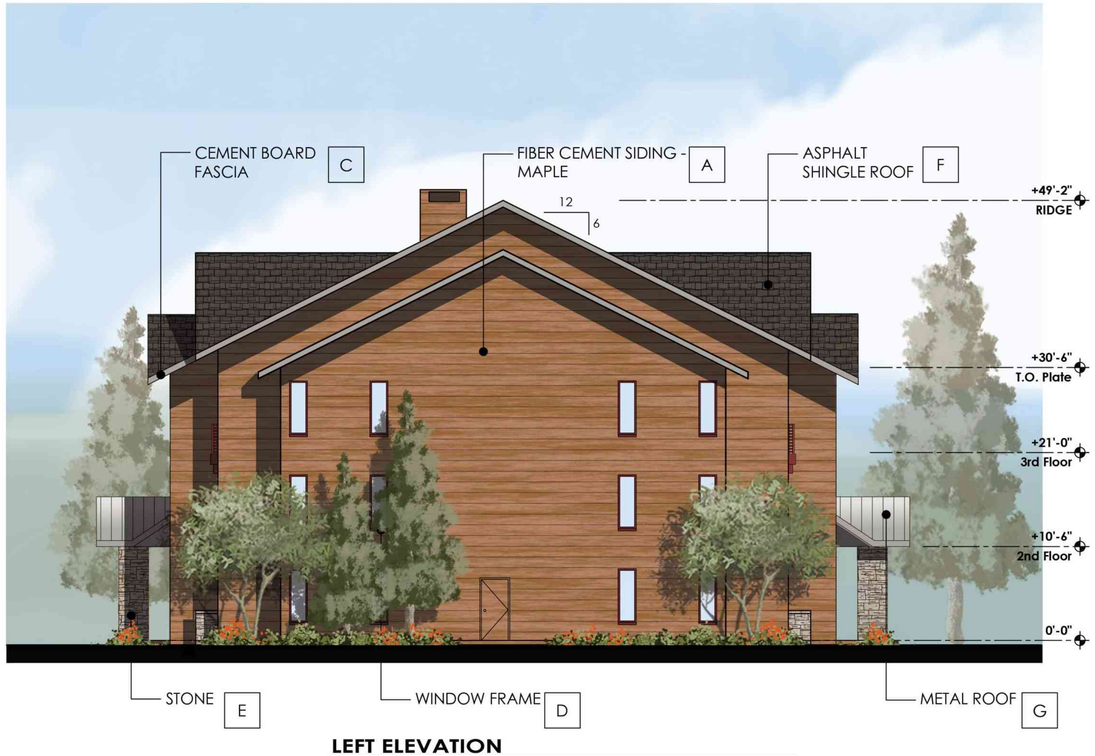
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BUILDING TYPE 2 ELEVATIONS

A3.2.1



REAR ELEVATION



LEFT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR	SWATCH
A	Fiber Cement Siding Body 1	MFG.: Allura Lap Siding - Horizontal Panels Traditional Texture COLOR: PPG Bleached Maple (PPG1089-5) LRV: 37	
B	Fiber Cement Siding Body 2	MFG.: Allura Lap Siding - Vertical Panels Traditional Texture COLOR: PPG Cloudy Slate (PPG0996-4) LRV: 29	
C	Fiber Cement Fascia	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Sterling Gray LRV: 48.2	
D	Fiber Cement Trim	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Autumn Red LRV: 12.6	
E	Stone Veneer	MFG.: Coronado - Getty Stone COLOR: Embassy Blend LRV: 45.43	
F	Shingle Roof	MFG.: GAF Timberline - Ultra HD Shingles COLOR: Charcoal LRV: n/a	
G	Metal Roof	MFG.: MBCI - Slimline Roof Panel COLOR: Signature 300 "Slate Gray" LRV: 18.76	
H	Metal Railing	MFG.: Sherwin Williams COLOR: SW 7578 "Borscht" LRV: 6	

TYPE 2 ELEVATIONS

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT

NO. 22-2003-01

LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT

LIV COMMUNITIES

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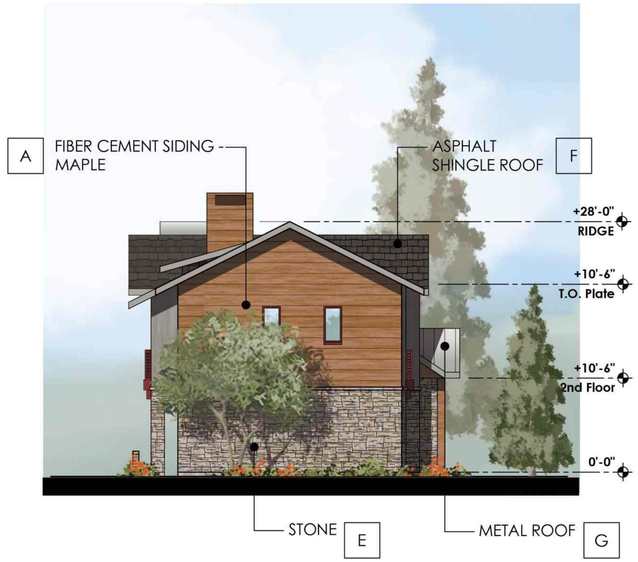
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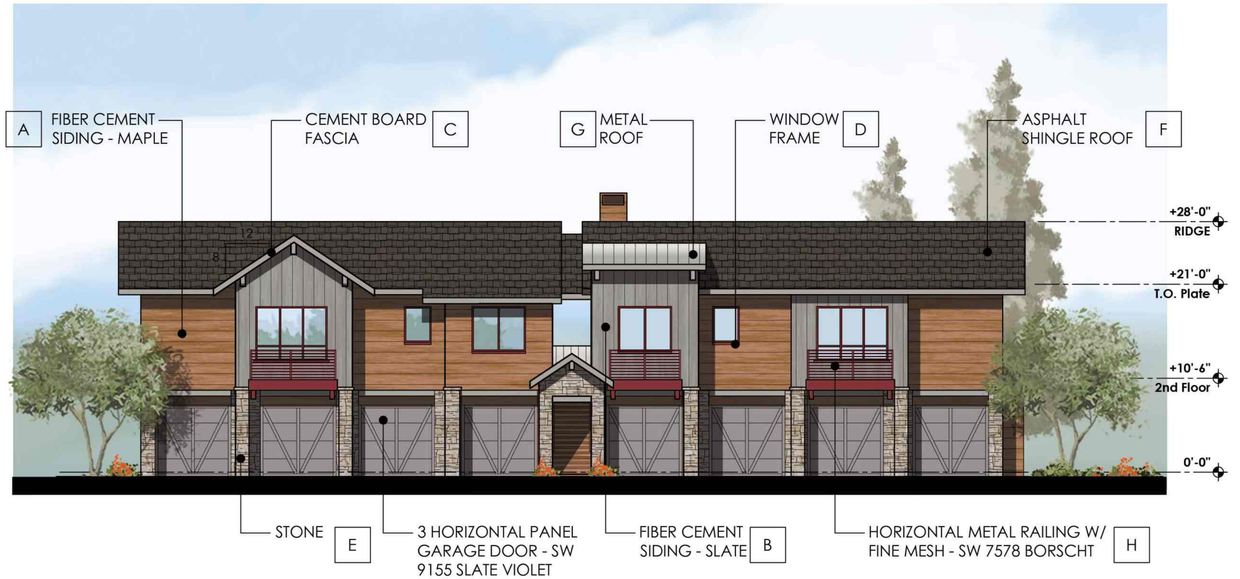
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BUILDING TYPE 2 ELEVATIONS

A3.2.2



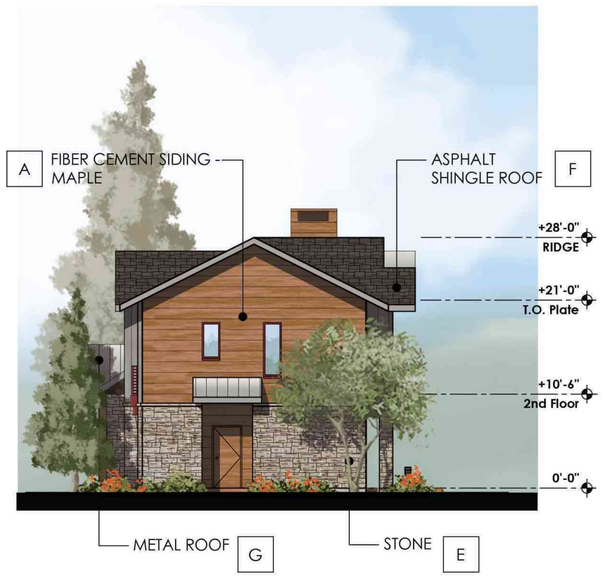
RIGHT ELEVATION



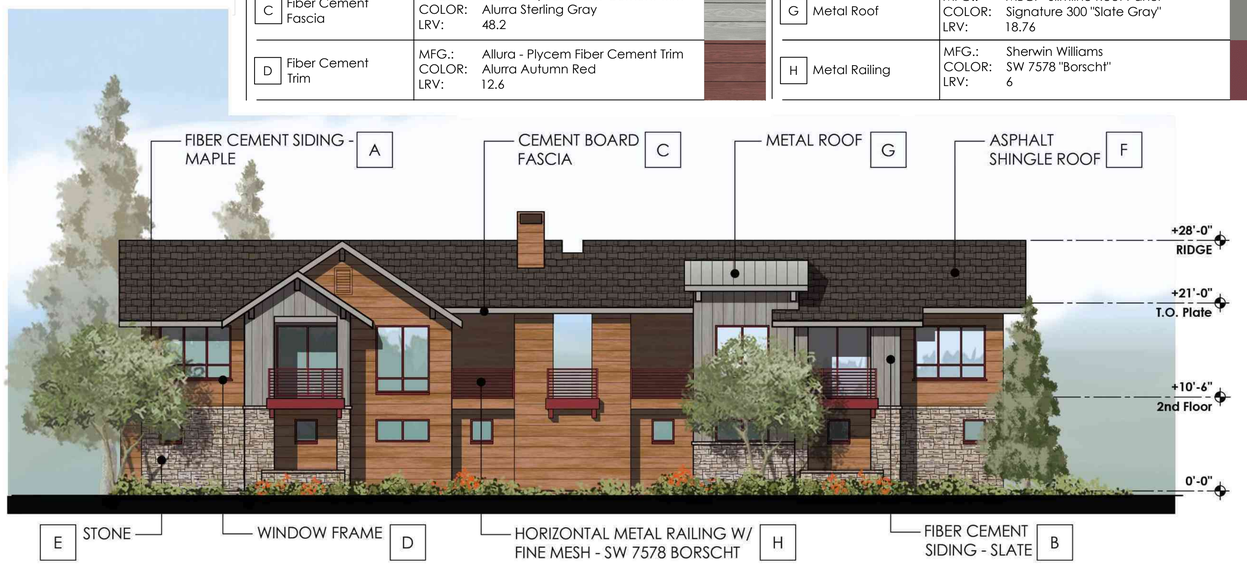
FRONT ELEVATION

COLOR SCHEDULE

LOCATION	COLOR	SWATCH
A Fiber Cement Siding Body 1	MFG.: Allura Lap Siding - Horizontal Panels Traditional Texture COLOR: PPG Bleached Maple (PPG1089-5) LRV: 37	
B Fiber Cement Siding Body 2	MFG.: Allura Lap Siding - Vertical Panels Traditional Texture COLOR: PPG Cloudy Slate (PPG0996-4) LRV: 29	
C Fiber Cement Fascia	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Sterling Gray LRV: 48.2	
D Fiber Cement Trim	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Autumn Red LRV: 12.6	
E Stone Veneer	MFG.: Coronado - Getty Stone COLOR: Embassy Blend LRV: 45.43	
F Shingle Roof	MFG.: GAF Timberline - Ultra HD Shingles COLOR: Charcoal LRV: n/a	
G Metal Roof	MFG.: MBCI - Slimline Roof Panel COLOR: Signature 300 "Slate Gray" LRV: 18.76	
H Metal Railing	MFG.: Sherwin Williams COLOR: SW 7578 "Borscht" LRV: 6	



LEFT ELEVATION



REAR ELEVATION

TYPE 3 ELEVATIONS

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT
NO. 22-2003-01
LIV TIMBER SKY

FLAGSTAFF, AZ

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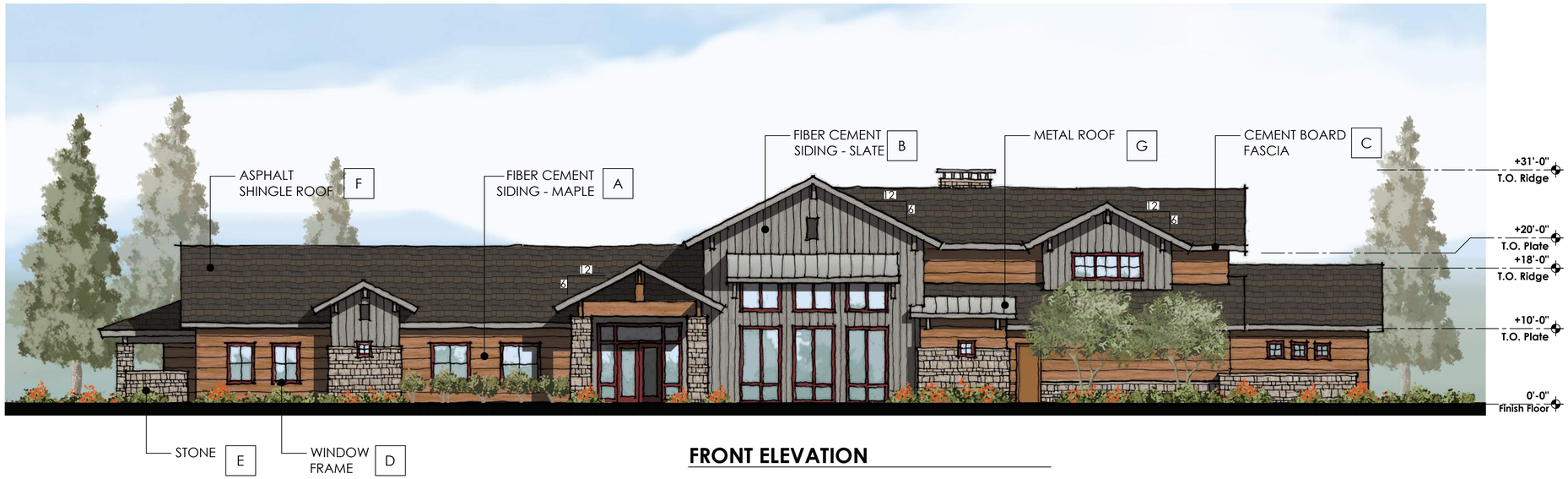
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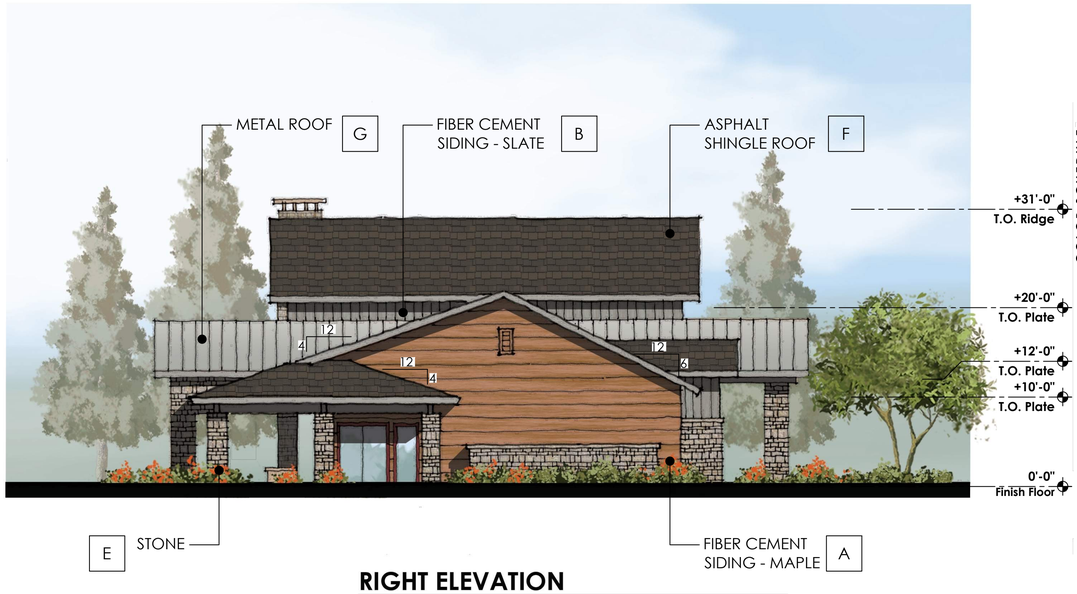
Proj Mgr.
Dwn By:

BUILDING TYPE 3 ELEVATIONS

A3.3.1



FRONT ELEVATION



RIGHT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR	SWATCH
A	Fiber Cement Siding Body 1	MFG.: Allura Lap Siding - Horizontal Panels Traditional Texture COLOR: PPG Bleached Maple (PPG1089-5) LRV: 37	
B	Fiber Cement Siding Body 2	MFG.: Allura Lap Siding - Vertical Panels Traditional Texture COLOR: PPG Cloudy Slate (PPG0996-4) LRV: 29	
C	Fiber Cement Fascia	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Sterling Gray LRV: 48.2	
D	Fiber Cement Trim	MFG.: Allura - Plycem Fiber Cement Trim COLOR: Alurra Autumn Red LRV: 12.6	
E	Stone Veneer	MFG.: Coronado - Getty Stone COLOR: Embassy Blend LRV: 45.43	
F	Shingle Roof	MFG.: GAF Timberline - Ultra HD Shingles COLOR: Charcoal LRV: n/a	
G	Metal Roof	MFG.: MBCI - Slimline Roof Panel COLOR: Signature 300 "Slate Gray" LRV: 18.76	
H	Metal Railing	MFG.: Sherwin Williams COLOR: SW 7578 "Borscht" LRV: 6	

CLUBHOUSE ELEVATIONS

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT
NO. 22-2003-01
LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT
LIV COMMUNITIES

8950 S 52ND ST, SUITE 115
TEMPE, AZ 85284

SEAL
REGISTERED ARCHITECT
CERTIFICATE NO.
13467
GARY D.
TODD
09/22/22
Date Signed
ARIZONA U.S.A.

CONTACT
TODD + ASSOCIATES
CRITICAL THINKING / CREATIVE DESIGN
ARCHITECTURE. PLANNING. LANDSCAPE ARCHITECTURE.
4019 N. 44TH ST. / PHOENIX, AZ 85018
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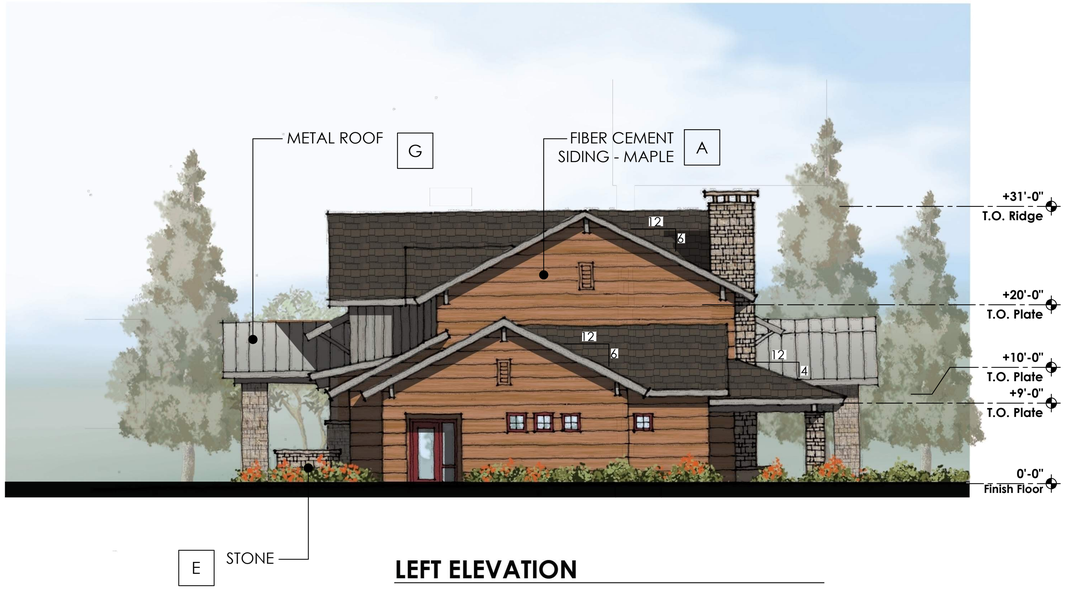
Proj Mgr.
Dwn By:

CLUBHOUSE ELEVATIONS

A3.4.1



REAR ELEVATION



LEFT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR	SWATCH
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CLUBHOUSE ELEVATIONS

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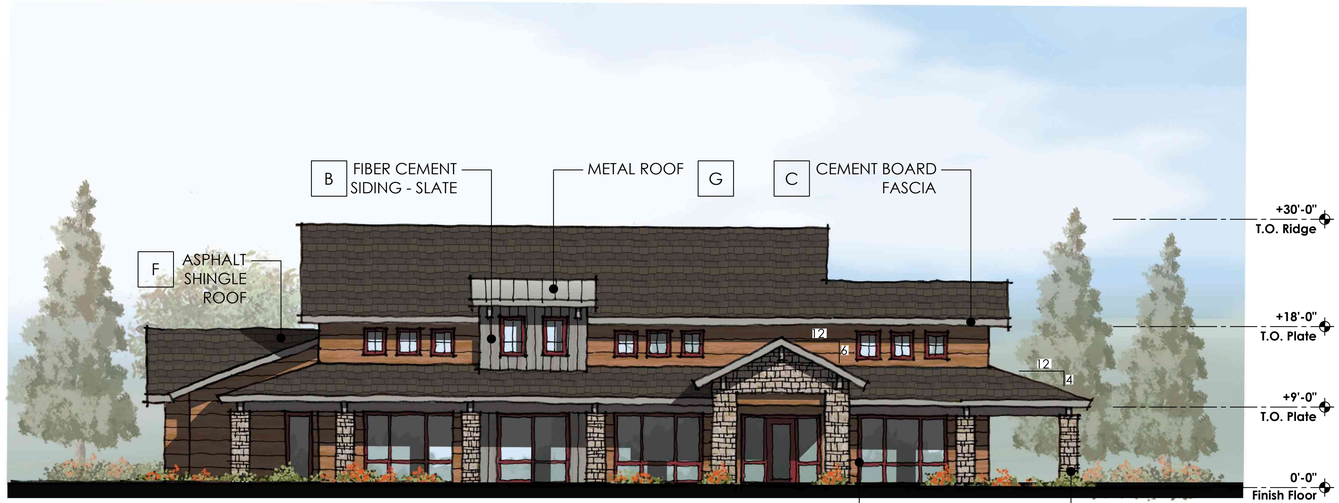
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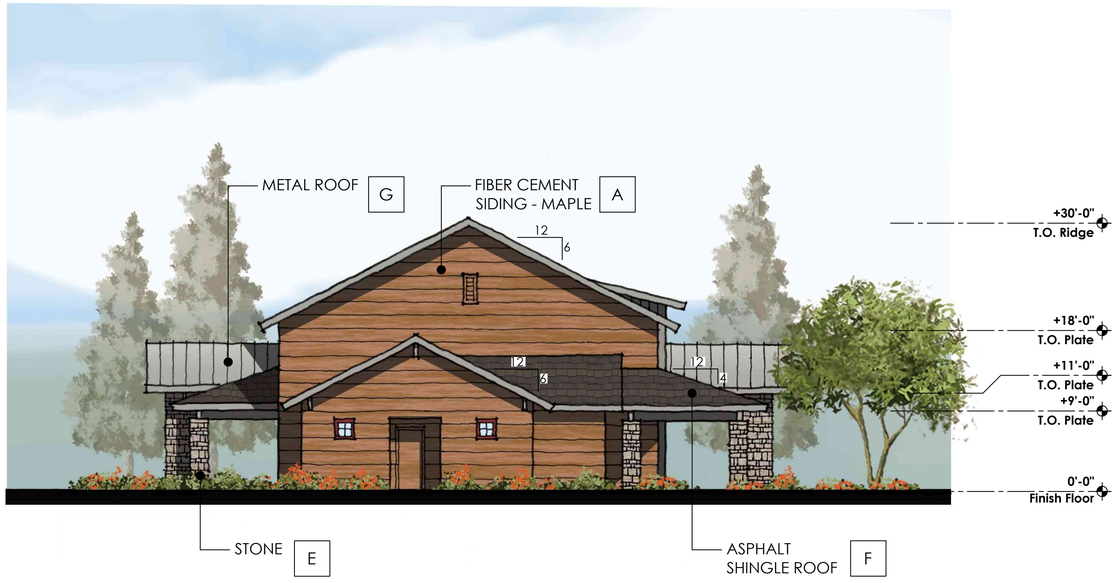
Proj Mgr.
Dwn By:

CLUBHOUSE ELEVATIONS

A3.4.2



FRONT ELEVATION



RIGHT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR	SWATCH
A	Fiber Cement Siding Body 1	MFG.: Allura Lap Siding - Horizontal Panels Traditional Texture COLOR: PPG Bleached Maple (PPG1089-5) LRV: 37	
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FITNESS ELEVATIONS

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SCALE: 1/8" = 1'-0"

PROJECT
NO. 22-2003-01
LIV TIMBER SKY

FLAGSTAFF, AZ

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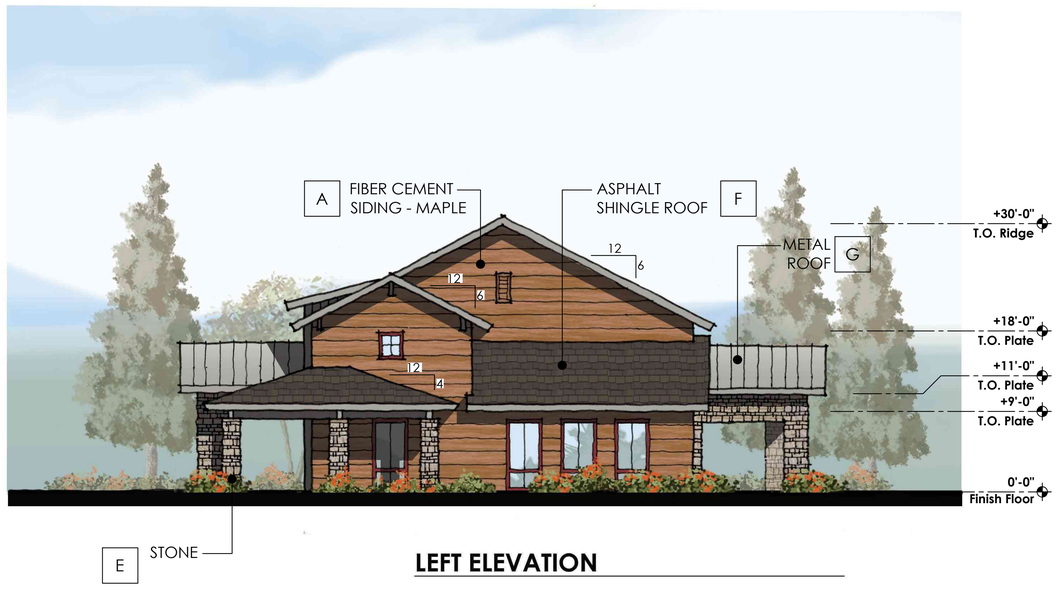
Proj Mgr.
Dwn By:

FITNESS ELEVATIONS

A3.5.1



REAR ELEVATION



LEFT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR		SWATCH
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FITNESS ELEVATIONS

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PROJECT

NO. 22-2003-01

LIV TIMBER SKY

FLAGSTAFF, AZ

CLIENT

LIV COMMUNITIES

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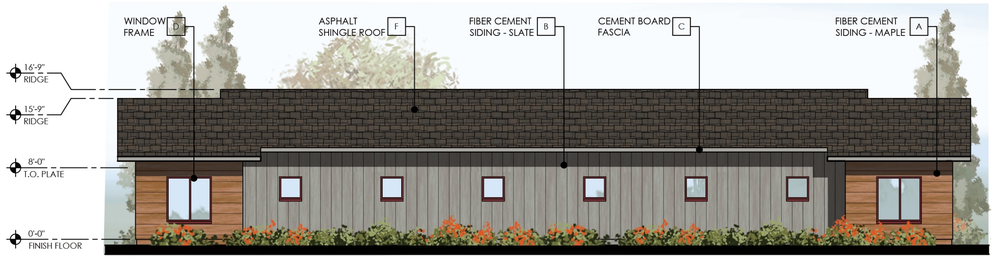
09-22-2022

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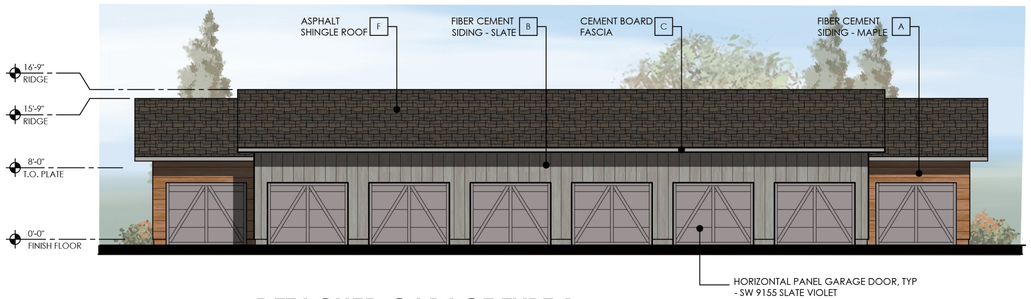
Proj Mgr.
Dwn By:

FITNESS ELEVATIONS

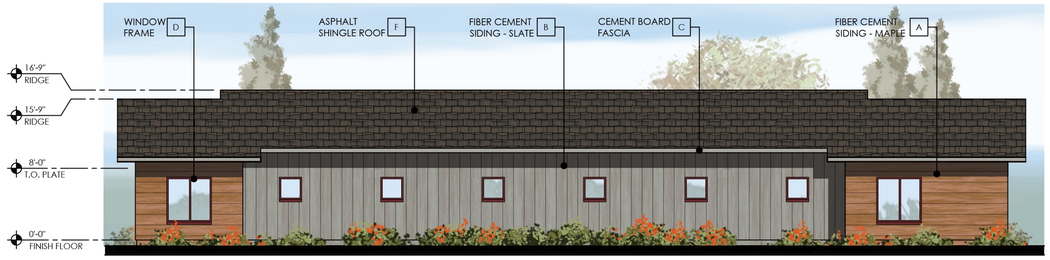
A3.5.2



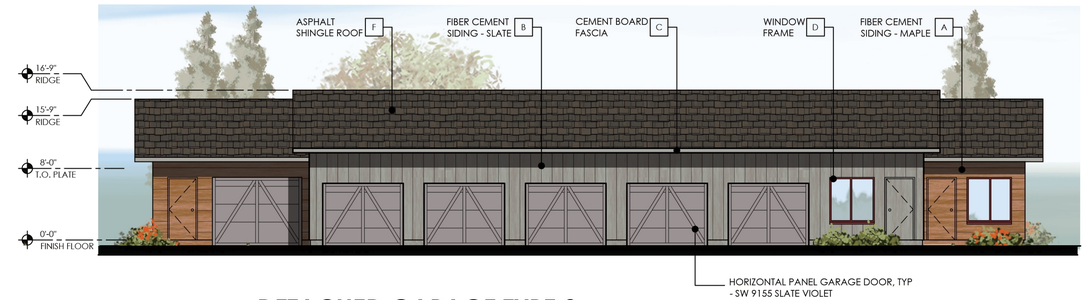
DETACHED GARAGE TYPE 1
REAR ELEVATION



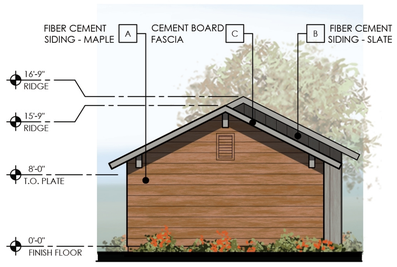
DETACHED GARAGE TYPE 1
FRONT ELEVATION



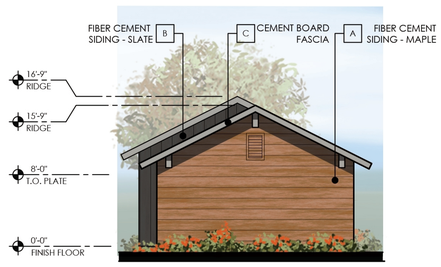
DETACHED GARAGE TYPE 2
REAR ELEVATION



DETACHED GARAGE TYPE 2
FRONT ELEVATION



DETACHED GARAGE TYPICAL
LEFT ELEVATION



DETACHED GARAGE TYPICAL
RIGHT ELEVATION

COLOR SCHEDULE

	LOCATION	COLOR		SWATCH
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E	Stone Veneer	MFG.: COLOR: LRV:	Coronado - Getty Stone Embassy Blend 45.43	
F	Shingle Roof	MFG.: COLOR: LRV:	GAF Timberline - Ultra HD Shingles Charcoal n/a	
G	Metal Roof	MFG.: COLOR: LRV:	MBCI - Slimline Roof Panel Signature 300 "Slate Gray" 18.76	
H	Metal Railing	MFG.: COLOR: LRV:	Sherwin Williams SW 7578 "Borscht" 6	

DETACHED GARAGE ELEVATIONS

0" 4' 8' 16'

SCALE: 1/8" = 1'-0"

PROJECT
NO. 22-2003-01
LIV
TIMBER SKY

FLAGSTAFF, AZ

CLIENT
LIV COMMUNITIES

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Dwn By:

DETACHED GARAGE ELEVATIONS

A3.6.1

LIV Timber Sky

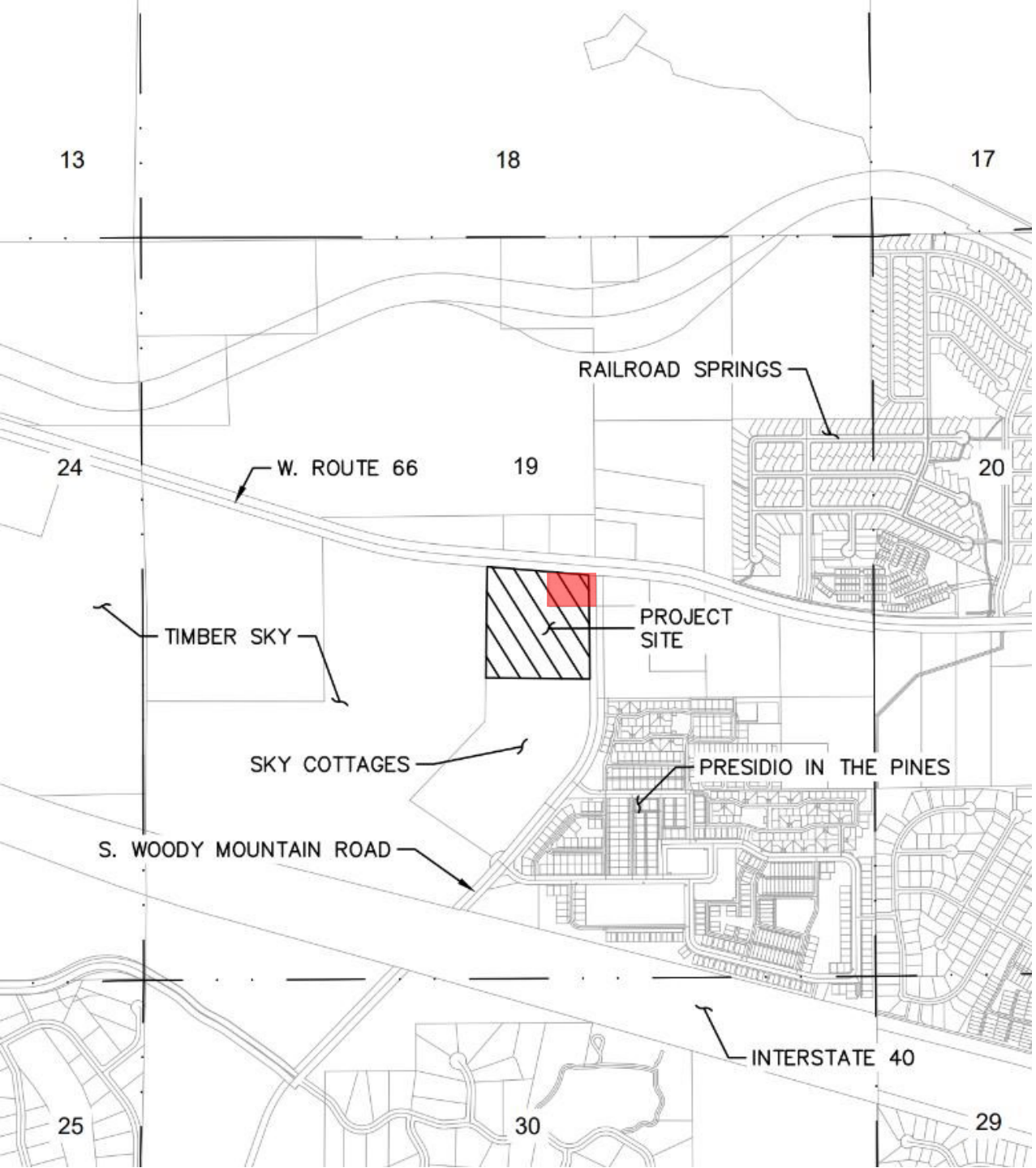
Annexation &
Direct to Ordinance Zoning Map Amendment

Alaxandra Pucciarelli
Current Planning Manager

TEAM FLAGSTAFF
WE MAKE THE CITY BETTER

Request Overview

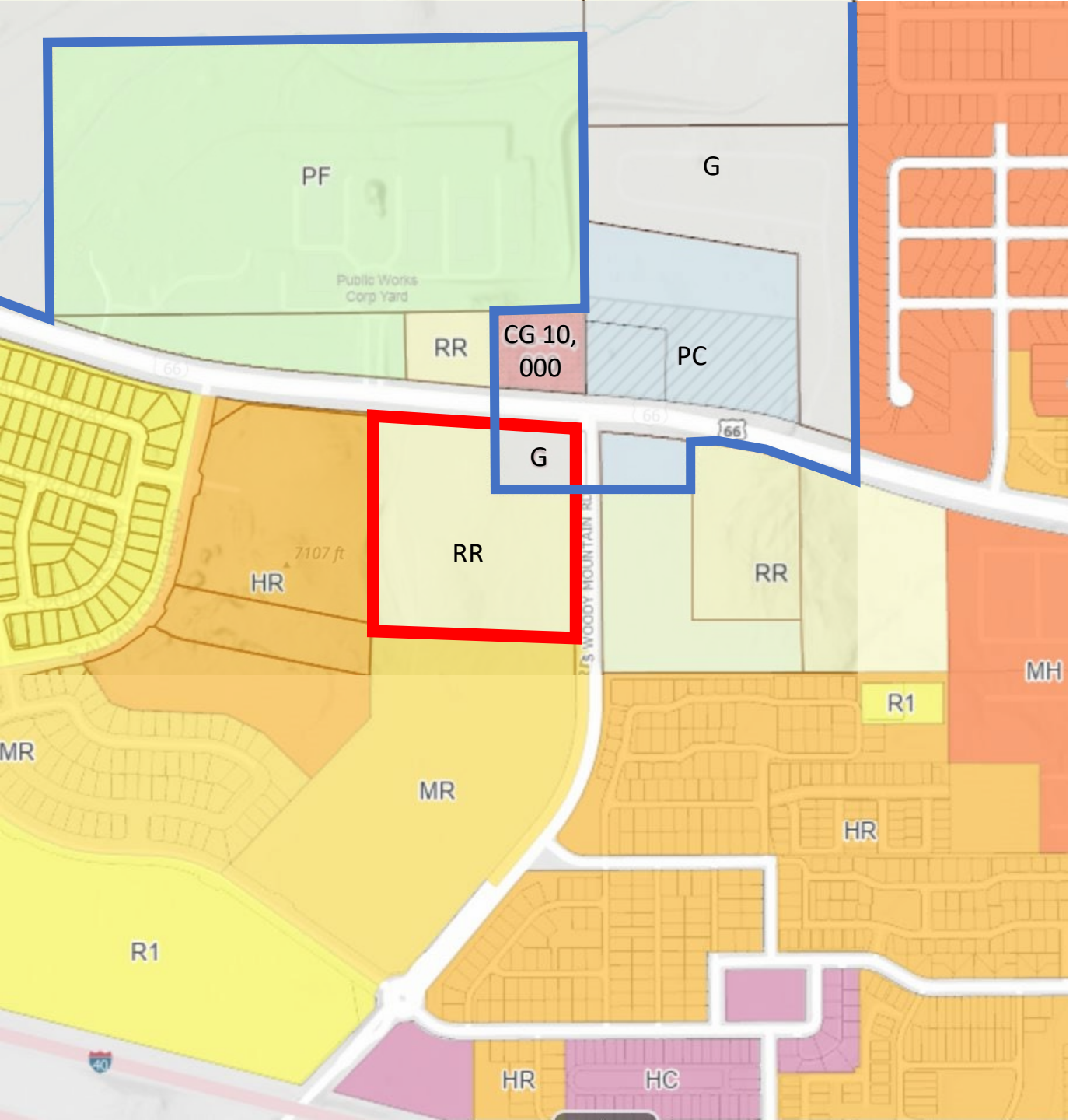
- Vintage Partners and Liv Communities, LLC requests to annex approximately 1.82 acres located at 2445 S. Woody Mountain Road
- Concurrent Direct to Ordinance Zoning Map Amendment request to rezone 13.01 acres from RR with RPO to HR with RPO



Vicinity Map

- 1.82 acres county land
- 13.01 acres undeveloped land

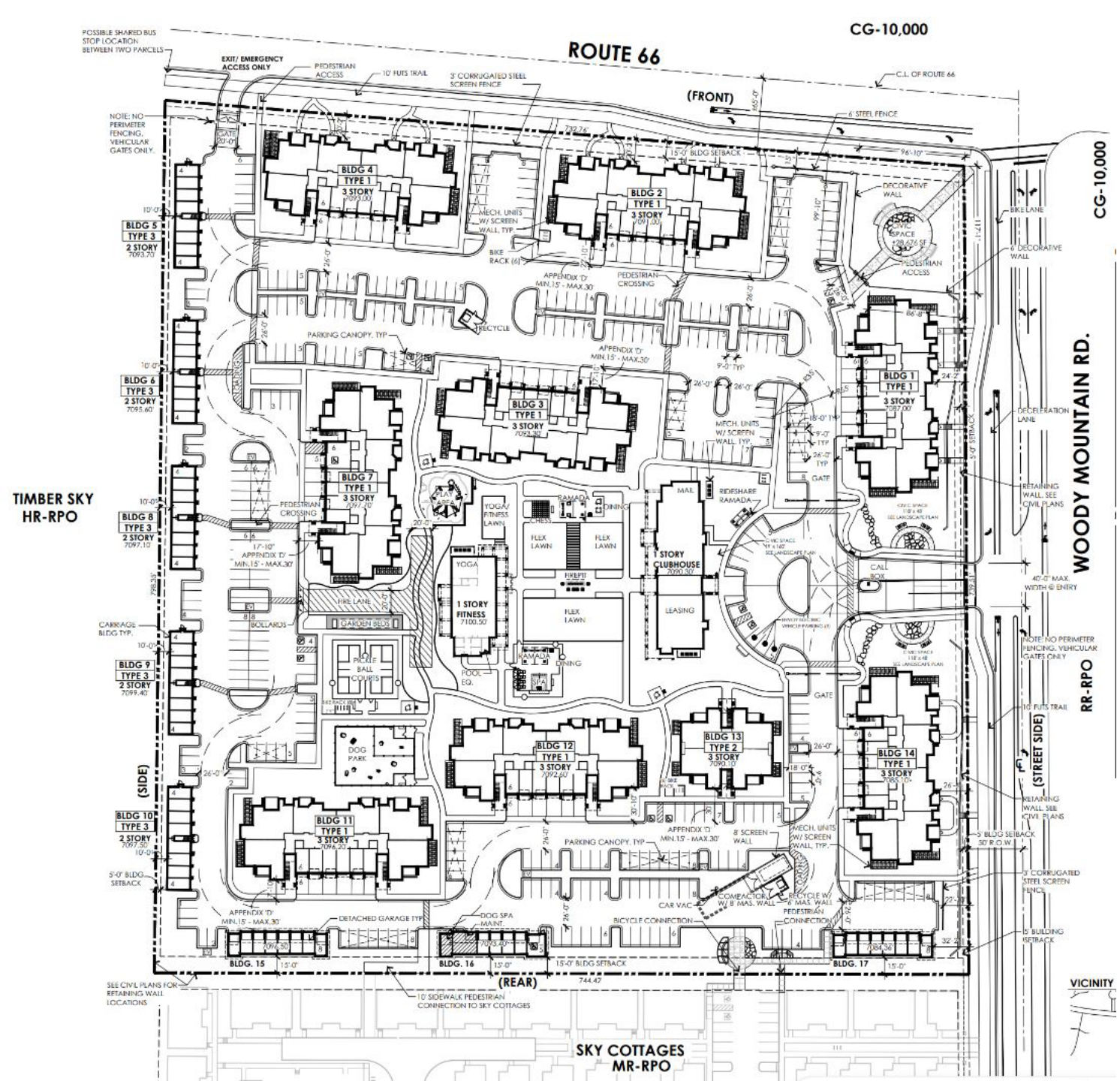
- North: Public Works Yard & River Outfitter
- East: Woody Mountain Campground & Presidio
- South: Sky Cottages
- West: Timber Sky



TEAM FLAGSTAFF
WE MAKE THE CITY BETTER

Adjacent Zoning

- City Rural Residential (RR)
- County General (G)



Proposal:

Zoning:

- RR to HR zone w/ RPO

Development:

- Multi-family Residential
- Parking
- Site Amenities

Proposed Density

Policy:

- HR zone allows 10-29 units per acre in RPO and Urban Activity Center (130 units min. - 377 units max.)
- Regional Plan calls for min. density of 13 units/acre

Proposed:

- 214 total units
- Density of 16.45 units/acre

Proposed Unit Mix

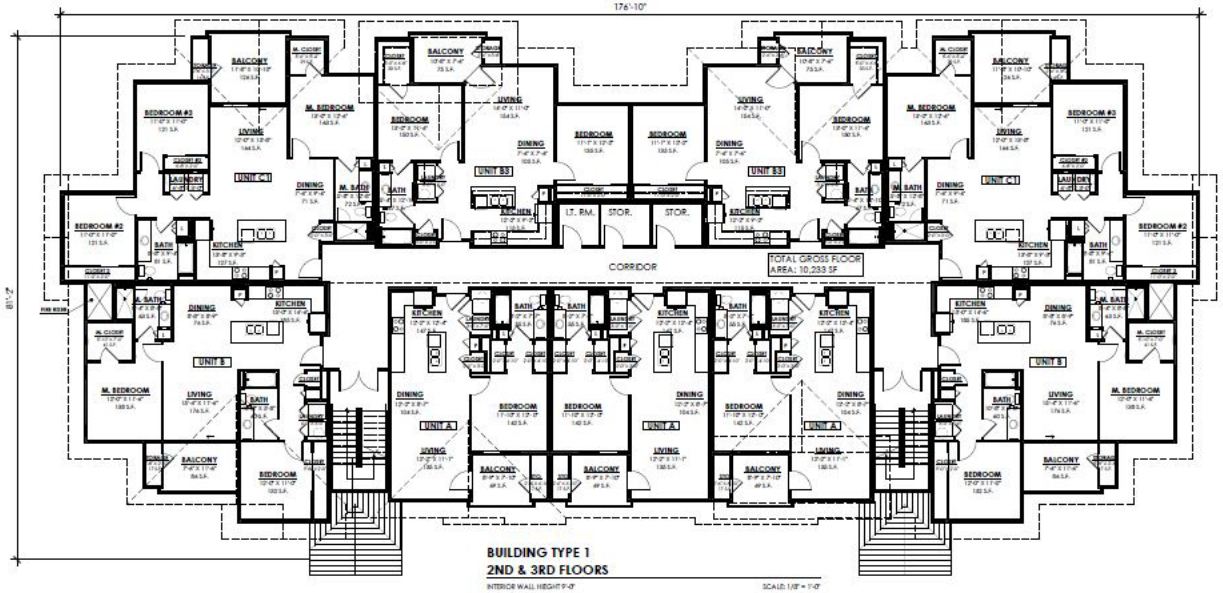
Unit Type	No. Units	Percentage
1 Bed/1 Bath	48	22%
2 Bed/1 Bath	48	22%
2 Bed/2 Bath	70	33%
3 Bed/2 Bath	48	22%
Total	214	

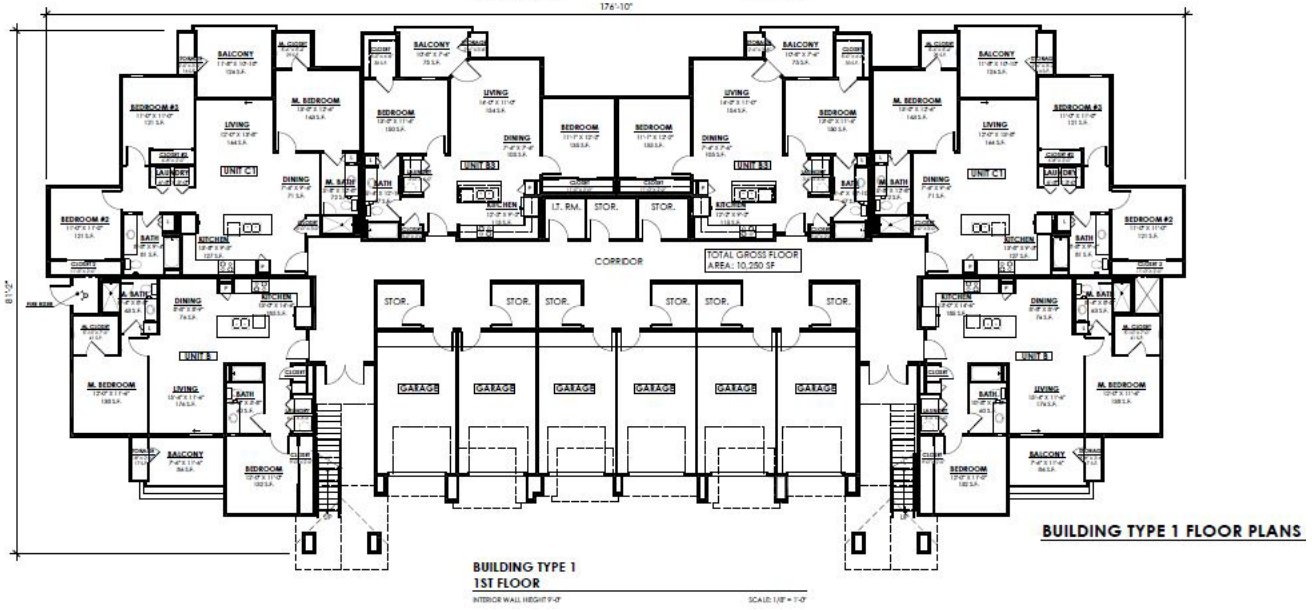
Site Plan Review

Application for Site Plan Review

- Approved on June 30, 2023
- Subject to Direct to Ordinance Zoning Map Amendment

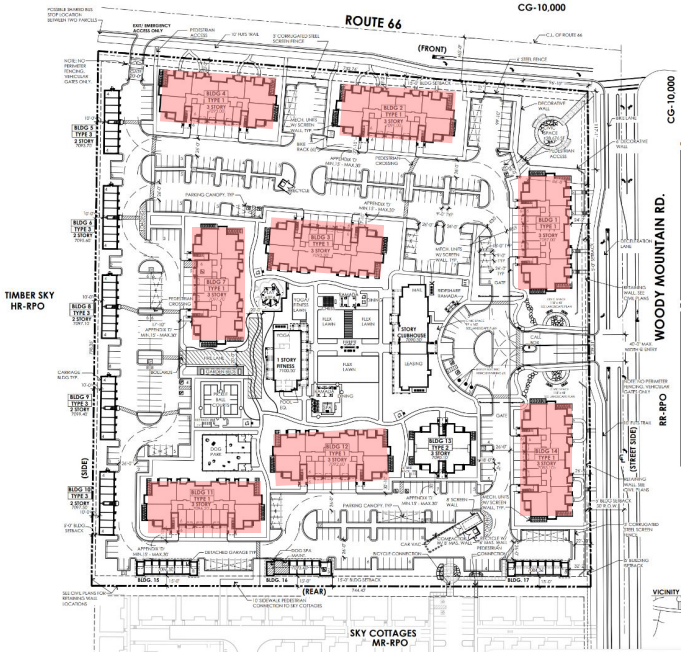
Proposed Floor Plans





Building Type 1:

- 3-story
- 6 garages
- 24 units

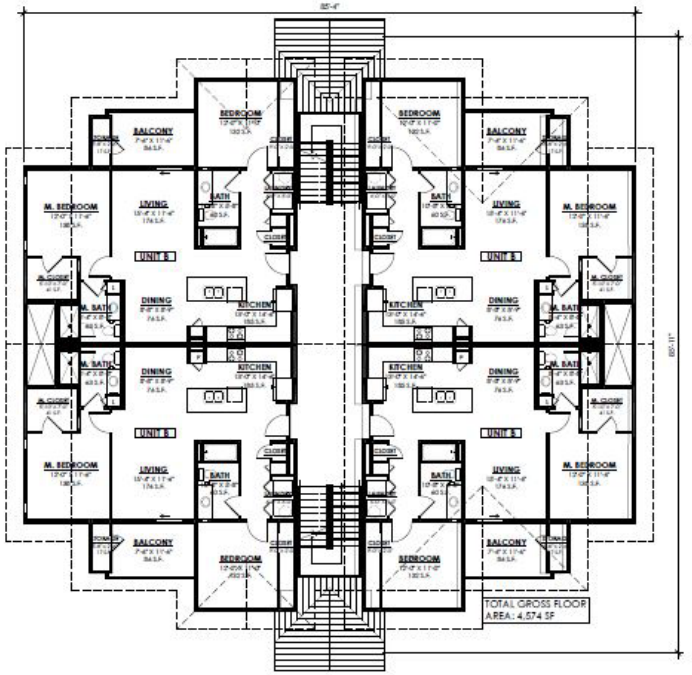


Proposed Elevation

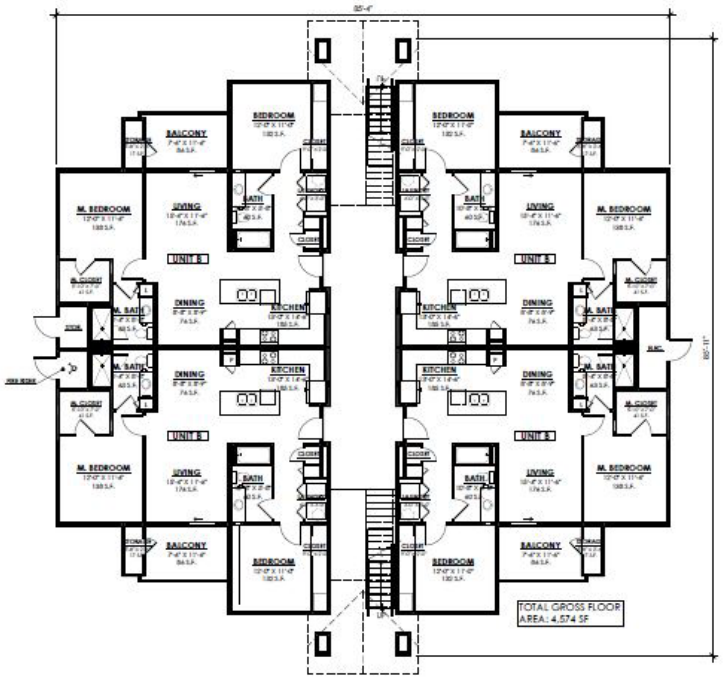


FRONT ELEVATION

Proposed Floor Plans



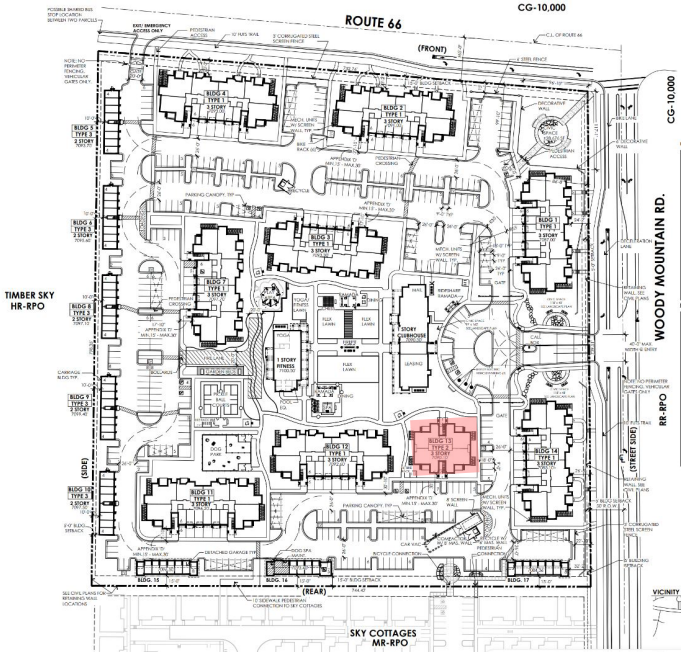
BUILDING TYPE 2
2ND & 3RD FLOORS



BUILDING TYPE 2
1ST FLOOR

Building Type 2:

- 3-story
- 12 units



Proposed Elevation

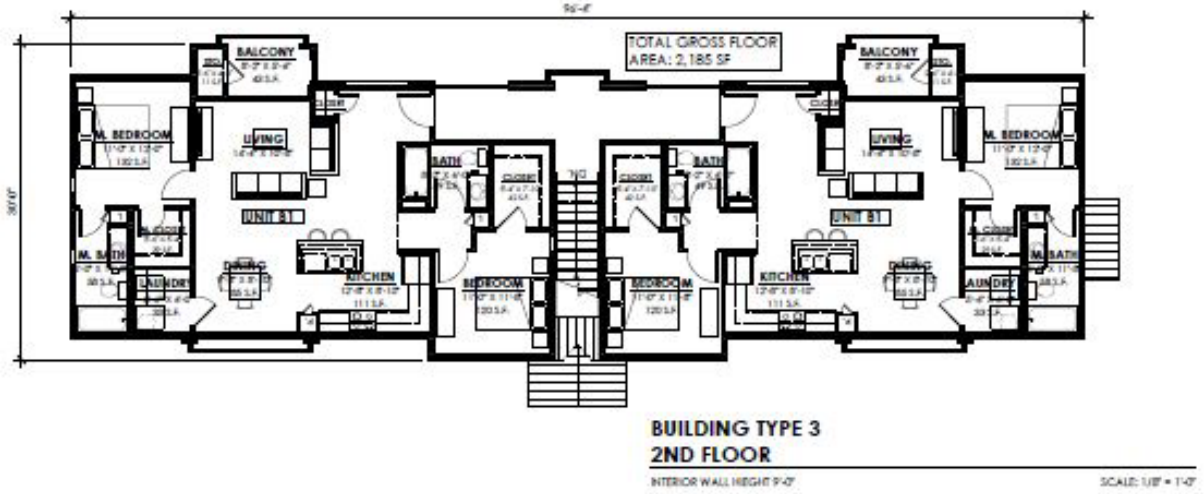


FRONT ELEVATION

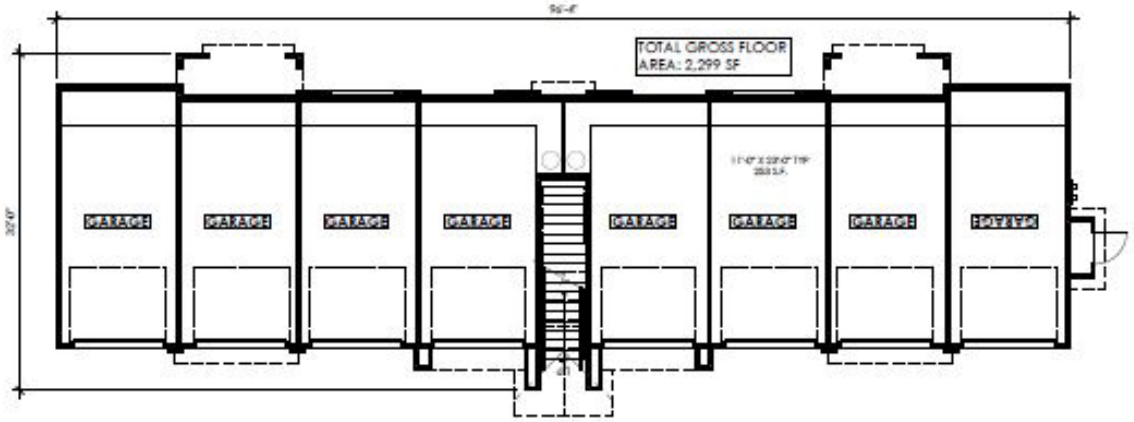
COLOR SCHEDULE

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Proposed Floor Plans



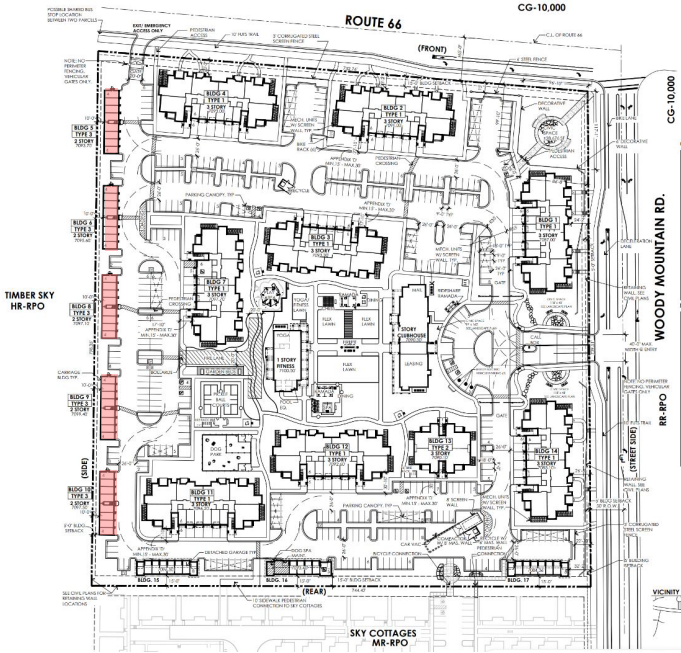
BUILDING TYPE 3
2ND FLOOR



BUILDING TYPE 3
1ST FLOOR

Building Type 3:

- 2-story
- 8 garages
- 2 units



Proposed Elevation



FRONT ELEVATION

Annexation Request

- Vintage Partners and Liv Communities, LLC requests to annex approximately 1.82 acres located at 2445 S. Woody Mountain Road
- Portion (1.82 acres) of Coconino County Assessor's Parcel Number 112-01-019B (13.01 acres) plus adjacent ROW of S Woody Mountain Road

Annexation Approval Criteria

Required Findings

Annexation requests must meet the required findings for approval:

- Arizona State Statute Compliance
- City of Flagstaff Regional Plan 2030 Compliance
- Public Facilities and Service Impact Analysis

Annexation Approval Criteria

Finding 1: Conformance with Arizona State Statute (ARS 9-471)

- Sets eligibility criteria for properties to annex
- Identifies required processes and procedures for cities and towns to annex real property
- Sets requirements for zoning classification for annexed property

Annexation Approval Criteria

Finding 2: Conformance with Flagstaff Regional Plan 2030 *applicable* goals and policies

The proposed annexation should not be detrimental to the majority of persons or property in the surrounding area or the community in general

Annexation must demonstrate a favorable benefit to the taxpayers of the City

Policy LU.7.2: Require unincorporated properties to be annexed prior to the provision of City services, or that a pre-annexation agreement is executed when deemed appropriate.

Policy WR.4.3: Development requiring public utility services will be located within the Urban Growth Boundary.

Annexation Approval Criteria

Finding 3: Conformance with City Code Division 10-20.90: Annexations (Public Systems Analysis)

- Traffic Analysis/Right of Way Impact; Transportation Improvements
- Water and Sewer Impact Analysis; Water and Sewer Improvements
- Stormwater Analysis; Stormwater Improvements
- Schools
- Fire Protection

Public Systems Analysis

Traffic /Right of Way Impact

Traffic Impact Analysis dated June 9, 2023

- Accepted by City Staff
- Approved by ADOT

Transportation Improvements

- New or extended turn lanes as required
- Extended median on S Woody Mountain Road
- Proportional contribution to traffic signal

Public Systems Analysis

Water and Sewer Impact Analysis

- Water and Sewer Impact Analysis (WSIA) completed December 20, 2013, for a similar land use on the property
- WSIA Waiver issued September 20, 2022

Water and Sewer Improvements

- 12-inch offsite sewer main

Public Systems Analysis

Stormwater Analysis

- Drainage Impact Analysis prepared on August 30, 2022

Stormwater Improvements

- No offsite stormwater improvements required
- Onsite retention for increase runoff volumes

Public Systems Analysis

Schools

The proposed development of the subject site is not anticipated to affect the local school district.

Fire Protection

- Served by Fire Station No. 1, located at 1972 S. Thompson Drive
- Site is within the desired response time

Citizen Participation

Neighborhood Meetings

- December 12, 2022 and February 6, 2023
  - 18 individuals attended first meeting
  - 4 individuals attended second meeting

Recommendation

The Planning and Zoning Commission, in accordance with the required findings, forwarded the annexation request to the City Council with a recommendation for approval.

<u>At the September 5, 2023 Council Meeting:</u>
1) Hold public hearing

<u>At the September 19, 2023 Council Meeting:</u>
2) Read Ordinance No. 2023-XX by title only for the first time
3) City Clerk reads Ordinance No. 2023-XX by title only (if approved above)
<u>At the October 3, 2023 Council Meeting:</u>
4) Read Ordinance No. 2023-XX by title only for the final time
5) City Clerk reads Ordinance No. 2023-XX by title only (if approved above)
6) Adopt Ordinance No. 2023-XX

9. A.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Erin Young, Water Resources Manager
Co-Submitter:	Shannon Jones
Date:	08/31/2023
Meeting Date:	09/05/2023

TITLE

Introduction of Rate Study Team for the City of Flagstaff Water, Reclaimed Water, and Wastewater Cost-of-Service, Rates and Fees Study

STAFF RECOMMENDED ACTION:

Staff are available for questions and would like input from City Council on the process, outreach plan, and any other related questions.

EXECUTIVE SUMMARY:

City Staff have begun work on the Water, Reclaimed Water, Wastewater Cost of Service, Rates, and Fees Study (herein referred to as the "rate study") with Stantec Consulting Services (Stantec), as authorized by City Council approval of the contract on March 7, 2023. For this meeting, City Staff and Stantec will introduce the components of the rate study and a timeline for its completion.

INFORMATION:

The last rate and fee study for these three funds was executed in 2014 and completed in 2016, with a cost-of-service analysis completed in 2010. This rate study includes both a financial analysis and a cost-of-service study. A financial analysis will determine whether the existing rates are sufficient to recover utility costs and margins, incorporating unmet infrastructure needs to maintain quality, and to address capacity in the face of new environmental challenges. This rate study reviews and recommends any changes to rate classes or fee adjustments since the last cost-of-service study was completed in 2010. A cost-of-service analysis will look at different ways to allocate the utility's costs to its customer classes proportionally and equitably based on their consumption patterns and demand or impacts on the systems. The process takes approximately 12 months from now. It will involve the Water Commission, City Council, and the public in order to achieve success.

Attachments: Presentation

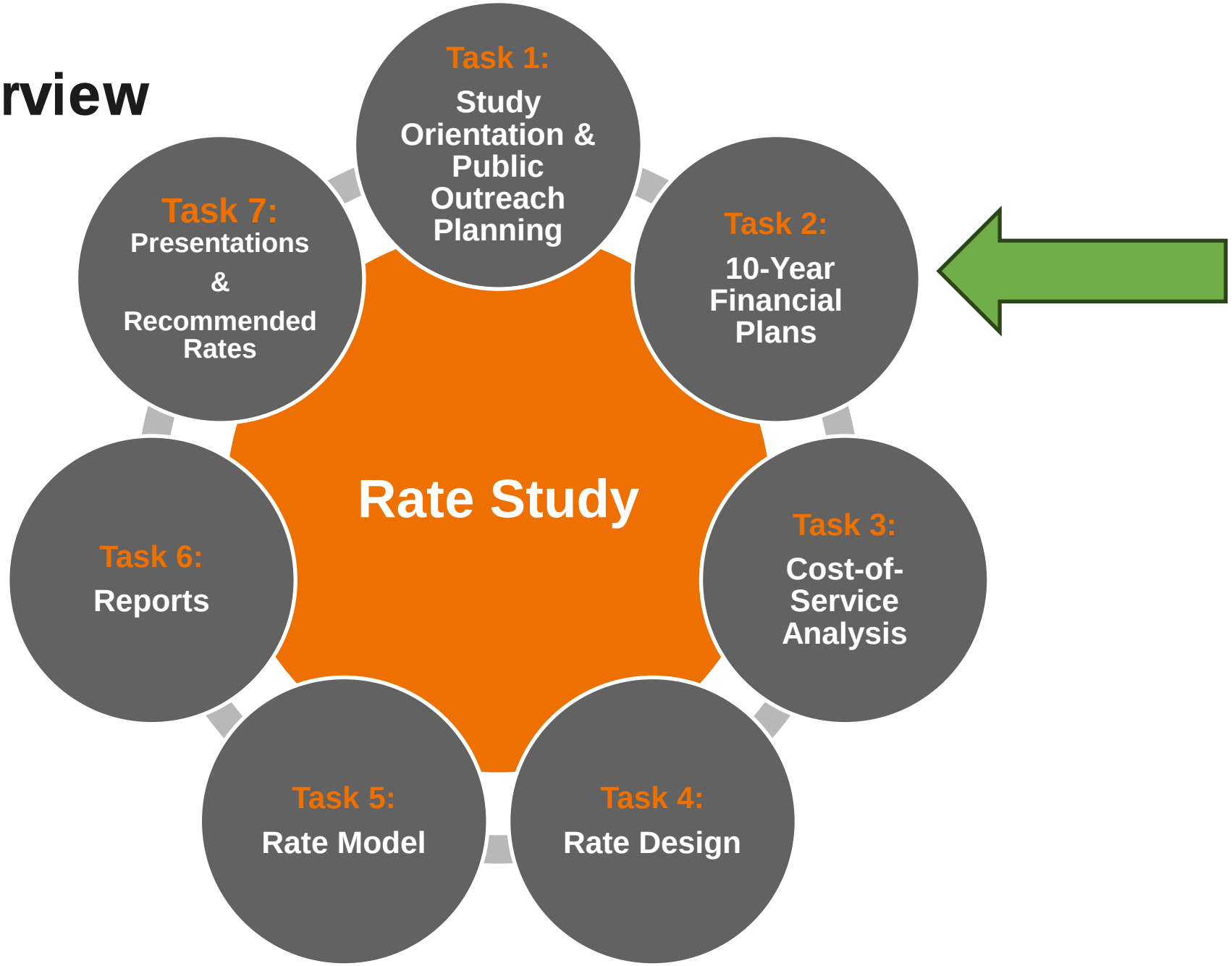
City of Flagstaff, AZ

Water, Reclaimed Water, & Wastewater Cost-of-Service, Rates & Fees Study

Flagstaff City Council

September 5, 2023

Scope Overview



The Rate Study Process

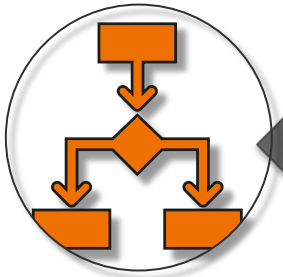
How Much?



Revenue Sufficiency

- Achieve financial policies & targets
- Fund system investment needs
- Sustainably fund operations

From Whom?



Defensible Allocation Methods

- Utilize industry accepted approaches
- Maintain inter and intra class equity
- Determine correct and appropriate units of service

How to Collect?



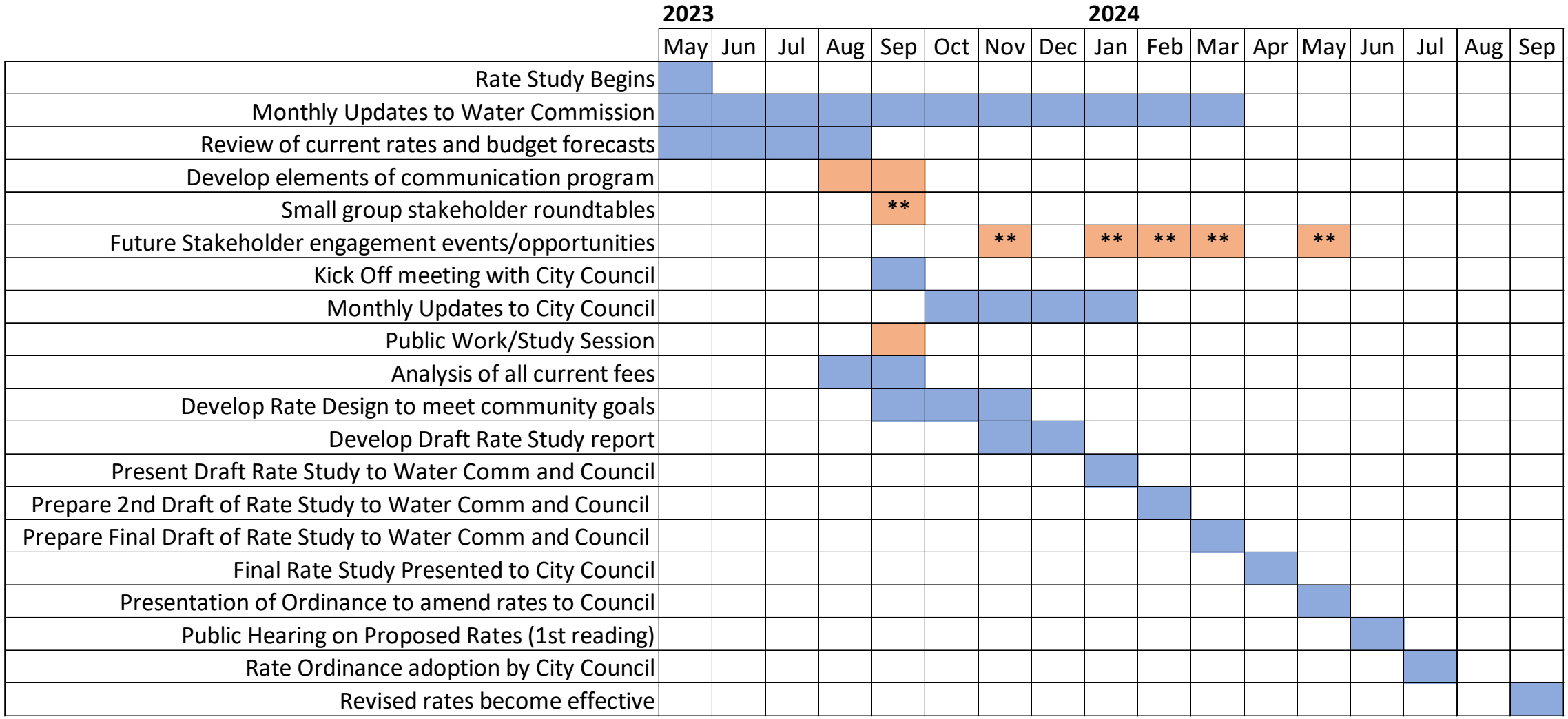
Simple, Equitable & Sustainable Rates

- Balance affordability and financial objectives
- Accomplish revenue stability
- Clear communication of costs

Policy Strategies

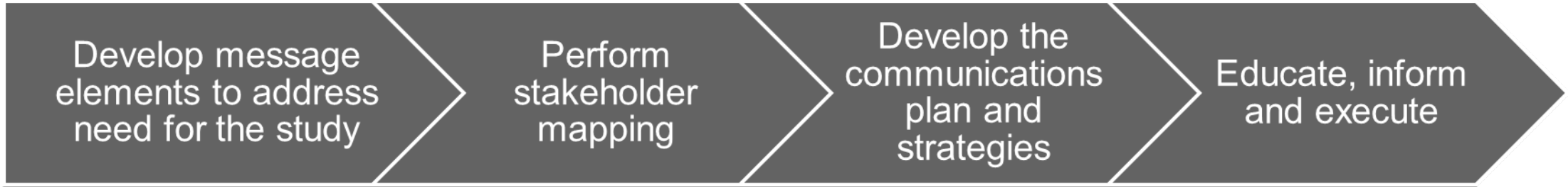
- Strategy 1: Implement water & wastewater rates and charges that are legal, fair, and equitable through a cost-of-service study
- Strategy 2: Develop a Long-Range Financing Plan that sets forth the long-term funding needs of Water Services
- Strategy 3: Establish fees that cover the cost of service, ensuring the utility meets regulatory requirements
- Strategy 4: Discuss forward-thinking or new opportunities for how rates and pricing strategies can help achieve goals of the utility or City

Looking Forward - Key Milestones



** Planned Community Outreach event

Public Outreach –Communication Plan Elements



Message Elements:

Keeping it Clean

- Meeting or exceeding regulatory requirements
- Keeping it flowing
- Providing high quality water for residents and businesses
- Reclaiming water for tomorrow
- Investing in efficiency

Communication Plan:

- Stakeholder Mapping (ongoing)
- Project Website – CleanWaterFlagstaff.com
- Website serves as primary communication portal – updated regularly
- In-person and virtual events to educate, inform and gather input – starting this month
- Regular updates to Council and Water Commission
- Develop fact sheets/collateral materials



Thank You!

Feedback/Questions?

9. B.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Sarah Darr, Housing Director
Date:	08/31/2023
Meeting Date:	09/05/2023

TITLE

Progress report regarding the 10-Year Housing Plan and bond fund program implementation

STAFF RECOMMENDED ACTION:

Informational only

EXECUTIVE SUMMARY:

Housing staff will provide a progress report on the implementation of the 10-Year Housing Plan and bond funded programs.

INFORMATION:

Please see attached presentation for more information.

Attachments: Progress Report Presentation

Progress Report
10-Year Housing Plan
&
Bond Programs

September 5, 2023

Sarah Darr - Housing Director

Justyna Costa – Assistant Housing Director

Housing Flagstaff

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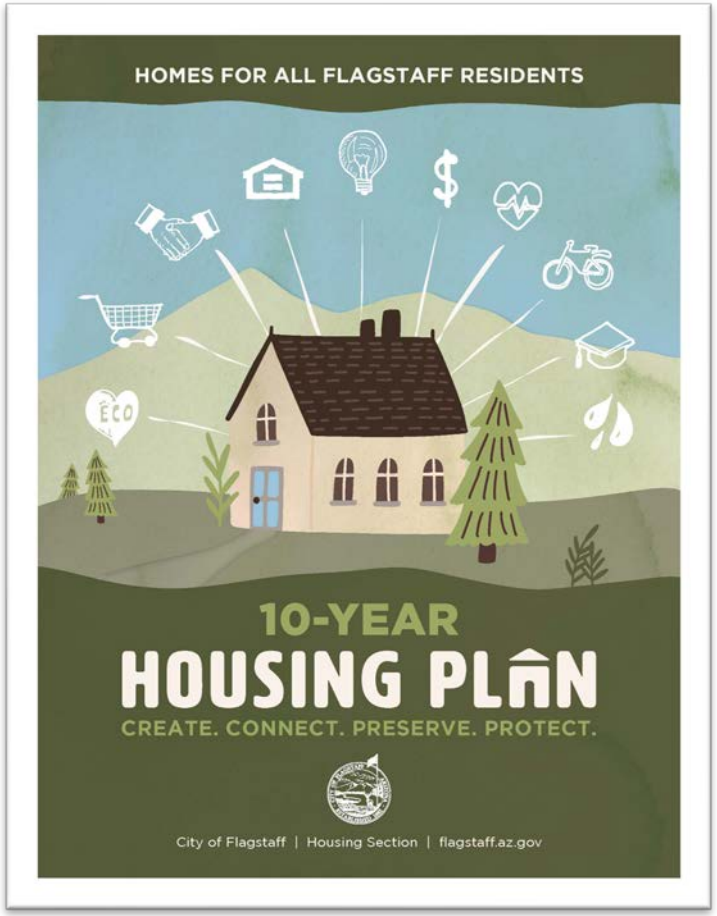
FLAGSTAFF HOUSING AUTHORITY

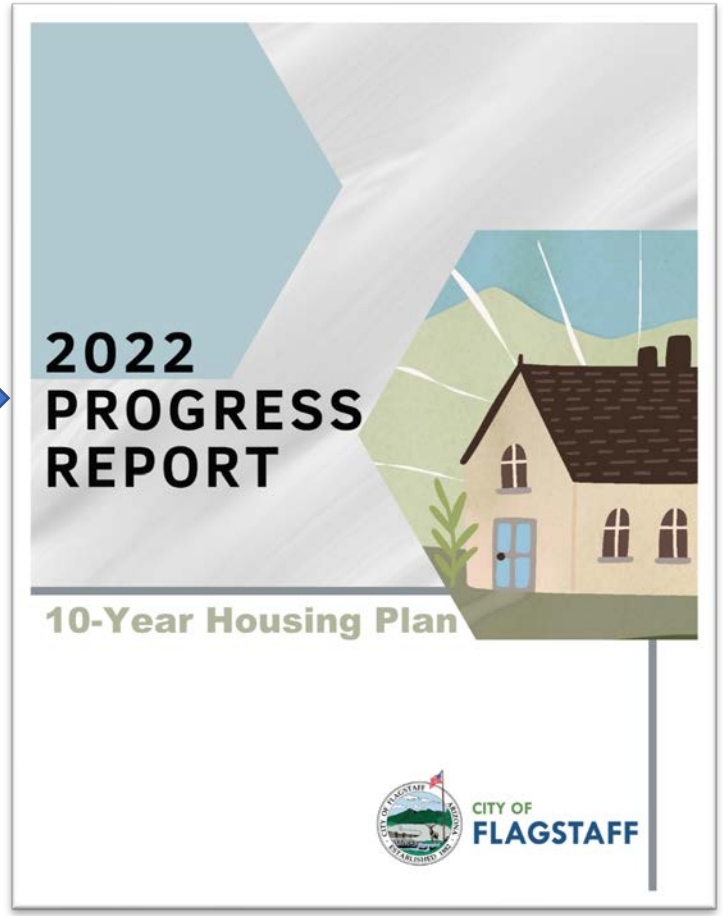
Presentation Overview

- 10-Year Plan Update
- Bond Programming Update
- Funding Administration Update
- Coming Attractions



Housing Plan Update

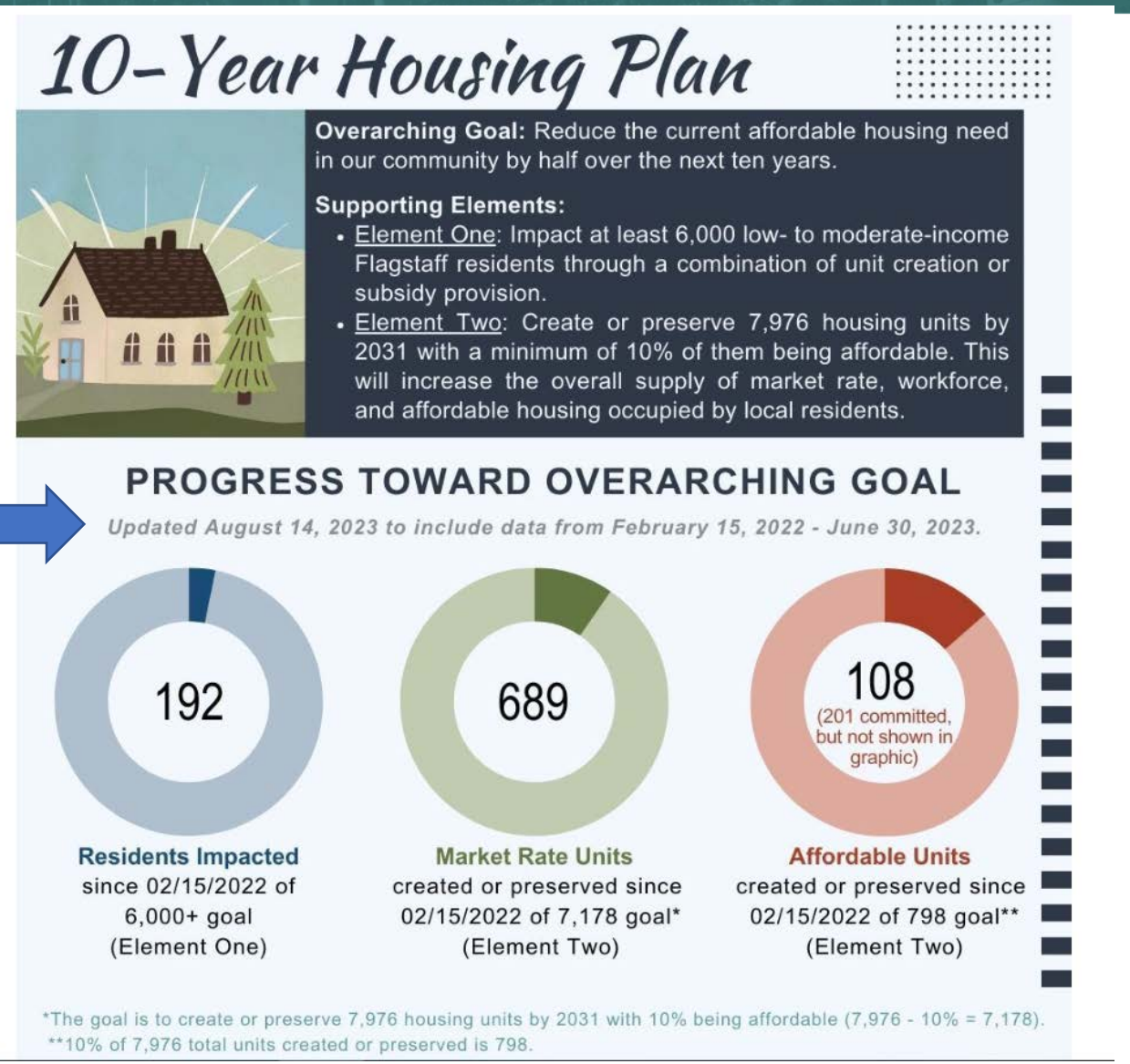






Updated Progress Chart





Jan. 2023 – June 2024 Strategies

Strategy 5.1

Hire an independent consultant to review City codes, processes, and fees to determine whether modifications, reductions, or eliminations would facilitate cost-saving housing development strategies.

Progress:

Procurement completed. Council approved contract with DOWL on July 3. Project underway

Jan. 2023 – June 2024 Strategies

Create 5.3

Explore adding **affordable housing as an allowed use in the Public Facilities (PF) Zone**

Progress:

Code amendment process underway

Create a dedicated team within Planning and Development Services **specifically for affordable housing projects**

Progress:

Accomplished by formalizing the role of the Housing Planner within the IDS Process

Jan. 2023 – June 2024 Strategies

Connect 2.3

Explore reviewing member composition of the Housing Commission and Housing Authority Board to ensure racial and economic diversity reflective of the Flagstaff community and present to Council for input

Progress:

Housing staff explored possible options with Legal and the City Clerk's Office. Identified actions include adding a question to the Boards & Commissions application regarding how the applicant contributes to the City's commitment to diversity

Jan. 2023 – June 2024 Strategies

Protect 3.2

Examine and update, if needed, the City of Flagstaff's Housing Limited English Proficiency (LEP) Plan

Progress:
Underway – Nearly complete

Ongoing Strategies

Connect 1.2

Create housing navigator or advocate positions to assist both landlords and housing-challenged populations in securing and maintaining housing.

Progress:

Third year of 1X funding

Ongoing Strategies

Protect 2.4
Implement a public outreach campaign to educate the community about the critical role affordable housing plays in a thriving community, create a groundswell of support for affordable housing, and combat community opposition to housing and affordable housing.

Progress:
Work underway on overall outreach campaign – Additional efforts to take place in October 2023 as part of Housing America Month

Ongoing Strategies

Protect 2.4 - Continued

Implement a public outreach campaign…

- **Arizona Daily Sun** interview regarding housing and 10YHP
- **KAFF Radio interview** on the affordable housing emergency and LTP
- **KNAU** local news interview on the 10YHP
- **Art in Action: On the Verge** - The Flagstaff Housing Crisis in-person presentation on the 10YHP and affordable housing solutions

- 2023 Arizona Housing Coalition Annual Conference
- 2023 Arizona Housing Forum Annual Conference (Award)
- 2022 Arizona Planning Association Annual Conference

Jan. 2023 – June 2024 Strategies

Not yet started

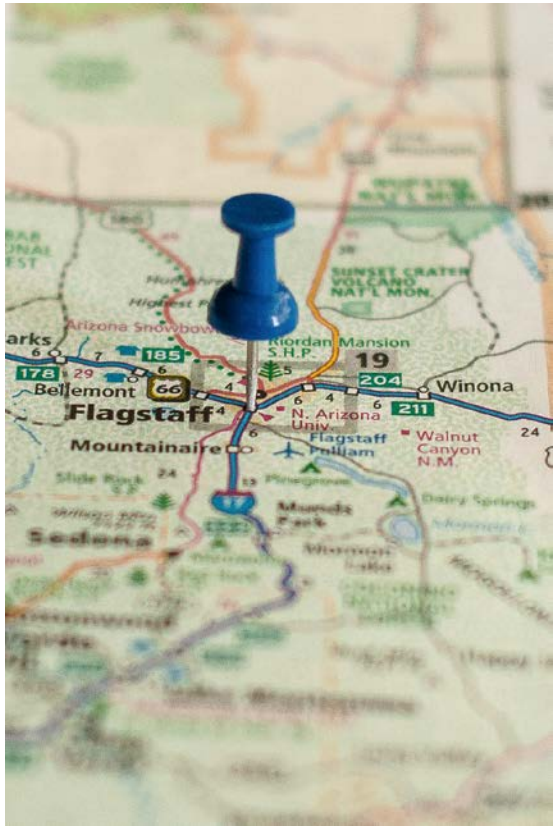
Preserve 2.2

Acquire and rehabilitate already built properties for affordable housing projects when financially feasible (Bond Funds)

Protect 2.1

Create and maintain an **Affordable Housing Impact Statement**

Housing Bond Update



First in Arizona to undertake activities other than infrastructure/construction with GO bonds

This requires research and due diligence to ensure success

Role of the Housing Commission

Ordinance 2019-25

"The Housing Commission shall:

Examine funding sources available for housing in Flagstaff, make recommendations to City Council on potential funding sources, including bond measures, and ***provide oversight of any funds approved by the electorate for housing purposes****."*

- **City Council has ultimate authority regarding bond funds**
- **Housing Commission's role is to review and make recommendations**

Housing Bond Update

Incentivizing the private sector to incorporate affordable rental housing into new developments ($5 million)

Prior to May

- Research / Legal / Procurement / Finance



Housing Bond Update

Expanding the homebuyer assistance program ($7 million)

Community Homebuyer Assistance Program (CHAP)

Changing market conditions reduced impact of existing program

Interest Rates ~ Area Median Income ~ Housing Prices

Existing General Funds remaining in contract with Housing Solutions

Housing Bond Update

Longer Term

Repurposing existing available buildings into rental units ($3 million)

- Working to identify best practices

Redeveloping City owned housing to create additional affordable rental units ($5 Million)

- Part of much larger project – anticipate 2-5 years

Other Associated Activities

Communication

Resources

"Branding"



Federal / State Funding

In the last 2.5 years...

Total funds
$7,403,143.00

Remaining
$ 4,187,921.75

Funding Source	Award	Remaining
CDBG-CV Round 1	$ 555,498.00	$ 22,583.03
CDBG-CV Round 2	$ 706,551.00	$ -
CDBG PY20	$ 534,073.00	$ -
CDBG PY21	$ 767,192.00	$ 319,008.33
CDBG PY22	$ 689,050.00	$ 621,012.39
CDBG PY23	$ 610,779.00	$ 610,779.00
ARPA Shelters	$ 450,000.00	$ -
ARPA Housing	$ 1,900,000.00	$ 1,424,539.00
ARPA Victim Services	$ 350,000.00	$ 350,000.00
ADOH HSSF	$ 840,000.00	$ 840,000.00

Staffing

One new position (Housing Planner) approved in FY24 Budget

- Second interviews conducted September 1



Significant increase in work program

- 10-Year Housing Plan Implementation
- Bond Fund Programs
- Funding and Contract administration

More Coming Attractions!

September

- 9/5 – ARPA Grant Agreements and Fund Acceptance of ADOH Funding
- 9/14 – Public meeting for CDBG Program Year 2022 Consolidated Annual Performance and Evaluation Report
- 9/19 – ARPA Grant Agreements to Council
- 9/26 – E-Session Downpayment Assistance
- 9/28 – Housing Commission Meeting



October

- 10/17 – CHAP Contract Renewal
- Possible Council Work Session for Rental Incentive Program
- Housing America Month Outreach
- 10/26 - Housing Commission Meeting

November

- Rental Incentive Program Work Session or Approval of Program

Questions?

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10. A.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Stacy Saltzburg, City Clerk
Date:	08/31/2023
Meeting Date:	09/05/2023

TITLE

Future Agenda Item Request (F.A.I.R.): A Citizens' Petition titled Walk by Default setting on pedestrian traffic lights in Flagstaff

STAFF RECOMMENDED ACTION:

Council direction.

EXECUTIVE SUMMARY:

In accordance with Art. II, Sect. 17 of the Flagstaff City Charter, any citizen may present a written petition to the City Manager, signed by a minimum of 25 citizens from the City...who shall present it to the Council at its next regular meeting. The attached petition was filed with the City Clerk's Office on August 16, 2023, requesting that the City Council adopt a "Walk by Default" setting for pedestrian traffic lights at intersections. Leading Pedestrian Interval crossing should also be considered at pedestrian heavy intersections.

Staff has provided some additional information that is attached.

INFORMATION:

Chapter 1-12 of the Flagstaff City Code formalizes the information to be required, and the attached petition conforms to those requirements. As outlined in this chapter, the petition is to be submitted to the Council under Future Agenda Item Request (F.A.I.R.) to determine if there is Council interest in placing the item on a future agenda for consideration.

Attachments: Petition #2023-07
Staff Information

#2023-07

RECEIVED
AUG 16 2023
BY: SS

PETITION TO FLAGSTAFF CITY COUNCIL

Pursuant to Flagstaff City Charter Article II Section 17
and Flagstaff City Code Title 1 Chapter 12

Pursuant to the Flagstaff City Charter and the City Code, any citizen (resident) of the City may present a written petition to the City Manager, signed by a minimum of 25 citizens from the City of Flagstaff, which shall be presented to the City Council.

Title of Issue: Petition for "Walk by Default" Setting on Pedestrian Traffic Lights in Flagstaff

Action Requested: We, the concerned residents of Flagstaff, urgently petition the city to adopt a "Walk by Default" setting for pedestrian traffic lights at intersections. Leading Pedestrian Interval crossings should also be considered at pedestrian heavy intersections. This change will enhance safety, promote active transportation, and create a more pedestrian and bicycle-friendly city, aligning with our guiding documents and improving the well-being of residents and visitors.

Printed Name of Submitter: Kevin M Hayes
(Submitter must also sign below and complete information)

Contact Information: 928-699-0478, Kevin@Kevinscode.com
(Phone number and/or e-mail address)

PETITION SIGNATURES

DATE SIGNED	PRINTED NAME	RESIDENCE ADDRESS	SIGNATURE
8/8/23	Kevin Hayes	[redacted]	
8/12/23	Kathleen Armstrong		
8/12/23	Norman Conger		
8/12/23	margaret Conger		
8.12.23	Amber Hoagland		
8/12/23	Stefan Sommer		
8/12/23	Eric Whiteman		
8/12/23	MERIAN M SHARP		
8/12/23	Jim DeBlois		
8/12/23	Dorothy Hoagland		

RECEIVED BY CITY OF FLAGSTAFF

DATE RECEIVED	BY	COUNCIL MEETING DATE
8/16/23	Stacy Saltsburg	9/5/2023

02/2016

PETITION TO FLAGSTAFF CITY COUNCIL (Continued)

TITLE OF ISSUE: Walk By Default PAGE 2 OF 3

DATE SIGNED	PRINTED NAME	RESIDENCE ADDRESS	SIGNATURE
8/13/23	Jill K. Stephenson	[redacted]	Jill K. Stephenson
8/13/23	ROBERT AULD		RB Auld
8/13/23	Carol Scholing		Carol Sch
8/13	Nancy Branham		Nancy Branham
8/13	Bailee Brown		Bailee B
8/13	April Torivio		April Torivio
8/13	Brent Mutz		
8/13	Tobias McGlin		
~~8/13~~	~~Catalina Morris~~		
8/13	Lilia Hicks		Lilia Hicks
8/13	Michelle Dittrich		
8/13	Allison Powell		Allison Powell
8/13	Timothy Powell		Timothy Powell
8/13	Ross Shaefer		
8/13/23	Bethany Davis		
8-13-23	Larry Tello		Larry Tello
8/13/23	Vera Marksraf		~~Vera Marksraf~~
8/13/23	Cheryl Mango-Paget		
08-13-23	Aaron Patterson		
8/13/23	Collin Gunn		Collin Gunn
8/13/23	Kugler Steve		
8/13/23	Joseph Rhue		
8/13/23	Kelly Mengna		Kelly Mengna

PETITION TO FLAGSTAFF CITY COUNCIL (Continued)

TITLE OF ISSUE: WALK BY Default PAGE 3 OF 3

DATE SIGNED	PRINTED NAME	RESIDENCE ADDRESS	SIGNATURE
8.13.23	Julia Heersche	[redacted]	
8/13	Josh Mead		
8/13	Abigail Downs		
8/13	KRISTEN EDWARDS		Kristen Edwards.
8/13	GRACE DIAZ		
8/13	[illegible]		
8/13	Jane Reichman		Jane Reichman
8/13	JESSE Hunter		
8/13	JULIE SULLIVAN BRACE		
8/13	William King		
8/13/23	Lisa King		Lisa King
8.13.23	Anthony Garcia		
8.13.23	Spencer Briscoe		
8/13/23	Jenn Edden		
8/13 23	Mary Martelli		
8/13/23	Sophie Jensen		
8/13/23	Matthew Vernon		
8/13/23	Anna Tenske		
8/13/23	Jack Scherer		
8/13/23	BEN PROCTOR		
8/13/23	Michael Hall		

DATE: August 29, 2023

TO: Mayor and Council

FROM: Jeff Bauman, City Traffic Engineer

SUBJECT: Walk by Default – Citizens Petition – September 5, 2023, Work Session

Traffic Signals alternatively assign exclusive and concurrent right of way for pedestrians, bikes, and vehicles. Assigning right of way is a balance of safety and efficiency for all users of all modes. Traffic signals must serve both operational efficiency and safety based on site specific conditions. The Manual on Uniform Traffic Control Devices provides the framework for how traffic signals are designed, constructed, and operated to achieve safety and efficiency for all users.

Traffic signals historically did not have pedestrian, bicycle or vehicle detection and were controlled by very primitive machines that ran a 'fixed time' type of control. No matter the user demand or time of day the traffic signal displayed the same order and duration of Green/Yellow/Red and Walk/Don't Walk indications. The era of fixed time control has long passed. A form of this is still used very sparingly in urbanized downtown grids, like the downtown core of Flagstaff.

At the five City operated downtown Flagstaff traffic signals fixed time traffic signal operations are still in place, this is due to the simplicity of operations, the small intersections, the consistent and low volume of vehicles and the relatively high pedestrian demand of these areas. In all other areas of Flagstaff on both City and Arizona Department of Transportation (ADOT) operated signalized intersections actuated or demand responsive control is utilized.

Demand responsive control is the most efficient and safe operation for all users. The efficiency benefits of responsive control are due to time being allocated to each user group only when demand is present. For example, a green light will not display unless a vehicle is present on that road approach, same is true for bikes and pedestrians – a walk is only displayed when users are present. This in contrast to displaying a fixed time for each user group whether they are present or not provides the service to demand balance of an efficient system. Providing service to empty crosswalks and empty vehicle lanes is inefficient because it delays transfer of service to crosswalks and vehicle lanes that do have demand. Increased wait times for all users leads to both wasted time and increased vehicle emissions. Fixed time operations are sometimes necessary when signal equipment is broken and often leads to pedestrians and drivers reporting 'broken' traffic signals to the city. This inefficient operation also has been shown to develop a sense of disrespect and disregard for traffic control devices – reduced safety.

Leading Pedestrian Intervals, or Delayed Vehicle release is a technique where vehicles are held for 3 – 5 seconds later than they would normally receive a green indication while the pedestrian walk signal is displayed. In high pedestrian use areas during the high pedestrian times of the day this has been shown in other communities to reduce the potential for pedestrian to bike/vehicle conflicts. The city is looking at this operation with the Butler at Beaver and Butler at San Francisco intersection rebuild design projects that are currently underway.

10. B.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Stacy Saltzburg, City Clerk
Date:	08/31/2023
Meeting Date:	09/05/2023

TITLE:

Future Agenda Item Request (F.A.I.R.): A request by Councilmember Matthews to place on a future agenda a discussion about a sound study regarding the pickleball courts at Bushmaster Park

STAFF RECOMMENDED ACTION:

Council direction.

Executive Summary:

Rule 4.01, Procedures for Preparation of Council Agendas, of the City of Flagstaff City Council Rules of Procedure outlines the process for bringing items forward to a future agenda. Councilmember Matthews has requested this item be placed on an agenda under Future Agenda Item Requests (F.A.I.R.) to determine if there are two other members of Council interested in placing it on a future agenda.

Financial Impact:

Policy Impact:

Connection to PBB Key Community Priorities/Objectives & Regional Plan:

Previous Council Decision on This:

Attachments:

10. C.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Stacy Saltzburg, City Clerk
Date:	08/31/2023
Meeting Date:	09/05/2023

TITLE:

Future Agenda Item Request (F.A.I.R.): A request by Vice Mayor Aslan to place on a future agenda a discussion about developing court amenities for city parks, specifically basketball and Bankshot.

STAFF RECOMMENDED ACTION:

Council direction.

Executive Summary:

Rule 4.01, Procedures for Preparation of Council Agendas, of the City of Flagstaff City Council Rules of Procedure outlines the process for bringing items forward to a future agenda. Vice Mayor Aslan has requested this item be placed on an agenda under Future Agenda Item Requests (F.A.I.R.) to determine if there are two other members of Council interested in placing it on a future agenda.

Financial Impact:

Policy Impact:

Connection to PBB Key Community Priorities/Objectives & Regional Plan:

Previous Council Decision on This:

Attachments:

10. D.

CITY OF FLAGSTAFF

STAFF SUMMARY REPORT

To:	The Honorable Mayor and Council
From:	Stacy Saltzburg, City Clerk
Date:	08/31/2023
Meeting Date:	09/05/2023

TITLE:

Future Agenda Item Request (F.A.I.R.): A request by Vice Mayor Aslan to place on a future agenda a discussion about local breweries and increasing the square footage for retail space in light industrial zones

STAFF RECOMMENDED ACTION:

Council direction.

Executive Summary:

Rule 4.01, Procedures for Preparation of Council Agendas, of the City of Flagstaff City Council Rules of Procedure outlines the process for bringing items forward to a future agenda. Vice Mayor Aslan has requested this item be placed on an agenda under Future Agenda Item Requests (F.A.I.R.) to determine if there are two other members of Council interested in placing it on a future agenda.

Financial Impact:

Policy Impact:

Connection to PBB Key Community Priorities/Objectives & Regional Plan:

Previous Council Decision on This:

Attachments: