



CITY OF CHANDLER, ARIZONA

DOBSON ROAD IMPROVEMENTS AT INTEL DRIVEWAYS #1 AND #4

CITY PROJECT NO. ST2009.401

CONSTRUCTION SERVICES CONTRACT (CONSTRUCTION MANAGER AT RISK)

**Andrew Goh, P.E.
CIP City Engineer**

CITY OF CHANDLER, ARIZONA

**DOBSON ROAD IMPROVEMENTS AT INTEL DRIVEWAYS #1 AND #4
CITY PROJECT NO.: ST2009.401**

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**CONSTRUCTION MANAGER AT RISK
CONSTRUCTION SERVICES CONTRACT
PROJECT NO.: ST2009.401**

THIS CONTRACT is made and entered into on the ____ day of _____, 2022, ("Effective Date") by and between City of Chandler, an Arizona municipal corporation, hereinafter called "City" and the "Construction Manager at Risk" or "CM@Risk" designated below (City and CM@Risk may individually be referred to as "Party" and collectively referred to as "Parties").

City and CM@Risk agree as follows:

ARTICLE 1 - PARTICIPANTS AND PROJECT

CITY: **CIP City Engineer:**
 Andrew Goh, P.E.
 Public Works & Utilities Department
 P.O. Box 4008, Mail Stop 407
 Chandler, AZ 85244-4008
 Phone: 480-782-3343
 Email: andrew.goh@chandleraz.gov

CITY: **Construction Project Manager:**
 Paul Ahlas
 Public Works & Utilities Department
 P.O. Box 4008, Mail Stop 407
 Chandler, AZ 85244-4008
 Phone: 480-782-3328
 Email: paul.ahlas@chandleraz.gov

CM@RISK: **DCS Contracting, Inc.**
 11535 E. Germann Rd., Chandler, AZ 85286
 Arizona ROC No.: 110612
 Federal Tax ID No.: 86-0765971
 Business Organization: corporation
 State Where Organized: Arizona
 Statutory Agent Name: Tom Sizer
 Statutory Agent Mailing Address: 11535 E. Germann Rd., Chandler, AZ
 85286
 CM@Risk's Authorized Project Representative:
 Name: Matthew Byrne
 Title: VP-Chief Estimator
 Phone: 480-732-9238 ext. 202
 Email: Matthew.byrne@scscontracting.com

PROJECT DESCRIPTION:

This project is for improvements on Dobson Road to connect with onsite improvements at Intel Driveway #1 and #4.

PROJECT LOCATION:

Driveway #1 is the northernmost Intel driveway on Dobson Road with an existing traffic signal, with improvements northward to Price Road. Driveway #4 is at Dobson Road and Chaparral Way, a signalized intersection.

ARTICLE 2 - CONTRACT DOCUMENTS

2.1 CONTRACT DOCUMENTS

The Contract between City and CM@Risk will consist of the following Contract Documents:

1. This Construction Services Contract and all of its Exhibits, including Project Plans and Technical Specifications.
2. General Conditions and General Conditions Appendices, incorporated by reference.
3. Project Specific Special Provisions as set forth in **Exhibit A**, incorporated by reference.
4. Accepted GMP/Price Proposal as set forth in **Exhibit D**, incorporated by reference.

2.2 In the event of any inconsistency, conflict, or ambiguity between or among the Contract Documents, the Contract Documents will take precedence as described in Section 14.1.4 of the General Conditions.

2.3 DEFINITIONS

The definitions in Sections 2 and 15 of the General Conditions apply to all the Contract Documents, including this Agreement.

ARTICLE 3 - PRE-CONSTRUCTION SERVICES

Although CM@Risk has performed Pre-Construction Services pursuant to a separate Contract between City and CM@Risk, the completion, quality and accuracy of those services and the deliverables provided by City thereunder directly impact CM@Risk's performance of its obligations under this Contract. Therefore, all of CM@Risk's obligations, duties, and warranties in relation to Pre-Construction Services and deliverables survive completion of the Pre-Construction Services Contract and are incorporated herein. Any breach of any of CM@Risk's duties, obligations, or warranties under the Pre-Construction Services Contract will likewise be considered a breach of this Contract.

ARTICLE 4 - CONSTRUCTION SERVICES

4.1 GENERAL

4.1.1 CM@Risk agrees at its own cost and expense, to do all work necessary and required to fully, timely and properly complete the construction of the Project in strict accordance with the Contract Documents in a good and workmanlike manner, free and clear of all claims, liens, and charges whatsoever, in the manner and under the conditions specified, and within the schedule, stated in attached **Exhibit A**.

- 4.1.2 CM@Risk must provide all of the labor and materials, and perform the Work in accordance with Section 4 of the General Conditions. Some, but not all, of the major components of the Construction Services and the corresponding subsections of Section 4 of the General Conditions are set forth below.
- 4.1.3 This is a contract for complete construction services in accordance with the Construction Manager at Risk method of delivery of construction services. CM@RISK has participated in the design process and been an active member of the Project Design Team and is fully aware of any issues and constraints involved in this Construction Project.
- 4.1.4 CM@RISK is the CITY's fiduciary responsible for undertaking all necessary action contemplated under the contract documents to construct the Project and ensure timely and quality completion of the Project at a cost within the Guaranteed Maximum Price (GMP).
- 4.1.5 At all times relevant to this Contract and performance of the Work, the CM@Risk must fully comply with all Laws, Regulations, or Legal Requirements applicable to City, the Project and the Contract, including, without limitation, those set forth on attached **Exhibit A**.
- 4.1.6 CM@Risk must perform the Work under this Contract using only those firms, team members and individuals designated by CM@Risk consistent with the Statement of Qualifications dated 10/14/2019, the GMP Proposal, or otherwise approved by City pursuant to the General Conditions. No other entities or individuals may be used without prior approval of the Project Manager
- 4.1.7 CM@Risk will comply with all terms and conditions of the General Conditions.
- 4.1.8 In the event of a conflict between this Contract and the General Conditions or an exhibit hereto or appendix thereto, the terms of this Contract will control.
- 4.1.9 Ownership of Work Product. Notwithstanding anything to the contrary in this Contract, all Work Product prepared or otherwise created in connection with the performance of this Contract, including the Work, are to be and remain the property of City. For purposes of this provision, "Work Product" will include all designs, drawings, plans, specifications, ideas, renderings and other information or matter, in whatever form created (e.g., electronic or printed) and in all media now known or hereinafter created. All Work Product will be considered Work Made for Hire as defined in the United States Copyright Act 17 U.S.C. § 101 (Copyright Act). If for any reason, any such Work is found not to be a Work Made for Hire, CM@Risk hereby transfers and assigns ownership of the copyright in such Work to City. The rights in this Section are exclusive to City in perpetuity.

4.2 **CM@RISK'S PRE-CONTRACT AND PRE-WORK DELIVERABLES**

- 4.2.1 The CM@Risk must provide the Deliverables in accordance with Section 4.2 of the General Conditions.
- 4.3 **PRE-CONSTRUCTION CONFERENCE**
Refer to Section 4.3 of the General Conditions.
- 4.4 **PERFORMANCE OF THE WORK (INCLUDING FIELD MEASUREMENTS, SUBCONTRACTORS, AND SUPPLIERS)**
Refer to Section 4.4 of the General Conditions.
- 4.5 **CONTROL OF THE PROJECT SITE**
Refer to Section 4.5 of the General Conditions.
- 4.6 **PROJECT SAFETY**
Refer to Section 4.6 of the General Conditions.
- 4.7 **MATERIALS QUALITY, SUBSTITUTIONS AND SHOP DRAWINGS**
Refer to Section 4.7 of the General Conditions.
- 4.8 **PROJECT RECORD DOCUMENTS**
Refer to Section 4.8 of the General Conditions.
- 4.9 **WARRANTY AND CORRECTION OF DEFECTIVE WORK**
Refer to Section 4.9 of the General Conditions.

ARTICLE 5 - CITY RESPONSIBILITIES

- 5.1 City will have the responsibilities, and provide the information specified in, and subject to the conditions set forth in, Section 5 of the General Conditions.

ARTICLE 6 - CONTRACT TIME

6.1 GENERAL

- 6.1.1 The Contract Duration is **150** Calendar Days.
- 6.1.2 The Contract Time will start with the Notice to Proceed (NTP) and end with Final Acceptance, as set forth in Article 6.4 below. The Notice to Proceed cannot be issued until approval and acceptance by City of the GMP or Fixed Price.

6.1.3 The Contract Time will be as set forth in the Project Schedule. CM@Risk agrees that it will commence performance of the Work and complete the Project through Final Acceptance within the Contract Time.

6.1.4 Time is of the essence of this Contract for the Project, and for each phase and designated Milestone thereof.

6.2 PROJECT SCHEDULE

6.2.1 The Project Schedule approved as part of the GMP Proposal and incorporated herein as part of the attached **Exhibit D** must be updated and maintained throughout CM@Risk's performance under this Contract in accordance with Section 6.2 of the General Conditions.

6.2.2 Failure on the part of CM@Risk to adhere to the approved Project Schedule will be deemed a material breach and sufficient grounds for termination of this Contract by City.

6.2.3 Work must be completed to meet the following milestones after the Notice to Proceed:

<u>Milestone</u>	<u>Time</u>	<u>Liquidated damages for delay</u>
1. [REDACTED]	within [REDACTED] days	\$ [REDACTED] per calendar day

6.3 SUBSTANTIAL COMPLETION

Substantial Completion must be achieved no later than the Substantial Completion Date set forth in the Project Schedule. Substantial Completion will be determined in accordance with Section 6.3 of the General Conditions.

6.4 FINAL ACCEPTANCE

6.4.1 Final Acceptance will be obtained within the time period set forth in the Project Schedule.

6.4.2 Final Acceptance will be issued pursuant to Section 6.5 of the General Conditions.

6.5 LIQUIDATED DAMAGES

6.5.1 Substantial Completion Liquidated Damages. CM@Risk acknowledges and agrees that if CM@Risk fails to obtain Substantial Completion of the Work within the Contract Time, City will sustain extensive damages and serious loss as a result of such failure. The exact amount of such damages will be extremely difficult to ascertain. Therefore, City and CM@Risk agree that if CM@Risk fails to achieve Substantial Completion of the Work within the Contract Time, City will be entitled to retain or recover from CM@Risk, as

liquidated damages and not as a penalty, the sum per calendar day as indicated in MAG § 108.9.

6.5.2 Final Acceptance Liquidated Damages. For the same reasons set forth in Article 6.5.1 above, City and CM@Risk further agree that if CM@Risk fails to achieve Final Acceptance of the Work within the Contract Time, City will be entitled to retain or recover from CM@Risk, as liquidated damages and not as a penalty, the sum per calendar day as indicated in MAG § 108.9 commencing from the actual date of Substantial Completion or Final Acceptance as required under the Contract.

6.5.3 MAG Liquidated Damages. If no liquidated damages are specified in Articles 6.5.1 or 6.5.2 above, then the liquidated damages provisions in MAG § 108.9 will apply.

6.5.4 City may deduct liquidated damages described in this Article 6.5 from any unpaid amounts then or thereafter due CM@Risk under this Agreement. Any liquidated damages not so deducted from any unpaid amounts due CM@Risk will be payable to City at the demand of City, together with interest from the date of the demand at the highest lawful rate of interest payable by CM@Risk.

6.6 **MUTUAL WAIVER OF CONSEQUENTIAL DAMAGES ONLY**

6.6.1 CM@Risk and City waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes:

6.6.1.1 Damages incurred by City for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

6.6.1.2 Damages incurred by CM@Risk for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

6.6.2 This mutual waiver is applicable, without limitation, to all consequential damages due to either Party's termination of this Contract. Nothing contained in this Article 6.6 will be deemed to preclude an award of liquidated damages, when applicable, in accordance with Article 6.5 above.

6.6.3 Nothing herein will be deemed to constitute a waiver of any other remedy available to City in the event of CM@Risk's default under this Contract prior to full performance of the Work including, as applicable, specific performance or completion of the Work on behalf of CM@Risk, the cost and expense of which will be offset against any monies then or thereafter due to CM@Risk (if any) and otherwise immediately reimbursed to City by CM@Risk.

ARTICLE 7 - CONTRACT PRICE

7.1 CONTRACT PRICE

- 7.1.1 In exchange for CM@Risk's full, timely, and acceptable performances and construction of the Work under this Contract, and subject to all of the terms of this Contract, City will pay CM@Risk the "Contract Price," which:

The sum of the CM@Risk's Fee and reimbursable Cost of the Work, as defined in Section 15 of the General Conditions, which the CM@Risk guarantees will not exceed the GMP set forth in **Exhibit D** in the amount of **\$239,525.46**. Costs which would cause the GMP to be exceeded must be paid by CM@Risk without reimbursement from City.

- 7.1.2 The Contract Price is all-inclusive and specifically includes all fees, cost, insurance and bond premiums, allowances, construction contingency, owner's contingency, and taxes of any type necessary to fully, properly and timely perform and construct Work.

7.2 COSTS

For any portion of the Work which, either through this Contract, Change Order or otherwise, is performed and paid for on a cost, or time and materials basis, the costs which may be reimbursed to CM@Risk and chargeable against the Contract Price will be determined as set forth in MAG § 109.5.

SIGNATURE PAGE TO FOLLOW

IN WITNESS WHEREOF, the Parties hereto have executed this Contract through their duly authorized representatives and bind their respective entities as of the effective date.

"CITY"

CITY OF CHANDLER

MAYOR Date

Recommended By:

Andrew Goh, P.E. Date
CIP City Engineer

APPROVED AS TO FORM:

City Attorney

ATTEST:

City Clerk Seal

"CM@RISK"

DCS Contracting, Inc.

Signature Date
02-08-2022

Matthew Byrne

Name

VP/Chief of Estimating

Title

Matthew.Byrne@DCSContracting.com

Signer Email Address

ATTEST: If Corporation

Tom Sizer Secretary

STATE OF ARIZONA

County of Maricopa

SUBSCRIBED AND SWORN TO before me, the undersigned notary public, by Matthew Byrne who was identified as the VP/Chief of Estm. of DCS Contracting Inc on this 8th day of February, 2022

My commission expires:

Sept. 27, 2024

Notary Public

City of Chandler Construction Manager at Risk Construction Services
Public Works & Utilities Department, Capital Projects Division
Project Name: DOBSON ROAD IMPROVEMENTS AT INTEL DRIVEWAYS #1 AND #4
Project No.: ST2009.401
Rev. 7/16/2021

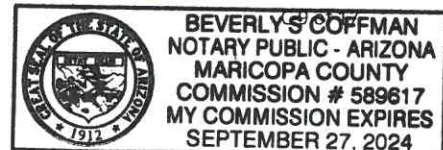


EXHIBIT A

PROJECT SPECIFIC SPECIAL PROVISIONS

4.2.7 Aerial Construction Photography

General Conditions Section 4 Subsections 4.2.7.1 & 4.2.7.2 are not applicable to this project.

4.2.8 Government Approvals and Permits

General Conditions Section 4 Subsection 4.2.8.1, City permit fees will be paid internally by the City and all other fees will be the responsibility of the Contractor.

Subletting of Contract

Contractor must perform, with his own organization, work amounting to not less than 50 percent of the total contract cost.

Failure to submit Subcontractor's List Form, demonstrating self-performance not less than 50 percent of the total contract cost, will cause the bid to be deemed non-responsive.

Bidders should contact the Arizona Registrar of Contractors for information on license requirements.

EXHIBIT B

GENERAL CONDITIONS



GENERAL CONDITIONS

Approved date: October 19, 2021

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Appendix 5 – Forms of Payment Bond

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Appendix 8 – Construction Sign Detail

Appendix 9 – Cost of the Work (Applicable solely to Construction Manager at Risk and Job Order Contracting)

Appendix 10 Landscape Establishment Period

SECTION 1 - SCOPE OF THESE GENERAL CONDITIONS

These General Conditions encompass provisions that apply, and are incorporated into all construction contracts entered into by the City of Chandler, unless otherwise specifically excluded in the executed Contract.

SECTION 2 - GENERAL DEFINITIONS

Allowance: A specific amount for a specific item of Work, if any, that City agrees has not been sufficiently designed, detailed, or selected (including design changes from 90% to 100% as authorized by and at the discretion of the City) at the time the Contract Price is agreed to for Contractor to provide a definitive price.

Alternate Systems Evaluations or Alternative Analysis: Alternatives for design, means and methods or other scope considerations that are evaluated using value analysis principles and have the potential to reduce construction costs while still delivering a quality and functional Project that meets City requirements.

Change Order: A written instrument issued after execution of the Contract Documents signed by City and Contractor, stating their agreement upon all of the following: the addition, deletion or revision in the scope of services or deliverables; the amount of the adjustment to the Contract Price, the extent of the adjustment to the Contract Time, or modifications of other contract terms. The Contract Price and the Contract Time may be changed only by Change Order.

Consultant: Person or firm that provides professional services.

City (Owner or OWNER): City of Chandler, a municipal corporation, with whom Contractor has entered into the Contract and for whom the Work or Services are to be provided pursuant to the Contract(s).

Contingent Bid Items: This is a minor bid item which is likely, but not certain, to occur during the course of work. If the Engineer determines that this work is required, the Contractor will accomplish the work and payment will be made based on the contingent unit bid price included in the proposal. Since the quantity listed in the proposal is primarily for bid comparison, the amount of work required by the Engineer may vary materially from this.

Contract: The written agreement executed between City and Contractor, including all of the Contract Documents.

Contract Documents: The documents which together form the Contract between City and Contractor, as identified in Article 2 of the Contract, or are otherwise incorporated into the Contract, including the Contract, the exhibits thereto, these General Conditions, any Notice to Proceed, and any Job Order (if applicable), the Plans and Specifications, Project Schedule, written and properly executed Change Orders, MAG Specifications and City's amendments thereto, and any other documents so designated in the Contract.

Contract Price: The agreed-upon price to be paid to Contractor for full, timely, and acceptable completion of the Work or Services under the terms of the Contract.

Contract Time(s): The number of calendar days or the dates related to the applicable phase, Substantial Completion, or Final Acceptance as stated in Contract Documents. Contract Time starts with the Notice

to Proceed (NTP) and ends with Final Acceptance. The Contract Time is set forth in the Contract and is based upon the Project Schedule agreed to by City in writing.

Contractor: The person or business association with whom City has entered into an agreement for construction related Work or Services in relation to the Project at issue.

Contractor Payment Request: The form that is accepted by City and used by Contractor in requesting progress payments or final payment and which must include such supporting documentation as is required by the Contract Documents or City.

Construction Budget: The City's budget for construction of the Project.

Construction Documents: The Plans, Specifications, and Drawings prepared and issued by the Design Professional and approved by City for construction, meaning the documents are sealed by the Design Professional (as required), acceptable for permitting and incorporated into the Contract by this reference. All amendments and modifications to the Construction Documents must be approved in writing by City prior to incorporation into the Contract.

Cost of the Work: The term Cost of the Work will mean costs necessarily incurred by Contractor in the proper performance of the Work. Such costs will be at rates not higher than the standard paid at the place of the Project except with prior consent of City.

Critical Path Method (CPM): A scheduling technique which identifies the logical sequence of the activities occurring in a Construction Project, the anticipated time required to complete each activity in the Project, and the activities that must be completed on schedule to finish the Project within the anticipated time. Typically, activities are arranged in a network that shows both activities and their dependencies. CPM is also used as a management technique which enables contracting parties to predict when activities may occur so that resources can be effectively used and limitations can be identified.

Critical Path: Critical Path is the sequence of project network activities which add up to the longest overall duration. Once established in the Project Schedule, the Critical Path for the Project must not be changed without prior written approval of City.

Day: Calendar day(s) unless otherwise specifically stated in the Contract Documents.

Design Professional: The qualified, licensed person, firm or corporation who furnishes design and construction administration services required under the Contract Documents. These services may include, but are not limited to: development of Construction Drawings and Documents, review of Contractor Submittal(s), review of and response to Requests for Information, approval and certification of progress payment applications, construction administration, and construction contract close out.

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 at the general area of the Site. Caliche, rock, hard-digging or sandy/silty soil encountered on a project is not considered a "Differing Site Condition."

Drawings (Plans): Documents, which visually represent the scope, extent and character of the Work to be furnished and performed by Contractor during the construction phase and which have been prepared

or approved by the Design Professional and City. These documents include Drawings that have reached a sufficient state of completion and released by Design Professional solely for the purposes of review and use in performing constructability or bid-ability reviews by Contractor and in preparing cost estimates (e.g. Master Planning and Programming, Schematic Design, Design Development, and Construction Drawings), but *"not for construction."* Shop Drawings are not Drawings as so defined.

Final Acceptance: The City's acceptance of the facility or project from the Contractor after all Work is completed, tested, and inspected in accordance with the contract requirements. Final Acceptance results in a Letter of Acceptance (LOA).

Fixed Price: A fixed price or amount for a Contract Price, Scope of Work, materials, or other item under a Contract, Change Order, or other agreement, which City agrees, in writing, to pay instead of the actual cost.

Float: The number of Days by which an activity can be delayed without lengthening the Critical Path and extending the Contract Time. Unless otherwise expressly agreed in writing, all Float belongs to City.

Laws, Regulations, or Legal Requirements: Any and all applicable laws, rules, regulations, ordinances, codes and orders applicable to the Project of any and all governmental bodies, agencies, authorities and courts having jurisdiction and any applicable provisions of the Development Agreement for the Project (if any), including, without limitation, those provisions relating to the design and construction of the Project.

Line Item: The individual elements of Work identified on a bid or other schedule and associated with a price or a unit price and quantity particular to that individual element of the Work. Also refers to individual items of work within the Schedule of Values.

Liquidated Damages: Designated damages for the City to collect as compensation upon a specific breach (example: late delivery).

Long-Lead Item: Long-lead item refers to the equipment, product, or system that is identified at the earliest stage of a project to have a delivery time long enough to affect directly the Critical Path/the overall lead time of the project.

MAG: The Maricopa Association of Governments.

MAG Specifications: The most current version of the Uniform Standard Specifications for Public Works Construction published by MAG.

MAG Standard Details: The most current version of the Uniform Standard Details as published by MAG.

Minor change: A change in the Work having no impact on cost or time or the City-approved design intent, as determined by City.

Notice to Proceed (NTP): A written notice given by City to Contractor fixing the date on which Contractor will start to perform Contractor's obligations under the Contract.

Project: The Project specified in the Contract (including a Job Order).

Project Manager: The Project Manager designated in Article 1 of the Contract, or any successor thereto designated by City. The Project Manager has the authority to act on behalf of City, as delineated and

limited by the Contract Documents and applicable law. And City will communicate with Contractor through the Project Manager. However, the Project Manager has no authority to bind City or City Council in contravention of any City code, State or Federal statute or regulation, or these General Conditions.

Project Schedule: The schedule for the completion of the Project agreed to and required by City.

Project Specific Conditions: Additional conditions which apply to the specific Project and Scope of Work which are set forth in Exhibit D of the Contract.

Project Team: The Project Team consisting of the Design Professional, Contractor, Project Manager, and such others as City may designate.

Punch List: The list initially prepared by Contractor pursuant to the Contract Documents, reviewed and supplemented by the Project Manager (and at the sole option of the Project Manager, the Design Professional) and approved by City containing items of incomplete work not impacting Substantial Completion, if allowed for under the Contract, and to be completed or corrected by Contractor after Substantial Completion and before Final Acceptance in accordance with the Contract Documents.

Quality Assurance (QA) Testing: Testing performed to verify the accuracy and applicability of the QC testing results and to ascertain that the materials installed meet the specified levels of quality in accordance with the Contract Documents.

Quality Control (QC) Testing: Testing performed to assure that the materials installed comply with the requirements in the Contract Documents.

Requests for Information (RFIs): Formal written request from Contractor to City or Design Professional for the Project seeking clarification or additional information needed for Contractor to properly complete the Work or Services under the Contract. City may require RFI's to be submitted on a specific form or in a specified format.

Schedule of Values (SOV): The specified document prepared by Contractor, and approved and accepted by City, which divides the Contract Price into pay items, such that the sum of all pay items equals the Contract Price for the construction phase Work, or for any portion of the Work having a separate specified Contract Price.

Scope of Work: The scope of work agreed to or required by City and incorporated into the Contract as Exhibit A.

Shop Drawings: All drawings, diagrams, schedules and other data specifically prepared for the Work by Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

Site: The 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. Where specified, the Project must be constructed using the current Uniform Standard Specifications and Details for Public Works Construction as furnished by the Maricopa Association of Governments, as amended by City.

Subconsultant: A person, firm or corporation having a Contract with Consultant/Contractor to furnish services required as its independent professional associate or consultant with respect to the Project.

Subcontractor: An individual or firm having a direct Contract with Contractor or any other individual or firm having a Contract with the aforesaid contractors at any tier, who undertakes to perform a part of pre-construction services or construction phase Work at the Site for which Contractor is responsible. Subcontractors must be selected through the Subcontractor selection process described in the Contract Documents, if any.

Substantial Completion: The date when the City determines that the Work (or separable units of Phases as provided in the Contract Documents) is essentially and satisfactorily complete in accordance with the Contract Documents such that the Project is ready for use by the City for its intended purpose, opening to the general public, full occupancy or use by City (including, without limitation, all separate units, or rooms, facilities, access, income-generating areas, and all areas serving the general public, as applicable, must be ready for full operation without material inconvenience or discomfort), including, to the extent applicable to the Work, the following: all materials, equipment, systems, controls, features, facilities, accessories, and similar elements are installed in the proper manner and in operating condition, inspected, and approved; surfaces have been painted; masonry and concrete cleaned with any sealer or other finish applied; utilities and systems connected and functioning; site work complete; permanent heating, ventilation, air conditioning, vertical transportation, and other systems properly operating with proper controls; lighting and electrical systems installed, operable and controlled; paving completed, signage installed, and other work as applicable, has been performed to a similar state of essential and satisfactory completion.

Supplier: A manufacturer, fabricator, distributor, or vendor having a direct Contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the construction phase Work by Contractor or any Subcontractor.

Total Float: Number of Days by which pre-construction services or construction phase Work or any part of the same may be delayed without necessarily extending a pertinent Contract Time or schedule milestone in the Project Schedule.

Work: The entire completion of 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.

Writing: Typing, printing, photography and other modes of representing or reproducing words in a visible form, including email, and expressions.

SECTION 3 - STANDARD SPECIFICATIONS AND DETAILS

- 3.1 City operates under the latest revision of the MAG Specifications and MAG Standard Details as amended by City. City's current amendment to the MAG Specifications, part of the City's Unified Development Manual, may be found in the downloaded from City's website at <http://www.chandleraz.gov>.
- 3.2 Copies of the MAG Specifications and MAG Standard Details are available at the Maricopa Association of Governments office, 302 N. 1st Avenue, Suite 300, Phoenix,

Arizona. They may also be downloaded from their website at: <http://www.azmag.gov/Newsroom/Publications>

- 3.3 The MAG Specifications and Standard Details and City's amendments thereto are incorporated into the Contract by this reference.

SECTION 4 - CONTRACTOR'S RESPONSIBILITIES FOR CONSTRUCTION SERVICES

4.1 GENERAL

- 4.1.1 Contractor must construct the Work in accordance with the Contract Documents and as outlined in Exhibit A of the Contract to the satisfaction of City, exercising the degree of professional care, skill, diligence, quality and judgment that a professional construction manager engaged, experienced and specializing in the construction management of construction and facilities of similar scope, function, size, quality, complexity and detail in urban areas throughout the United States comparable to Chandler, Arizona would exercise at such time, under similar conditions. Contractor must, at all times, perform the Work in conformance with sound and generally accepted engineering principles and construction management and construction contracting practices.
- 4.1.2 If Contractor observes errors, discrepancies or omissions in the Contract Documents, Contractor must promptly notify the Design Professional and City and request clarification. If Contractor, with the exercise of reasonable care, should have recognized such error, inconsistency, omission or difference and fails to report it to City, and if Contractor proceeds with the Work affected by such observed errors, discrepancies or omissions, without receiving such clarifications, Contractor does so at its own risk and will be liable to City for damages resulting from proceeding without clarification.
- 4.1.3 Project Team and agents of each of them, testing agencies and governmental agencies with jurisdictional interests will be provided access to the Work at reasonable times for their observation, inspection and testing. Contractor must provide proper and safe conditions for such access.
- 4.1.4 Contractor must comply with, and require all Subcontractors to comply with, the Arizona Contractors' license laws, including all requirements with respect to being duly registered and licensed.
- 4.1.5 Contractor must insure that all employees performing any Work for which Contractor is responsible have a legal right to live and work in the United States. In addition, all compensation of any such employee must meet all applicable requirements of the Fair Labor Standards Act (FLSA) and Federal Minimum Wage laws.
- 4.1.6 Contractor must comply with the Immigration Reform and Control Act of 1986 (IRCA). Contractor understands and acknowledges the applicability of the IRCA activities. Contractor agrees to comply with the IRCA while performing their work and to permit City inspection of Contractor personnel records to verify such compliance.
- 4.1.7 Pursuant to MAG Specifications §§ 107.4, Contractor must report immediately any discovery of archeological ruins or artifacts. Excavation must stop immediately so that City can decide on the pertinent steps to follow such discovery.
- 4.1.8 All property owners that may be affected by the proposed construction activities must be

notified of the scope, duration of the construction activities and possible interference with their day-to-day activities by Contractor prior to start of construction. In addition, individual residential or commercial interferences, such as driveway restrictions, water outages, and all other Work adjacent to residence/business, require 48-hour notification in advance of specific adjoining Work. Notification may be through door hangers or other procedures approved by the City.

- 4.1.9 Access must be maintained to adjacent properties at all times during construction. Where property has more than one point of access, no more than one access will be restricted or closed at any one time. Access to adjacent private driveways will be maintained during all non-working hours.
- 4.1.10 Contractor must furnish and erect construction signs in accordance with Project Specifications. The signs must be professionally prepared and subject to approval by City, must be maintained by Contractor for the duration of the project, and must be removed by Contractor during the final project clean up.
- 4.1.11 The number of signs required, the size, shape, installation requirements and information to be included for construction signs is established on the detail sheet, provided, however, signs must be a minimum of 4 foot by 8 foot and must be installed so that the bottom of the sign is at least 4 foot above grade. No direct payment will be made for furnishing and erecting construction signs. The cost thereof must be included in other items for which direct payment is made. Sign locations will be determined by City.
- 4.1.12 All required construction signs must be installed by Contractor within 7 Days of Notice to Proceed.
- 4.1.13 The Work to be accomplished under these Contract Documents has been designed for City by a Design Professional retained by City for this purpose. It is understood that normal construction Administration for the purpose of interpretation of the Contract Documents is provided by City. Should any services of the Design Professional be required to assist in the corrections of errors or omissions by Contractor, or services of the Design Professional be required because of changes in structure or equipment where Contractor has requested approval of substitute methods or material, or any other items detailed herein below, those services will be provided by the Design Professional at the standard hourly rates previously negotiated with City and must be paid for by the Contractor.
- 4.1.14 Contractor must reimburse City for costs incurred by the Design Professional for additional services to the Project through no fault of City or the Design Professional including, but not limited to, the following conditions:
 - a. Additional Site visits, investigations, inspections, design work or reports by the Design Professional which are required due to damages to existing facilities or completed Work caused by the Contractor in his performance, Contractor's negligence, or Contractor's Work which is rejected as defective or as failing to conform to the Contract Documents;
 - b. Design Professional construction phase services rendered on the project during the time the project remains incomplete after the Contract date of final completion will be charged to Contractor at a rate previously negotiated City; and
 - c. All retesting required due to the failure of Contractor's Work to meet the

requirements of the Contract Documents will be at Contractor's expense. All standby and travel time by the City's testing lab, the Design Professional or City due to Contractor's inability to be prepared for testing at the agreed upon time will be at the Contractor's expense.

4.1.15 City may withhold from any payment otherwise due to Contractor any amounts necessary to pay the Design Professional for such additional services as provided herein above.

4.1.16 Contractor will not be required to bear additional costs incurred by City due to errors by the Design Professional.

4.2 **CONTRACTOR'S PRE-CONTRACT AND PRE-WORK DELIVERABLES**

4.2.1 Prior to award of the Contract, Contractor must execute Contract and deliver to City. Failure to do so may delay Contract award. Contractor must also provide to City its Contractor's License classification and number and its Federal Tax I.D. number.

4.2.2 Before beginning any Work under the Contract, Contract must be fully executed by City.

4.2.3 After Contract award, City will issue to Contractor an award letter. At that time Contractor must deliver to City such bonds and certificates of insurance with endorsements in such amounts (and other evidence of insurance requested by City) required under Section 11 of these General Conditions, and as the Contract requires.

4.2.4 As evidence of Workmen's Compensation Insurance, Contractor must, upon request, provide a letter of certification from the Industrial Commission of Arizona that Contractor is insured by the State Compensation Fund or is an authorized self-insurer or a certificate of insurance issued by an insurance company authorized by the Insurance Department of Arizona to write Workmen's Compensation and Occupational Disease Insurance in the State of Arizona.

4.2.5 Within 10 Days of the date of the executed Contract letter issued by City, Contractor must submit to City for review and acceptance the following items:

4.2.5.1 Comprehensive construction Project Schedule including a Critical Path Method (CPM) diagram schedule as described in Section 6.2. Project Schedule must be in Microsoft Project standard file format. Within 10 Days of receipt of City's comments, Contractor must make all required corrections, adjustments, and additions to complete the Project Schedule and resubmit to City for review.

4.2.5.2 Preliminary schedule of submittals and Shop Drawings. Within 10 Days of receipt of City's comments, Contractor must submit the corrected and completed schedule of Shop Drawings submissions for approval. Contractor's schedule of Shop Drawings and sample submittals will be acceptable to City if it provides a workable arrangement for reviewing and processing the required submittals.

4.2.5.3 Schedule of Values in a form specified by City reflecting the subcontracts and other categories that will be used to submit Pay Applications for the Work. The total amount of the Schedule of Values must not be greater than the Contract Price. The Schedule of Values will be reviewed at the Pre-Construction Conference and revised by Contractor within 10 Days after Pre-Construction Conference in response to comments and questions from City. Once accepted by City in writing, the Schedule of Values for the Project must not be changed without the prior written approval of City.

4.2.6 Video Recording Requirement. Prior to performing any Work, Contractor must document the existing conditions of the Site, all other areas where Work will occur and all adjacent areas that may be impacted by the Work via digital video format. Contractor must video record and index all areas, features, buildings and other public and private improvements that could potentially be impacted by the Work. Video recording must be coordinated with City. When video recording private property, Contractor must also coordinate the video recording with the private property owner, if possible. Contractor must provide City with a copy of said digital video format prior to performing any Work.

4.2.7 Aerial Drone Construction Photography.

4.2.7.1 If Contract duration is greater than 90 calendar days, Contractor must engage a professional unmanned aerial vehicle (UAV) aerial pilot to photograph the Site prior to construction mobilization, at three-month intervals during construction, and following final inspection. Drone camera specifications must meet the following minimum requirements:

- a. 1-inch CMOS
- b. Pixels: 20M
- c. FOV 84 8.8 mm/24 mm (35 mm format equivalent) f/2.8-f/11 auto focus at 1 m-
- d. For photographing: 16.9 Aspect Ratio: 5472x3078
- e. For video shooting: MP4/MOV/H.264
- f. FHD: 1920x1080 120p @100Mbps
- g. File format: High Definition (HD) JPEG for digital photos and HD MPEG 4 for digital video.
- h. All metadata to be recorded including GPS data and preserved with photographs provided.

Interval	JPEG
3 month intervals	At an altitude (AGL) between 70-90 ft.
3 month intervals	Images to be taken every 50-100 ft. to be determined based on project scope.

4.2.7.2 Drone photos to be taken in sequential geographical order and then organized and provided in the same manner unless otherwise specified.

4.2.7.3 Photos to be provided digitally via an online file share service and/or by a USB drive to contractor.

4.2.7.4 Drone pilots to obey ALL local (city, county, state) UAV regulations as well as FAA UAV guidelines including, but not limited to, conducting all flights during daylight hours, not exceeding maximum altitude ceilings (depending on area), not flying over people, yielding to other aircraft.

4.2.7.5 Drone pilots must fly drone within visual line of sight (VSOL) and have visual spotter when needed. Drone pilots only to operate in favorable weather conditions when minimum visibility is 3 miles or greater.

4.2.7.6 Drone pilots to conduct a preflight checklist and visually inspect the entire flight path prior to flying to ensure a safe flight.

4.2.7.7 Airspace Authorizations. Operations in Class G airspace are allowed without air traffic control (ATC) permission. Operations in Class B, C, D and E airspace need ATC authorization. Drone

pilots to schedule each flight in advance and based on airspace if required will notify nearby airports/control towers, etc.

4.2.8 Government Approvals and Permits.

4.2.8.1 Contractor must obtain all necessary permits for the Work and pay all applicable fees, unless otherwise noted on the Plans and in the Specifications. City permit fees will be paid internally by City. For bidding purposes, an allowance for all permit fees is included in the bid schedule under the item "allowance for permit fees." The Contractor will be paid for the actual cost of the permit fees upon submitting a receipt showing the fee Contractor has paid. Excluded from the above allowance are items such as all costs incurred by the Contractor in securing the permit except for the actual permit fee established by the agency, cost for all shut downs or outages, cost for pole bracing, cost of permits for construction water, cost of construction water, cost for any additional insurance requirements, cost for any licenses, and other similar type costs. Contractor is specifically notified of the need to obtain the necessary environmental permits or file the necessary environmental and regulatory permit notices.

4.2.8.2 Copies of all permits and the associated notices must be provided to City prior to starting the permitted activity.

4.3 **PRE-CONSTRUCTION CONFERENCE**

4.3.1 Prior to the commencement of any Work, City will schedule a Pre-Construction Conference.

4.3.2 The purpose of this Conference is to establish a working relationship between Contractor, the utility firms, and various City agencies. The agenda will 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, and emergency telephone numbers for all representatives involved in the course of construction.

4.3.3 Minimum attendance by Contractor at any mandatory meeting with City must be (1) Contractor's Representative, who is authorized to execute and sign documents on behalf of the firm, (2) Contractor's on-site Superintendent, and (3) Contractor's Safety Office, or other employee responsible for safety.

4.4 **PERFORMANCE OF THE WORK (INCLUDING FIELD MEASUREMENTS, SUBCONTRACTORS, AND SUPPLIERS)**

4.4.1 Unless otherwise provided in the Contract Documents to be the responsibility of City or a separate Contractor, Contractor must provide through itself or Subcontractors the necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities and other temporary facilities to permit Contractor to complete the Work consistent with the Contract Documents.

4.4.2 Contractor must perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents. Contractor must at all times exercise complete and exclusive control over the means, methods, safety, sequences and techniques of construction.

4.4.3 Contractor's Superintendent must be present at the Site at all times that material Work under this Contract is taking place. Contractor's Superintendent or designee must be present at the Site at all times any other Work under this Contract is taking place.

Superintendent must not be replaced without written notice to City. Whenever the Superintendent is not present at a particular part of the Work where the City or Design Professional may desire to inform the Contractor relative to interpretation of the Drawings and Specifications or to disapproval or rejection of materials or Work performed, the City or Design Professional may provide such information in writing to the foreman or other worker in charge of the particular part of the Work in reference to which the information is given. Information so given will be as binding as if given to the Superintendent.

4.4.4 All elements of the Work must be under the direct supervision of a foreman or his designated representative on the Site who must have the authority to take actions required to properly carry out that particular element of the Work.

4.4.5 Working Hours. Except in connection with the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise indicated, all Work at the Site must be performed during regular working hours, and Contractor will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without City's written consent given after prior written notice to City. If it will become absolutely necessary to perform Work at night or on Saturdays, Sundays or legal holidays, the City must be informed at least 24 hours in advance of the beginning of performance of such Work. Only such Work will be done at night as can be done satisfactorily as determined by the City. Good lighting and all other necessary facilities for carrying out and inspecting the Work must be provided and maintained at all points where such Work is being done. Further, unless such non-normal work hours are performed at City's request or required by the Contract Documents, Contractor must pay to City all additional costs incurred by City by reason of such non-normal working hours. Expenses incurred by City for overtime compensation must be reimbursed by Contractor as follows: (i) City staff at the rate set forth in current City Fee Schedule as published on City website, (ii) Design Professional and staff at the standard hourly rates previously negotiated with City, and (iii) all others at actual cost plus ten percent administrative overhead. Such costs may be deducted by City from any payments due to Contractor. Provided, however, if overtime work or work during other than normal hours is at the request of City and not due to Contractor delay, City will pay the cost of City overtime expenses.

4.4.6 Where the Contract Documents require that a particular product be installed or applied by an applicator approved by the manufacturer, it is Contractor's responsibility to ensure the Subcontractor employed for such work is approved by the manufacturer. All materials and equipment must be stored, applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator, supplier or distributor, except as otherwise provided in the Contract Documents; but no provisions of any such instructions will be effective to impose on City of Design Professional responsibility for the means, methods, techniques, sequences or procedures of construction or for safety precautions incident thereto.

4.4.7 Before starting the Work, Contractor must carefully study and compare the various Plans, Drawings, other Contract Documents, and Specifications relative to that portion of the Work, as well as the information furnished by City, must take field measurements of any existing conditions related to that portion of the Work and must observe any conditions at the Site affecting it. The exactness of grades, elevations, dimensions, or locations given on any Drawings, or the Work installed by other contractors, is not guaranteed by City.

4.4.8 Before ordering materials or doing Work, Contractor and each Subcontractor must verify

measurements at the Site and will be responsible for the correctness of such measurements. No extra charge or compensation will be allowed because of differences between actual dimensions and the dimensions indicated on the Contract Documents, including the Drawings.

4.4.9 Ground Level Construction Photography.

4.4.9.1 The Contractor must furnish progress photographs of the project. The photographer selected by the Contractor must be approved by the City and must be either a commercial photographer or an individual experienced and equipped for such photography.

4.4.9.2 The Contractor must deliver to City all photographs taken during that period with each application for payment. If the current photographs do not accompany the application, the application will not be reviewed and will be returned to the Contractor as incomplete.

4.4.9.3 Photographs must be identified by use of typewritten labels affixed to the back of the photograph. The label must provide a description of the view, the direction from which the photograph was taken, the name of the project, City's project number, the name of Contractor and the date of the photography. The stationing must also be included for all pipeline installations.

4.4.9.4 Photographs must be taken during the construction period and must be of aesthetic composition and depict the progress of the Work from the beginning of construction through and including the finished product. City may vary the specified frequency so that significant progress or changes can be recorded on the photographs.

4.4.10 Underground Facilities.

4.4.10.1 The existence and number of facilities as shown on the Plans are estimated from information furnished by the particular utility. Contractor is responsible for field verification and location of all utilities prior to the start of construction. No field work will be allowed to start until Contractor has contacted Arizona 811 and all affected utilities have been located. In addition Contractor must expose and physically locate all potentially conflicting utilities prior to construction. The actual locations of the utilities must be compared to locations shown on the Plans and any required changes in alignment and grade must be made at the time of construction in consultation with Project Manager. It is generally recognized and Contractor should anticipate that information from Arizona 811 or information from utility companies during project design, frequently fails to disclose all underground facilities. The fact that more utility lines or other underground facilities are located in the Project Site than shown on the Project Plans does not constitute an "unforeseen Condition" and such undisclosed underground facilities do not differ materially from the conditions which Contractor should expect. The provisions of Sections 105.4, 105.6, 107.11 and 109.8.1 of the MAG Uniform Standard Specifications for Public Works Construction apply and are incorporated herein by this reference.

4.4.10.2 Contractor is responsible for all coordination with utility companies. The provisions of Sections 105.4, 105.6, 107.11 and 109.8.1 of the MAG Uniform Standard Specifications for Public Works Construction strictly apply and no additional compensation will be paid to Contractor for delays due to utility work on the project.

4.4.11 Relocation of Existing Water Meters. When a service line has been extended and a line setter installed in a meter box, City forces will re-install meter. No compression fittings will

be utilized.

4.4.12 Water Turn-On or Turn-Off.

4.4.12.1 Contractor must coordinate all water line turn-ons and turn-offs through the City. Application must be made to the Municipal Utility Division and Contractor must pay the established charges. The City will close existing valves, but will not guarantee a bone-dry Shutdown.

4.4.12.2 Contractor must notify all customers affected by the turn-off not less than 48 hours in advance. Notification must be in writing, must give the reason for the turn-off and must give the estimated time and duration that water service will be interrupted. Contractor is also notified that water turn-off will not be permitted on the Day before and after Thanksgiving Day and Christmas Day.

4.4.12.3 No direct payment will be made to Contractor for turn-ons or turn-offs. Costs associated therewith will be included in other items for which direct payment is made.

4.4.13 Tests and Inspections.

4.4.13.1 Contractor must give City timely (at a minimum, twenty-four hours) notice of readiness of the Work for all required inspections, tests or approvals. Contractor must give timely notice to City in advance of backfilling or otherwise covering any part of the Work so that city representative may, if desired, observe such part of the Work before it is concealed. Whenever Contractor varies the normal period during which Work or any portion of it is carried on each Day, Contractor must give timely notice to City so that city representative may, if desired, be present to observe the Work in progress. If Contractor fails to give such timely notice, any Work done in the absence of city representative will be subject to rejection. If Contractor gives such notice to City, but then is not ready for such inspections, tests, approvals or observations at the time so noticed, Contractor must reimburse City for all costs incurred by the attendance of city representatives.

4.4.13.2 If any law, ordinance, rule, regulation, code, or orders of any public body having jurisdiction requires any Work (or part thereof) to be inspected, tested or approved, Contractor (unless another party is specified in the Contract Documents) must assume full responsibility therefor, pay all costs in connection therewith and furnish City the required certificates of inspection, testing, or approval. Contractor must also be responsible for and must pay all costs in connection with any inspection or testing required by the Specifications in connection with City's acceptance of a manufacturer, fabricator, supplier or distributor of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. The cost of all other inspections, tests and approvals required by the Contract Documents will be paid by City (unless otherwise specified).

4.4.13.3 All inspections, tests or approvals other than those required by law, ordinance, rule, regulation, code or order of any public body having jurisdiction must be performed by organizations acceptable to City and by the Design Professional if so specified.

4.4.13.4 Neither observations by City, the Design Professional nor inspections, tests or approvals by others will relieve Contractor from their obligations to perform the Work in accordance with the Contract Documents.

- 4.4.14 Uncovering Work. If any Work that is to be observed, inspected, tested or approved is covered without written concurrence of City, it must, if requested by City be uncovered for observation. Unless Contractor has given City timely notice of Contractor's intention to cover such Work and City has not acted with reasonable promptness in response to such notice, Contractor must furnish all necessary labor, material and bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate deductive Change Order will be issued.
- 4.4.15 In all cases of interconnection of its Work with existing or other Work, Contractor must verify at the Site all dimensions relating to such existing or other Work. Any errors due to Contractor's failure to so verify all such grades, elevations, locations or dimensions must be promptly rectified by Contractor without any increase in the Contract Price. Any design errors or omissions noted by Contractor during this review must be reported promptly to City.
- 4.4.16 Contractor must establish and maintain all construction grades, lines, levels, and benchmarks, and will be responsible for accuracy and protection of same. This Work must be performed or supervised by a licensed civil engineer or surveyor in the State of Arizona.
- 4.4.17 Contractor must photograph all buried piping of greater than four (4) inches in diameter prior to backfill.
- 4.4.18 Contractor is responsible 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 City and any Subcontractor or Sub-Subcontractor, including but not limited to any third-party beneficiary rights.
- 4.4.19 Contractor must coordinate the activities of all Subcontractors. Contractor must coordinate performance of the Work with City's Public Works & Utilities Department and other departments or agencies within City. The Design Professional and other contractors or parties involved in the Project. If City performs other work on the Project or at the Site with separate contractors under City's control, Contractor agrees to 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.
- 4.4.20 Contractor will not substitute or change any Subcontractor or Supplier without the prior written approval of City. Any substitute or replacement Subcontractor or Supplier must be required to meet the same qualifications and selection criteria and process as the original Subcontractor or Supplier. If a Subcontract/Supplier selection plan has been approved by City, Contractor will follow that plan unless otherwise approved by City in writing.
- 4.4.21 Contractor must not change or replace any members of its Project team, including Contractor's Representative, Project Manager, or Superintendent, without an explanation for the change being given to City, and receiving prior written approval of the change from City, which approval will not be unreasonably withheld.
- 4.4.22 Subcontractors whose scope of work has a value greater than 15% of the total Contract Price are required to furnish performance and payment bonds to Contractor, unless otherwise

approved in writing by City.

- 4.4.23 Contractor must comply with MAG Specification § 108.2 (E) unless otherwise specified in Contract Documents.

4.5 **CONTROL OF THE PROJECT SITE**

- 4.5.1 Throughout all phases of construction, including suspension of Work, Contractor must keep the Site reasonably free from debris, trash and construction wastes to permit Contractor to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Prior to Final Acceptance of the Work, or a portion of the Work, Contractor must remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit City to occupy the Project or a portion of the Project for its intended use.
- 4.5.2 Contractor must take whatever steps, procedures or means necessary to prevent dust nuisance due to construction operations. The dust control measures must be maintained at all times to the satisfaction of City and in accordance with the requirements of the Maricopa County Bureau of Air Pollution Control Rules and Regulations.
- 4.5.3 Contractor must maintain Americans with Disabilities Act (ADA) and American National Standards Institute (ANSI) accessibility requirements during construction activities, including without limitation compliance with the 2010 regulations governing implementation of the ADA to the extent applicable. ADA and ANSI accessibility requirements must include, but not be limited to, parking, building access, areas of refuge, and emergency exit paths of travel. Contractor is responsible for the coordination of all Work to minimize disruption to residents and the public.
- 4.5.4 Only materials and equipment used directly in the Work will be brought to and stored on the Site by Contractor. When equipment is no longer required for Work, it must 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 the Contractor.
- 4.5.5 Contractor agrees all persons working on the Site must act at all times in the best interest of the Project and will comply with all applicable rules and regulations reasonably set forth by City related to the Site. Notwithstanding the foregoing or anything in this Agreement to the contrary, City may remove from the Site any individual who City deems in their reasonable discretion to be creating a disturbance or causing any problem on the Site.
- 4.5.6 Contractor will be responsible to City for the acts and omissions of Contractor's employees, Subcontractors and their agents and employees, and any other person performing any of the Work under a Contract with Contractor, or claiming by, through or under Contractor, for all damages, losses, costs and expenses resulting from such acts or omissions.
- 4.5.7 City may conduct criminal, drive history, and all other requested background checks of Contractor and Subcontractor personnel performing Work or who have access to City's information, data, or facilities in accordance with City's current background check policies, or the provisions of the Project Specific Conditions. Any officer, employee or agent that fails to background check must be replaced immediately.
- 4.5.8 City will have a final authority, based upon security reasons: (i) to determine when

security clearance of Contractor's and Subcontractor's personnel is required; (ii) to determine the nature of the security clearance, up to and including fingerprinting personnel; and (iii) to determine whether or not any individual or entity may provide Services or perform Work under the Contract.

- 4.5.9 If City objects to any personnel for any reasonable cause, then Contractor must, upon notice from City, remove such individual from the Project.

4.6 **PROJECT SAFETY**

- 4.6.1 The Project and all Work performed in relation thereto is governed by applicable provisions of the federal laws, including but not limited to, the latest amendments of the following:

- a. Williams-Steiger Occupational Safety & Health Act of 1970, Public Law, 91-596.
- b. Part 1910 and Part 1926 – Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations.
- c. Part 1518 – Safety and Health Regulations for Construction, Chapter XIII of Title 29, Code of Federal Regulations.

- 4.6.2 Contractor is responsible for safety of the job Site for employees of Contractor as well as for members of the general public and others who may drive or walk through or be at the Site.

- 4.6.3 Contractor 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 and stored On-Site or Off-Site; and (iii) all other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction; and (iv) the owners or tenants of adjacent property and their patrons, employees and invitees.

- 4.6.4 Contractor assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work.

- 4.6.5 Contractor must provide a "competent person" as required by O.S.H.A regulations. The "competent person" must be identified at the Pre-Construction Conference with City advised in writing of any changes.

- 4.6.6 The "competent person" must make routine daily inspections of the Site and must hold weekly safety meetings with Contractor's personnel, Subcontractors and others as applicable.

- 4.6.7 Contractor and Subcontractors must comply with all legal and regulatory 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 and regulatory requirements.

- 4.6.8 Contractor will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to Project Manager 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.

- 4.6.9 Contractor'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.
- 4.6.10 As between City and Contractor, Contractor is responsible to City for any and all the safety issues relating to the Work on the Project. Contractor must administer and manage the safety program. This will include, but not necessarily be limited to review of the safety programs of each Subcontractor. Contractor must monitor the establishment and execution of compliance with all applicable regulatory and advisory agency construction safety standards. Contractor's responsibility for review, monitoring, and coordination of the Subcontractor's safety programs will not extend to direct control over execution of the Subcontractors' safety programs. Notwithstanding Contractor's safety obligations to City, it is agreed and understood that each individual Subcontractor will remain controlling employer responsible for the safety programs and precautions applicable to its own work and the activities of other's work in areas designated to be controlled by such Subcontractor for purposes of workers compensation insurance coverage.
- 4.6.11 Nothing in this agreement will relieve Contractor of his responsibility to maintain traffic, structures, etc., as noted on the Plans, Specifications, and Project Specific Conditions. Contractor is responsible to provide all necessary shoring, bracing and trench support as is necessary to maintain traffic structures, etc., as stipulated in the Plans, Specifications, and Special Provisions. If the stability of adjoining building, walls, roadways, etc., is endangered by Contractor's excavation, shoring, bracing, or under pinning must be provided as necessary to ensure project safety. Cost for shoring, bracing, underpinnings, and trench support will be included in the appropriate items listed in the Contract Price, and no additional payment will be made for this work.
- 4.7 **MATERIALS QUALITY, SUBSTITUTIONS, AND SHOP DRAWINGS**
- 4.7.1 **Quality Control and Quality Assurance Testing.**
- 4.7.1.1 All construction materials to be used or incorporated in the Project are subject to inspection, Quality Control & Quality Assurance Testing, and approval or rejection by City. Any material rejected by City must be removed immediately and replaced in an acceptable manner to City at no additional cost to City. When QC/QA tests indicate noncompliance with the Contract Documents, retesting must be performed by the same testing laboratory that performed the tests that indicated noncompliance.
- 4.7.1.2 The Contractor must establish, provide, and maintain an effective Quality Control Testing Program (QCTP). The Contractor must develop his own program or procure the services of a consultant. In either case, the party performing the tests must be currently certified by the National Bureau of Standards in the National Voluntary Laboratory Accreditation Program (NVLAP) for construction services or the AASHTO Accreditation Plan (AAP) for Soils, Asphalt and Concrete. The Contractor must provide all support necessary to perform QC and QA testing and sampling (i.e. shoring for testing trench backfill, backhoes, motor graders, loaders, etc. to facilitate testing and sampling). The City will perform the QA testing.
- 4.7.1.3 The Contractor must submit a written QCTP to the City as a required submittal. The Contractor must not begin Work until the Quality Control Program has been reviewed and

- accepted by the City. Resumes of all personnel that will be associated directly or indirectly with the QCTP must be included.
- 4.7.1.4 The QCTP must include, but not be limited to, on-site/field and laboratory testing of all material delivered to the Site and any existing materials or conditions pertinent to the project.
- 4.7.1.5 All testing must be under the direction of a Professional Engineer registered in the State of Arizona, knowledgeable in Materials Testing. All "Test Report" forms must be stamped by said Engineer.
- 4.7.1.6 The written QCTP will set forth the responsibilities of the engineer, project manager, supervisory personnel and each technician assigned to this project. Substitutions or replacement of personnel must require prior written approval by the City. All personnel must be proficient within their assigned duties and possess certification(s) commensurate with their position and responsibilities. The minimum certification(s) for each technician must be NICET Level II, Arizona Technical Testing Institute, American Concrete Institute, or other nationally recognized program applicable to the project and approved by the City of Chandler. The written QCTP must include a description of the required field and construction materials laboratory tests, including required frequencies that meet the minimums established herein.
- 4.7.1.7 The Contractor must establish a system to record and report all material test results. The daily test reports must include, but not be limited to:
- a. Test designation;
 - b. Date of test;
 - c. Name of tester;
 - d. Location of test/sample (station and offset);
 - e. Product suppliers and product codes (as applicable);
 - f. Depth/elevation of test/sample;
 - g. Test result;
 - h. Control requirement(s);
 - i. Cause of rejection (if applicable);
 - j. Results of retests (if applicable); and
 - k. Remedial action (if applicable).
- 4.7.1.8 The Contractor must submit test results to the designated City representative.
- 4.7.1.9 The Contractor must also submit a weekly report to the City summarizing the testing and construction activities completed by emailing the report to the email addresses noted above. All weekly reports must be submitted simultaneously to the Contractor and the City of Chandler. The report must include individual summary sheets for each utility line, structure, and portion of the pavement section. Cores must be numbered sequentially throughout the Project. Re-cores must reference the original core by number and must contain the averaged values for thickness and density. Total pavement thickness must be reported. Vertical location of tests for underground utilities must indicate the depth of the

excavation at the location of the test (i.e., cut to flow line [if applicable], depth to bottom or top of pipe, etc.). Density tests must be numbered sequentially. If the minimum number of tests has not been performed per the written QCTP, this must be stated in the weekly summary report with an explanation of the circumstances.

4.7.1.10 The City will maintain a copy of the Project test results and weekly reports in the Project file. In cases where quality control activities do not comply with the contract provisions, the City may:

- a. Order the Contractor to replace ineffective or unqualified quality control personnel.
- b. Order the Contractor to stop operations until appropriate corrective action is taken.

4.7.1.11 Although minimum testing requirements are specified herein, the Contractor bears full responsibility for the quality of the materials and their installation and may elect to perform additional testing beyond the requirements set forth herein to ensure compliance.

4.7.1.12 The Quality Control requirements contained in this Section are in addition to and separate from Quality Assurance Testing, which will be performed by the City of Chandler or its representative. If the Quality Assurance test results are not in agreement with the Quality Control test results, the Contractor will have the option to retain a third party consultant for referee tests. The third party consultant must meet the same requirements as the consultant performing the Quality Control Testing. The results of the third party will be binding. All cost incurred by the referee testing will be the Contractor's expense. If the Contractor elects not to retain a third party for referee testing, the City of Chandler test results will prevail.

4.7.1.13 Except as otherwise noted within this Section, Work or materials required by this Section are non-pay items. Per MAG Section 101, a non-pay item is an item of Work for which no separate payment will be made, the cost of which is to be included as an incidental cost for associated item(s) included on the Bid Schedule or Schedule of Values.

4.7.2 Trade Names and Substitutions.

4.7.2.1 Substitutions prior to bid will only be considered if in compliance with Arizona Revised Statute § 34-104.

4.7.2.2 Contractor, if requested by City, must submit Samples or any additional information that may be necessary to evaluate the acceptability of the substitution.

4.7.2.3 City will make the final decision and will notify Contractor in writing as to whether the substitution has been accepted or rejected.

4.7.2.4 If City does not respond within 15 working days, Contractor must continue to perform the Work in accordance with the Contract Documents and the substitution will be considered rejected.

4.7.3 Shop Drawings.

4.7.3.1 Contractor must prepare and submit Shop Drawings which show details of all Work to insure proper installation of the Work using those materials and equipment specified under the approved Plans and Specifications.

- 4.7.3.2 Contractor must submit a schedule of Shop Drawing submissions, which avoids bulk submissions to the extent reasonably possible, with the Project Schedule for City approval. The schedule of Shop Drawing submissions must include all of the items for which Shop Drawings are required by the Contract Documents, including the Specifications. Unless otherwise noted, Shop Drawings will not be required for items specified or detailed in the Uniform Standard Specifications and Details or the Technical Specifications.
- 4.7.3.3 Shop Drawings must be numbered consecutively for each Specification section and must accurately and distinctly present the following:
- a. All working and erection dimensions.
 - b. Arrangements and sectional views.
 - c. Necessary details, including complete information for making connections between work under this Contract and work under other Contracts.
 - d. Kinds of materials and finishes.
 - e. Parts list and description thereof.
- 4.7.3.4 Each Drawing or page must include:
- a. Project Name, City of Chandler Project Number and descriptions.
 - b. Submittal date and space for revision dates.
 - c. Identification of equipment, product or material.
 - d. Name of Contractor and Subcontractor.
 - e. Name of Supplier and Manufacturer.
 - f. Relation to adjacent structure of material.
 - g. Physical dimensions clearly identified.
 - h. ASTM and Federal Specifications references.
 - i. Identification of and justification for deviations from the Contract Documents.
 - j. Contractor's stamp, initialed or signed, dated and certifying the review of submittal, certification of field measurements and compliance with Contract.
 - k. Location at which the equipment or materials are to be installed.
- 4.7.3.5 Location will mean both physical location and location relative to other connected or attached material. City will return unchecked any submittal, which does not contain complete data on the Work and full information on related matters.
- 4.7.3.6 Stock or standard drawings will not be accepted for review unless full identification and supplementary information is shown thereon in ink or typewritten form.
- 4.7.3.7 Contractor must schedule, prepare and submit all Shop Drawings in accordance with a timetable that will allow its suppliers and manufacturers sufficient time to fabricate, manufacture, inspect, test and deliver their respective products to the project Site in a timely manner so as to not delay the complete performance of the Work.
- 4.7.3.8 If the Shop Drawings show departures from the Contract requirements, Contractor must

make specific mention thereof in the Letter of Transmittal; otherwise review of such submittals by City will not constitute review of the departure. Review of the Drawings will constitute review of the specific subject matter for which the Drawings were submitted and not of any other structure, material, equipment, or apparatus shown on the Drawings.

4.7.3.9 The review of Shop Drawings will be general and will not relieve Contractor of responsibility for the accuracy of such Drawings, nor for the proper fitting and construction of the Work, nor for the furnishing of materials or Work required by the Contract. No construction called for by Shop Drawings will be initiated until such Drawings have been reviewed and approved by City.

4.7.3.10 The procedure in seeking review of the Shop Drawings will be as follows:

- a. Contractor must submit complete sets of Shop Drawings and other descriptive data as specified in this Section.
- b. After Contractor's submittal or resubmittal of Shop Drawings, if Contractor has submitted Shop Drawings in accordance with the City-approved submittal schedule, or upon resubmission, City will be provided with three (3) calendar weeks for review. Should City require additional review time above and beyond the three (3) calendar weeks, Contractor may ask for a time extension or monetary compensation, if they can present valid, factual evidence that actual damages were incurred by Contractor. City will determine the amount of the time extension or the monetary compensation to be awarded Contractor, if any, in accordance with City's Policy Statement for Calculating Delays and Damages, Appendix 1.

4.7.3.11 Contractor will be responsible for all extra costs incurred by City caused by Contractor's failure to comply with the procedure outline above.

4.7.4 Long Lead Time Items. Contractor must submit Shop Drawings, as required by the Engineer, on all long lead items to be furnished and installed as part of the project within 10 Days after the date of the executed Contract letter issued by City. In addition, Contractor must order all long lead items to be furnished and installed as part of this Project within 3 Days after receiving approved Shop Drawings. For all long lead times for which Shop Drawings are not required, Contractor must order said long lead items within 15 Days after the date of the executed Contract letter issued by City. Within 2 Days after ordering long lead items, Contractor must supply copies of all purchase orders, along with an accurate delivery schedule from the supplier.

4.7.5 Construction Water. If Contractor uses water from City's water system for construction water, Contractor must obtain a fire hydrant meter from City of Chandler Utility Services (480-782-2280) and all construction water must be obtained through the hydrant meter. Contractor must pay all fees related to the hydrant meter and all water bills for construction water. All cost for meters and construction water will be included in the Contract Price.

4.8 **PROJECT RECORD DOCUMENTS**

4.8.1 During the construction period, Contractor must maintain at the jobsite a full-size set of prints of the Construction Document Drawings and Shop Drawings for Project Record Document purposes.

4.8.2 Contractor must mark these Drawings to indicate the actual installation where the installation

varies from the original Construction Documents. Contractor must give particular attention to information on elements that will be concealed, which would be difficult to identify or measure and record later. Items required to be marked include but are not limited to:

- a. Dimensional changes to the Drawings.
- b. Revisions to details shown on Drawings.
- c. Locations and depths of underground utilities.
- d. Revisions to routing of piping and conduits.
- e. Actual equipment locations.
- f. Changes made by Change Order or Addendum.
- g. Details not on original Contract Drawings.

4.8.3 Contractor must mark completely and accurately Project Record Drawing sets of Construction Documents.

4.8.4 Contractor must mark Project Record Drawings sets with red erasable colored pencil.

4.8.5 Contractor must note Request for Information (RFI) Numbers and Change Order numbers, etc., as required to identify the source of the change to the Construction Documents.

4.8.6 Contractor must submit Project Record Drawing sets and Shop Drawings to City or its representative for review and comment.

4.8.7 Upon receipt of the reviewed Project Record Drawings from City, Contractor must correct any deficiencies and omissions to the Drawings and submit the final original of the Project Record Drawings to City prior to Final Payment.

4.8.8 Project Manager will review the Project Record Drawings monthly prior to the date established for the Payment Request and will be the sole judge of acceptance of these Drawings.

4.9 **WARRANTY AND CORRECTION OF DEFECTIVE WORK**

4.9.1 Contractor warrants to City that the construction, including all materials and equipment furnished as part of the Work, will be new unless otherwise specified in the Contract Documents, of good quality, and free of defects in materials and workmanship. Contractor's warranty obligation excludes defects caused by abuse, alterations, or unreasonable failure to maintain the construction by persons other than Contractor, subcontractors, or others under Contractor's control. Nothing in this warranty will limit any manufacturer's warranty which provides City with greater warranty rights than set forth herein or in the Contract. Contractor will provide City with all manufacturers' warranties and operation and maintenance manuals upon substantial completion of the Work. Contractor's warranty must be for one (1) year, in accordance with MAG Specification § 108.8, and will commence for all portions of the Work upon Final Acceptance of the entire Work as determined by City under the Contract. All statutory or other warranties, express or implied, related to latent defects will remain in force and are not limited by this provision.

4.9.2 City May Stop the Work. If the Work is defective, or Contractor fails to supply sufficient skilled workmen or suitable materials or equipment, City may order Contractor to stop the Work without cost to City, or any portion thereof, until the cause for such order has been

eliminated; however, this right of City to stop the Work will not give rise to any duty on the part of City to exercise this right for the benefit of Contractor or any other party.

4.9.3 Correction or Removal of Defective Work.

4.9.3.1 If required by City, Contractor must promptly, without cost to City and as specified by City, either correct any defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by City, remove it from the Site and replace it with non-defective Work. Contractor must correct any Work which may be displaced in correcting, removing or replacing defective Work. No compensation will be allowed Contractor for such removal, replacement or remedial Work. Contractor must reimburse City for costs incurred by City due to such correction or removal including but not limited to additional expenses for inspection, testing or observation and for repeated reviews by the City or Design Professional.

4.9.3.2 Upon failure on the part of the Contractor to comply within a reasonably prompt time with any written order of City to correct or remove defective Work, City has authority to cause nonconforming materials or rejected Work to be remedied, removed, or replaced at the Contractor's expense and to deduct the costs from any moneys due or to become due the Contractor.

4.9.4 City May Correct Defective Work. If Contractor fails within a reasonable time after written notice of City to proceed to correct defective Work or to remove and replace rejected Work as required by City or if Contractor fails to perform the Work in accordance with the Contract Documents (including any requirements of the progress schedule), City may, after 7 Days' written notice to Contractor, correct and remedy any such deficiency. To the extent necessary to complete corrective and remedial action, City may exclude Contractor from all or part of the Work, and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site and incorporate in the Work all materials and equipment stored at the Site or for which City has paid Contractor, but which are stored elsewhere. Contractor must allow City, city representatives, agents and employees such access to the Site as may be necessary to enable City to exercise City's rights under this Section. All direct and indirect costs of City in exercising such rights will be charged against Contractor in an amount verified by City representative, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents and a reduction in the Contract Price. Such direct and indirect costs will include, in particular but without limitation, compensation for additional professional services required and all costs of repair and replacement of Work or others destroyed or damaged by correction, removal or replacement of Contractor's defective Work. Contractor will not be allowed an extension of the Contract Time because of any delay in Contractor's performance of the Work attributable to the exercise by City or City's rights hereunder.

4.9.5 Correction or Removal of Unauthorized Work.

4.9.5.1 Any Work done beyond the lines and grades shown on the Drawings or established by the Design Professional or any changes in, additions to, or deductions from the Work done without written authority will be considered as unauthorized and will not be paid for. Work so done may be ordered remedied, removed, or replaced at the Contractor's expense.

4.9.5.2 Upon failure on the part of the Contractor to comply promptly with any order of the City, City will have authority to cause unauthorized Work to be remedied, removed, or replaced

at the Contractor's expense and to deduct the costs from any moneys due or to become due the Contractor.

4.9.6 Correction Period - One Year Guarantee.

4.9.6.1 If, within one year after the date of Final Acceptance, or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, or by any specific provision of the Contract Documents, any Work is found to be defective, Contractor must promptly, without cost to City and in accordance with City's written instructions, either correct such defective Work, or, if it has been rejected by City, remove it from the Site and replace it with non-defective Work. If Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, City may have the defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, must be paid by Contractor. Such action by the City will not relieve the Contractor of the guarantees required by this Section or elsewhere in the Contract Documents.

4.9.6.2 If, in the opinion of the City, defective Work creates a dangerous condition or requires immediate correction or attention to prevent further loss to the City or to prevent interruption of operation of the City, the City will attempt to give the notice required by this Section. If the Contractor cannot be contacted or does not comply with the City's request for correction within a reasonable time as determined by the City, the City may, notwithstanding the provisions of this Section, proceed to make such correction or provide such attention; and the costs of such correction or attention will be charged against the Contractor. Such action by the City will not relieve the Contractor of the guarantees required by this Section or elsewhere in the Contract Documents.

4.9.6.3 This Section does not in any way limit the guarantee on any items for which a longer guarantee is specified or on any items for which a manufacturer or supplier gives a guarantee for a longer period. The Contractor agrees to act as co-guarantor with such manufacturer or supplier and must furnish the City all appropriate guarantee or warranty certificates upon completion of the Project. No guarantee period, whether provided for in this Section or elsewhere, will in any way limit the liability of Contractor or their sureties or insurers under the indemnity or insurance provisions of these General Conditions and the Project Specific Special Conditions.

4.9.7 Acceptance of Defective Work.

4.9.7.1 If, instead of requiring correction or removal and replacement of defective Work, City may accept Work when in the best interest of the City to do so with appropriate monetary credit from Contractor. If any such acceptance occurs prior to final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price; or, if the acceptance occurs after final payment, an appropriate amount must be paid by Contractor to City.

4.9.7.2 Alternatively, City may require Contractor to furnish at Contractor's expense, a special performance guarantee or other surety prior to acceptance of defective work.

4.9.8 The Warranty period begins on the Final Acceptance date noted in the Certificate of Completion, irrespective of early completion by some Subcontractors of their work.

- 4.9.9 Contractor's warranty obligation must be in accordance with MAG Specifications.
- 4.9.10 Nothing in the warranties contained in the Contract Documents are intended to limit any manufacturer's warranty which provides City with greater warranty rights than set forth in this Section or the Contract Documents. Contractor must provide City with all manufacturers' warranties prior to Substantial Completion, if applicable, or Final Acceptance.
- 4.9.11 Contractor agrees that it will be responsible to manage and administer the correction of any Work that is not in conformance with the Contract Documents during the warranty periods set forth in this Section, or during any longer periods to the extent required by the Contract Documents. A progress payment, or partial or entire use or occupancy of the Project by City, will not constitute acceptance of Work not in accordance with the Contract Documents.
- 4.9.12 When notified of a warranty issue, Contractor must respond in writing within 48-hours and must perform warranty Work as soon as material for said repairs are available (as judged solely by City), and in any event Contractor must, take immediate steps to commence and complete correction of nonconforming Work no later than the time period set forth in City's written notification in accordance with the Contract Documents. 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 defects develop which are determined by City to be an emergency, City will notify Contractor, via the most expeditious means regarding the nature and condition of the defects. In turn, Contractor must immediately dispatch necessary forces to correct the defect or the emergency condition in accordance with Contract Documents.
- 4.9.13 The time periods referenced in this Section apply only to Contractor's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies that City may have regarding Contractor's other obligations under the Contract Documents.
- 4.9.14 Without limiting the foregoing or anything in these General Conditions or the Contract to the contrary, Contractor must obtain and provide to City all warranties for any portion of the Project offered by the manufacturer, installer or provider thereof. City and the user of the facility will have the right to the full value and benefit of all such warranties. Contractor must ensure all such warranties are fully transferrable to facilitate the full value of this Section.
- 4.9.15 Contractor's warranty excludes damages or defects caused by abuse, alterations to the Work not executed by or through Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage.
- 4.9.16 In the event of any noncompliance with this entire Section 4, City may require Contractor to stop or suspend the Work in whole or in part.

SECTION 5 - CITY RESPONSIBILITIES

5.1 CITY PROJECT MANAGER AND INSPECTORS

- 5.1.1 Project Manager is responsible for providing City-supplied information and approvals in a timely manner to assist Contractor to fulfill its obligations under the Contract Documents.

- 5.1.2 Project Manager will also provide Contractor with prompt notice when it observes any failure on the part of Contractor to fulfill its contractual obligations, including any default or defect in the Project or non-conformance with the Drawings and Specifications.
- 5.1.3 City may utilize Field Inspectors to assist Project Manager during construction in observing performance of Contractor. City's use of Inspectors is for the purpose of assisting Project Manager.
- 5.1.4 The Inspectors are authorized to inspect all Work and materials furnished. Such inspections may extend to all or part of the Work and to preparation, fabrication or manufacture of the materials to be used. The Inspectors have the authority to issue instructions contrary to the Construction Documents if approved and coordinated with the directions of Project Manager.
- 5.1.5 The Inspectors have the authority to reject work or materials until any questions at issue can be decided by Project Manager.
- 5.1.6 The use of Inspectors by City will not make City responsible for or give City control over construction means, methods, techniques, sequences or procedures or for safety precautions or programs or responsibility for Contractor's failure to perform the Work in accordance with Contract Documents. The Inspectors are not authorized to direct any of Contractor's activities, employees or Subcontractors.

5.2 **DESIGN PROFESSIONAL SERVICES**

City may contract separately with one or more Design Professionals to provide construction administration of the Project. The Design Professional's Contract, as well as other firms hired by City may be furnished to Contractor. Contractor does not have the right to limit or restrict or reject any Contract modifications that are mutually acceptable to City and Design Professional.

5.3 **CITY'S SEPARATE CONTRACTORS**

City is responsible for all work performed on the Project or at the Site by separate contractors retained by City. City will contractually require its separate contractors to reasonably cooperate with, and reasonably coordinate their activities so as not to interfere with Contractor in order to enable Contractor to timely complete the Work consistent with the Contract Documents. Contractor must immediately notify the Project manager, and address the matter in the next monthly status report, if any activities of such separate contractors are expected to interfere, or are interfering, with Contractor and such interference will or could result in any delay in Contractor's performance of the Work.

5.4 **PERMIT REVIEW AND INSPECTIONS**

- 5.4.1 If requested by Contractor, Project Manager will provide assistance and guidance in obtaining necessary reviews, permits and inspections.
- 5.4.2 The regulating agencies of City, such as Development and Sustainability, Fire and Planning Departments, enforce legal requirements. The enforcement activities of City are independent and separate from this Agreement.

5.5 **PLANS AND SPECIFICATIONS TO THE CONTRACTOR**

Contractor will be provided up to five copies of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request,

at the cost of reproduction.

SECTION 6 - CONTRACT TIME

6.1 CONTRACT TIME

- 6.1.1 The Contract Time will start with the Notice to Proceed ("NTP") and end with Final Acceptance.
- 6.1.2 Beginning on the date of the NTP, Contractor must begin to fulfill Contractor's obligations under the Contract. Contractor's obligations include providing City and other agencies with any submittals required by the Project Specific Special Provisions, including but not limited to, an approved Project Schedule, Traffic Control Plans, and a Stormwater Pollution Prevention Plan. Contractor must submit all such required submittals before any physical construction work commences on the Site. NTP does not authorize construction work until all contract insurance, bonds, and schedules are submitted to and accepted by the City.
- 6.1.3 The Contract Time will be as set forth in the Project Schedule. Contractor agrees that it will commence performance of the Work and complete the Project through both Substantial Completion and Final Acceptance within the Contract Time.
- 6.1.4 Time is of the essence of this Contract, for the Project, for the Work, and for each phase and designated Milestone thereof.
- 6.1.5 Failure of Contractor to perform any covenant or condition contained in the Contract Documents within the time periods specified herein, will constitute a material breach of this Contract entitling City to terminate the Contract unless Contractor applies for and receives an extension of time, in accordance with the procedures set forth in the Contract Documents.
- 6.1.6 Failure of City to insist upon the performance of any covenant or condition within the time periods specified herein, will not constitute a waiver of Contractor's duty to perform every other covenant or condition within the designated periods, unless a specific waiver is granted in writing for each such covenant or condition.
- 6.1.7 City's agreement to waive a specific time provision or to extend the time for performance will not constitute a waiver of any other time provisions contained in the Contract Documents. Failure of Contractor to complete performance promptly within the additional time authorized in the waiver or extension of time agreement constitutes a material breach of this Contract entitling City to all the remedies set forth herein or provided by law.

6.2 PROJECT SCHEDULE

- 6.2.1 The Project Schedule must be in Microsoft Project standard file format, must be updated and maintained throughout the Contract Time, and must contain the following:
 - 6.2.1.1 Detailed representation of all activities for the project, both on-site construction and major procurement. All significant activities together with the resource loading requirements for each and all items appearing on the schedule of values or bid schedule for progress payments must be shown on the Project Schedule or in attached transmittal letter as described in Section 6.2.8.

- 6.2.1.2 Dependencies between activities must be indicated so that it may establish as to the effect the progress of any one activity would have on other activities and on the Schedule.
- 6.2.1.3 Activities for submission, review, and approval of all required submittals.
- 6.2.1.4 An amount of time will be established prior to the final completion date for “punch list and cleanup”. No other activities will be scheduled during this period. Punch list and cleanup must be shown on the Project Schedule and must be entirely completed prior to the expiration of the Contract Time.
- 6.2.2 Within 10 Days of receipt of City’s comments, Contractor must make all required corrections, adjustments, and additions to complete the Project Schedule and resubmit to City for review. City’s review of and response to the Project Schedule is for the purpose of: (1) City planning and staffing for the Project as may be required from time to time; (2) ensuring Contractor’s general conformance with the scheduling requirements of the Contract Documents and completion of the Project within the Contract Time; and (3) monitoring and evaluating the construction status for purposes of approving monthly progress payments. Acceptance of a submitted schedule by City should in no way be construed as an affirmation or admission that the schedule is reasonable or workable by Contractor. The responsibility for completing the Work on the Project within the Contract Time remains the obligation of Contractor. City’s review does not relieve Contractor from compliance with the requirements of the Contract Documents or be construed as relieving Contractor of its complete and exclusive control over the means, methods, sequences and techniques for executing the work.
- 6.2.3 The Project Schedule must show milestones, including milestones for City-furnished information, and must include activities for City-furnished material and construction by other contractors when those activities are interrelated with Contractor activities.
- 6.2.4 The Project Schedule must be revised as required by conditions and progress of the Work, but such revisions do not relieve Contractor of its obligations to complete the Work within the Contract Time, as adjusted in accordance with the Contract Documents. No modification to the Contract Documents or the Contract Time will be effective unless approved in advance by City.
- 6.2.5 For all items of materials and equipment that are critical or may require long lead times to acquire, the Project Schedule must show dates for submission, review and approval of submittals, ordering, and delivery.
- 6.2.6 An updated Project Schedule must be submitted monthly to City as part of the Payment Request. The monthly submittal must include one full size plot of the entire schedule and one electronic copy containing the schedule in Microsoft Project standard file format. In addition, Contractor must, upon request by City, provide a copy of all submitted schedule data in electronic format which must be clearly labeled with the Project description, scheduling program name and version number, and schedule print/data date.
- 6.2.7 Contractor must provide City with a monthly status report with each Project 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 information detailing items that require resolution so as not to jeopardize the ability to complete the Work in the Contract Time.

- 6.2.8 With each Project Schedule submittal, Contractor must include a transmittal letter including the following:
- a. Description of problem tasks, referenced to field instructions or requests for information (RFI's), as appropriate.
 - b. Current and anticipated delays including:
 - (i) Cause of the delay.
 - (ii) Corrective action and schedule adjustments to correct the delay.
 - (iii) Known or potential impacts and their delay on other activities, milestones, and their impact on the Substantial Completion and Final Acceptance dates.
 - (iv) Changes in construction sequence.
 - c. Pending items and status thereof including but not limited to:
 - (i) Time Extension requests;
 - (ii) Substantial Completion date status;
 - (iii) Final Acceptance date status.
 - d. If ahead of schedule, the number of calendar Days ahead.
 - e. If behind schedule, the number of calendar Days behind.
 - f. Other Project or scheduling concerns.
- 6.2.9 Critical Path Method (CPM).
- 6.2.9.1 Unless otherwise specified in the Contract, the Project Schedule must include a Critical Path Method (CPM) diagram schedule showing the sequence of activities, the interdependence of each activity and identifies the Critical Path.
- 6.2.9.2 The CPM diagram schedule must be in calendar 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 must be presented in a time scaled graphical format for the Project as a whole.
- 6.2.9.3 The CPM diagram schedule must indicate all relationships between activities.
- 6.2.9.4 The activities making the Project Schedule must contain 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 evaluation the progress of the Work. Individual activities must not exceed 30 Days in length, in most cases.
- 6.2.9.5 The CPM diagram schedule must be based upon activities, which coincide with the Schedule of Values.
- 6.2.9.6 The CPM diagram schedule must show all submittals associated with each work activity and the review time for each submittal.
- 6.2.10 Float Time.
- 6.2.10.1 The total Float Time within the overall schedule is for the exclusive use of City, but City may approve Contractor's use of Float as needed to meet contract Milestones and

the Project completion date.

- 6.2.10.2 Contractor will not be allowed to sequence, hide, or reallocate Float Time through such strategies, as extending activity duration estimates to consume available Float, using preferential logic, or using extensive crew/resource sequencing, etc. No time extensions will be granted nor delay damages paid until a delay occurs which extends the Work beyond the Contract Time.
- 6.2.11 City-Caused Delays. City-caused delays on the Project, if any, may be offset by City-caused time savings (i.e., Critical Path submittals returned in less time than allowed by the Contract, approval of substitution requests and credit changes which result in savings of time to Contractor, etc.) In such an event, Contractor will not be entitled to receive a time extension or delay damages until all City-caused time savings are exceeded and the Contract Time is also exceeded.
- 6.2.12 Rain-Related Delays. Contractor is required, in preparing the Project Schedule to take into account all relevant weather conditions, including normal rainfall and distribution. No additional compensation will be given for any rain-related delays or impacts on the Work or the Project Schedule. No time extension will be granted in the Project Schedule unless the rainfall during the construction of Work is unusually severe, was not reasonably anticipated, and the total rainfall was significantly in excess of the normal rainfall for the Project Site location. Normal rainfall for the Project will be determined from the 10-year average rainfall for the Site as measured by the National Oceanic and Atmospheric Administration or comparable source of reliable information for rainfall in Chandler, Arizona. In addition, the excessive rainfall must have actually impacted Work activities on the Critical Path and caused delay beyond any remaining Float at the time of the rain-caused delay. The burden of documenting normal rainfall, the excessive rainfall and the impact on Critical Path activities is on Contractor. All other provisions in the Contract Documents relating to claims, including without limitation notice requirements, apply to any claim by Contractor for a rain delay.
- 6.2.13 City's "Policy Statement for Calculating Delays and Damages," Appendix 1 to these General Conditions, will apply to all claims of delay and delay damages.
- 6.2.14 Force Majeure. If Contractor is delayed or prevented from the performance of any Work required under this Contract by reason of acts of God or other causes beyond the control and without fault of Contractor (financial inability excepted), performance of that Work will be excused, but only for the period of the delay. The time for performance of the Work will be extended for a period equivalent to the period of delay. In addition, the parties agree if Contractor's delayed or suspended performance directly arises out of or directly results from the COVID-19 pandemic, Contractor's delayed or suspended performance may be excused as set forth in this clause. Provided, however; Contractor must give the City written notice within 30 days of the occurrence of the event giving rise to COVID-19 pandemic related delayed or suspended performance. For COVID-19 pandemic related delay or suspended performance, the parties must agree in writing to the length of the excused delay or suspended performance. Further, Contractor must obtain the City's written approval to use any allowance established as part of the project for delays and costs related to the COVID-19 pandemic.

6.3 **SUBSTANTIAL COMPLETION**

- 6.3.1 When Contractor considers that the Work, phase or a portion thereof, which City agrees in

writing to accept separately, is substantially complete, City will prepare and submit to Contractor a comprehensive Punch List of items to be completed or corrected prior to Final Acceptance and Final Payment. Failure to include an item on such Punch List does not alter the responsibility of Contractor to complete all Work in accordance with the Contract Documents.

6.3.2 Upon receipt of Contractor's Punch List, Project Manager will make an inspection to determine whether the Work or designated portion thereof is substantially complete. Project Manager may, at Project Manager's sole option, be assisted in such inspection by the Design Professional for the Project. If the inspection by the Project Manager discloses any item, whether or not included on Contractor's Punch List, which is not sufficiently completed in accordance with the Contract Documents so that City can occupy or utilize the Work, phase or designated portion thereof for its intended use, Contractor must, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by Project Manager. In such case, Contractor must then submit a request for another inspection by Project Manager to determine Substantial Completion.

6.3.3 Certificate of Substantial Completion.

6.3.3.1 The Project Manager will not issue a Certificate of Substantial Completion unless and until the Work (or separable units or Phases as provided in the Contract Documents) is essentially and satisfactorily complete in accordance with the Contract Documents, such that the Project is ready for use by City for its intended purpose, opening to the general public, full occupancy or use by City (including, without limitation, all separate units, or rooms, facilities, access, income-generating areas, and all areas serving the general public, as applicable, must be ready for full-operation without material inconvenience or discomfort), including, to the extent applicable to the Work, the following: all materials, equipment, systems, controls, features, facilities, accessories and similar elements are installed in the proper manner and in operating condition, inspected and approved; surfaces have been painted; masonry and concrete cleaned with any sealer or other finish applied; utilities and systems connected and functioning; site work complete; permanent heating, ventilation, air condition, vertical transportation and other systems properly operating with proper controls; lighting and electrical systems installed, operable and controlled; paving completed, signage installed, and other Work as applicable, has been performed to a similar state of essential and satisfactory completion. A minor amount of Work, as determined by and at the discretion of the Project Manager, such as installation of minor accessories or items, a minor amount of painting, minor replacement of defective work, minor adjustment of controls or sound systems, or completion or correction of minor exterior work that cannot be completed as a result of weather conditions, will not delay determination of Substantial Completion. If prior written approval is obtained from City for purposes of Substantial Completion, specified areas of the entire Work or Project may be individually certified as Substantially Complete. In no event will Substantial Completion be deemed to have occurred unless and until: (i) a temporary certificate of occupancy has been issued by the appropriate Governmental Authorities (as applicable) and (ii) all terms and Work required under this Agreement have been fulfilled by Contractor and same will have also been approved and accepted by City, subject only to the Punch List items.

6.3.3.2 If requested by City, Contractor must complete and turn-over to City the Project on a phased basis. Each phase will have a separate inspection by the Project Manager, a Punch List generated, and then an inspection by City with final approval and acceptance only after the

Project Manager's Punch List.

6.4 **PARTIAL UTILIZATION**

6.4.1 City at City's option may use and occupy any substantially completed parts of the Work which has specifically been identified in the Contract Documents, or which City, the Design Professional and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by City for its intended purpose, without significant interference with Contractor's performance of the remainder of the Work, provided, however, if the portion of the Work to be used or occupied has not been found to be substantially complete, City must do so in accordance with Section 6.3 prior to such occupancy.

6.4.2 In lieu of the issuance of a Certificate of Substantial Completion as to part of the Work, City may take over operation of a facility constituting part of the Work whether or not it is substantially complete if such facility is functionally and separately usable; provided that prior to any such takeover, City and Contractor agree in writing as to the division of responsibilities between City and Contractor for security, operation, safety, maintenance, correction period, heat, utilities and insurance with respect to such facility.

6.4.3 Substantial Completion of or City's beneficial occupancy of a part of the Project will not alter the fact that the one-year warranty for the whole Project starts at the date of Final Completion of the whole Project.

6.5 **FINAL ACCEPTANCE**

6.5.1 Unless otherwise expressly agreed to in writing by City, Final Acceptance must be obtained by no later than 30 Days (60 Days for federally funded contracts) after the date of Substantial Completion. Failure to timely obtain Final Acceptance will be a material breach of the Contract.

6.5.2 Upon receipt of written notice that the Work is ready for final inspection and acceptance, City and Contractor will jointly inspect to verify that the remaining items of Work have been completed. There will be no partial acceptance. Final Acceptance will not occur until all items of Work, including Punch List Items, have been completed to City's satisfaction as reflected in the written Final Acceptance.

6.5.3 Final Payment will not be due, owing, or paid by City until Final Acceptance is issued.

6.5.4 Landscape Establishment Period. Unless otherwise expressly agreed to in writing by City, the Landscape Establishment Period will begin on the date of Final Acceptance of the Project and will run 90 Calendar Days thereafter. Landscape Establishment Period requirements are detailed in General Conditions Appendices, attached herein.

6.6 **CONTINUATION OF WORK**

6.6.1 Permitting Contractor to continue and finish the Work or any part of it after the time fixed for its completion (whether milestone, phase, Substantial Completion or Final Acceptance) or after the date to which the time fixed for any completion may have been extended, does not operate as a waiver by City of any rights under the Contract Documents, law or equity.

6.6.2 Furthermore, the timely completion of the Work being of the utmost importance under this Contract, notwithstanding the existence of one or more disputes between the parties concerning the scope of the Work, the Project Schedule, Contract Time, payments or any

other matter, and further notwithstanding a party's invocation of the Dispute Resolution provisions specified in Appendix 6 of these General Conditions, unless City suspends the Contract or Contractor's performance pursuant to Section 10 of these General Conditions, Contractor will continue to prosecute the Work, including any Change Order work or Extra Work Orders, in a diligent and timely manner and not stop, slow down or impede by action or inaction the progress of the Work, including commencing performance of and thereafter completing any additional work called out in any Change Order or Extra Work Order issued by Project Manager with the approval of City, so long as City makes payment to Contractor in accordance with Section 8 of these General Conditions.

SECTION 7 - CONTRACT PRICE

7.1 UNIT PRICE CONTRACTS

- 7.1.1 The Contract Price for all Unit Price Contracts will be the amount set forth in the Contract or Change Order multiplied by the verified quantity provided.
- 7.1.2 Measurements of quantities to determine the total Contract Price must be in accordance with MAG Specification §§ 109.1 and 109.2.
- 7.1.3 The Unit Price may only be changed as set forth in Section 9 below.

7.2 CHANGE ORDERS

- 7.2.1 Unit Price Change Orders. The Change Order Price for all Unit Price Change Orders will be the amount set forth in the Change Order multiplied by the verified quantity provided.
- 7.2.2 Measurements of quantities to determine the total Change Order Price must be in accordance with MAG Specifications §§ 109.1 and 109.2.
- 7.2.3 The Unit Price may only be changed as set forth in Section 9 below.
- 7.2.4 MAG Specification § 109.4.1 is modified as follows: Before § 109.4.1, the following is added: Any deduction or increase in the Contract Price must be supported by a signed, written Change Order fully executed by City, and supported by such backup as the Project Manager may require. No adjustments in any Unit Prices will be allowed. Sections 109.4.1(A) and (B) and 109.4.2(A) are deleted in their entirety.

7.3 SALES TAX

Contractor is required to pay all applicable sales tax in accordance with the law of the state of Arizona and this cost must be included in all Contract Prices. When equipment, materials or supplies generally taxable to Contractor are eligible for a tax exemption due to the nature of the Project, Contractor must assist City in applying for and obtaining such tax credits and exemptions which will be paid or credited to City.

SECTION 8 - PAYMENT

8.1 PAYMENT FOR CONSTRUCTION SERVICES

- 8.1.1 Payment for the Work will be made in accordance with MAG Standard Specification § 109 as amended below.
- 8.1.2 Contractor must submit to City for review a completed Contractor Payment Request signed

by Contractor, covering the Work completed as of the date of the Request and accompanied by such supporting documentation as is required by the Contract Documents and also as City may reasonably require. A Contractor Payment Request will not be considered complete unless it is accompanied by an updated Project Schedule and a certification that the on-site, red lined, as built Drawings are up to date. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably, securely stored at the Site or at another location (such as a bonded warehouse) agreed to in writing, the Contractor Payment Request must also be accompanied by such data, satisfactory to City, as will establish City's title to the material and equipment and protect City's interest therein, including applicable insurance. Each subsequent Contractor Payment Request must include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied to discharge in full all of Contractor's obligations reflected in prior Contractor Payment Requests.

- 8.1.3 Except for Work performed under a JOC contract, the Contracting Agency will retain 10 percent of all estimates as a guarantee for complete performance of the Contract in accordance with Arizona Revised Statutes Section 34-221 or 34-607. The Contractor may elect to deposit securities in lieu of retention in accordance with Arizona Revised Statutes Section 34-221, Paragraph C.5. or 34-607, Paragraph B.5.
- 8.1.4 The payment process functions as follows: Prior to the payment cycle date, Contractor must send a draft Contractor Payment Request to Project Manager. The Project Team will review the Request and agree upon any necessary adjustments. Contractor must certify the final Request by signing and returning to Project Manager.
- 8.1.5 When construction of the Project is fifty percent (50%) completed, Contractor may request payment of one-half of the retention pursuant to A.R.S. § 34-609(B)(3), subject to all of City's rights to withhold or offset payments, and other rights of City, under the Contract.
- 8.1.6 City reserves the right under A.R.S. § 34-609(B)(3) to reinstate the ten percent (10%) retention if City determines that satisfactory progress is not being made.
- 8.1.7 Contractor's Warranty of Title.
 - 8.1.7.1 Contractor warrants and guarantees that title to all Work, materials and equipment covered by any Contractor Payment Request, whether incorporated in the Project or not, will pass to City at the time of payment, free and clear of all liens, claims, security interests, and encumbrances, provided that this will not preclude the Contractor from installing metering devices or other equipment of utility companies or municipalities, the title of which is commonly retained by the utility company or municipality.
 - 8.1.7.2 No materials, supplies, or equipment for the Work under this Contract will be purchased subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest therein, or any part thereof, is retained by the seller or supplier.
 - 8.1.7.3 Nothing contained in this Section will defeat or impair the right of such persons furnishing materials or labor under any bond given by the Contractor for their protection, or any right under any law permitting such persons to look to funds due the Contractor in the hands of the City. The provisions of this Section must be inserted in all subcontracts and material contracts, and notices of its provision must be given to all persons furnishing materials for the Work when no formal contract is entered into for such materials.

8.2 PAYMENT UPON SUBSTANTIAL COMPLETION

8.2.1 No payment will be made upon Substantial Completion, except for a regularly-scheduled monthly progress payment, as allowed by Section 8.2.2.

8.2.2 No further payments will be made to Contractor until Final Acceptance.

8.3 FINAL PAYMENT

8.3.1 Subject to all of City's rights to withhold or offset payment, and other rights under the Contract, Final Payment including remaining retainage will be paid only after:

- a. Work has been fully completed (including completion of all incorrect or incomplete work items) and the written Final Acceptance has been issued by City;
- b. Necessary operating manuals, any excess materials and supplies necessary for matching materials and supplies incorporated into the Work, acceptable sewer video results (if applicable), and complete "as-built" Drawings (including the Building Information Model, if required by the Contract Documents) have been delivered to City, as specified in this Section 8.3;
- c. Full and unconditional lien waivers and releases by Contractor and any person performing labor or supplying material, machinery, fixtures, or tools for the Work have been delivered to Contractor;
- d. All conditions and requirements imposed by City or any financing entity for the corresponding disbursement have been met; and
- e. Contractor delivers to City a Contractor Payment Request requesting Final Payment.

8.3.2 Contractor must also submit a signed copy of Contractor's Affidavit Regarding Settlement of Claims, Appendix 3 to these General Conditions, and Certificate of Completion, Appendix 7 to these General Conditions, prior to Final Payment.

8.3.3 In addition, if required under the Project Specific Special Provisions, Contractor must compile a complete equipment list and maintenance manual to be submitted to City as a precondition to Final Payment. The list must include the following items for all equipment supplied under the Plumbing, Electrical, Air Conditioning, Elevator, and other Special Equipment Specifications:

- a. Name, Model and Manufacturer.
- b. Complete parts lists and Drawings.
- c. Local source of supply for replacement parts along with suppliers' telephone numbers.
- d. Local service organizations serving the equipment and their telephone numbers.
- e. All tags, inspection slips, instruction packages, etc., removed from equipment must be properly identified as to pieces of equipment from which they were taken.

8.3.4 Contractor must also deliver to City, prior to Final Payment, one (1) digital (in the format specified by City), and if requested by City, one (1) hard copy, of any applicable Maintenance manuals. Each manual must include all manufacturer's operation and maintenance instructions and "as-built" Drawings with the list herein specified. It must also include all other diagrams and instructions necessary to properly operate and maintain the equipment, the name, address and telephone number of Contractor and all Subcontractors involved.

8.4 **CITY'S RIGHT TO WITHHOLD PAYMENT**

City may withhold payment to such extent as may be necessary in City's opinion to protect City from loss for which Contractor is responsible, including, without limitation, if any of the following conditions exist:

- a. Defective Work not remedied;
- b. Third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to City is provided by Contractor;
- c. Failure of Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- d. Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Price;
- e. Damage to City or another Contractor;
- f. Reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- g. Failure to carry out the Work in accordance with the Contract Documents; or
- h. Contractor is in default of any of its other obligations under the Contract Documents.

8.5 **JOINT/DIRECT CHECKS**

To promote the timely completion and progress of the Work or when appropriate and necessary, payments to Contractor may be made jointly to Contractor and its employees, agents, Subcontractors and suppliers, or any of them. For federally funded contracts, see federal provisions for additional requirements for the joint check process.

8.6 **PAYMENT NOT A WAIVER**

No payment (nor use or occupancy of the Project by City) will be deemed acceptance or approval of the Work or as a waiver of any claims, rights, or remedies of City.

8.7 **LIENS AND BOND CLAIMS**

Contractor must make all payments, in the time required, of all labor and materials furnished to Contractor in the course of the Work and must promptly furnish evidence of such payments as City may require. Contractor must pay when due all claims arising out of performance of the Work covered by this Contract for which a lien may be filed either against the real estate or leasehold interest of City, or against payments due from City to Contractor, or for which a claim may be made against any payment or performance bond or both. To the fullest extent permitted by law, Contractor agrees that no liens or other claims in the nature of a lien against the real estate, leasehold, or other interest of City, against payment due from City to Contractor, or against any payment or performance

bond, must be filed or made in connection with the Work by any party who has supplied professional services, labor, materials, machinery, fixtures, tools, or equipment used in or in connection with the performance of this Contract, and Contractor agrees to remove or to cause to be removed any such liens or claims in the nature of a lien or bond claim within 10 Days upon receiving notice or obtaining actual knowledge of the existence of such liens or claim. In addition, Contractor agrees to defend, indemnify, and hold harmless City from and against any and all such liens and claims. This paragraph does not apply to claims and liens of Contractor due to non-payment for work performed.

8.8 FINANCIAL RECORDKEEPING AND CITY'S AUDIT RIGHT

8.8.1 Records for all Contracts between City and Contractor must, upon reasonable notice, be open to inspection and subject to audit, scanning, and reproduction during normal business working hours. Such audits may be performed by any City's representative or any outside representative engaged by City for the purpose of examining such records. City or its designee may conduct such audits or inspections throughout the term of this Contract and for a period of five years after Final Payment or longer if required by law. City's representatives may (without limitation) conduct verifications such as counting employees at the Site, witnessing the distribution of payroll, verifying information and amounts through interviews and written confirmations with Contractor employees, field and agency labor, Subcontractors, and vendors.

8.8.2 Contractor's "records" must include any and all information, materials and data of every kind and character, including without limitation, records, books, papers, documents, subscriptions, recordings, agreements, purchase orders, leases, contracts, commitments, arrangements, notes daily diaries, superintendent reports, drawings, receipts, vouchers and memoranda, and any and all other agreements, sources of information and matters that may in City's judgment have any bearing on or pertain to any matters, rights, duties or obligations under or covered by any Contract Document. Such records must include (hard copy, as well as computer readable data if it can be made available), written policies and procedures; time sheets; payroll registers; payroll records; cancelled payroll checks; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, negotiation notes, etc.); original bid estimates; estimating work sheets; correspondence; Change Order files (including documentation covering negotiated settlements); back-charge logs and supporting documentation; invoices and related payment documentation; general ledger, information detailing cash and trade discounts earned, insurance rebates and dividends; and any other Contractor records which may have a bearing on matters of interest to City or the Project in connection with Contractor's dealings with City or the Project (all foregoing hereinafter referred to as "records") to the extent necessary to adequately permit evaluation and verification of any or all of the following:

- a. Compliance with Contract requirements for deliverables;
- b. Compliance with approved Plans and Specifications;
- c. Compliance with § 14.9 below;
- d. Compliance with Contract provisions regarding the pricing of Change Orders;
- e. Accuracy of Contractor representations regarding the pricing of invoices; or
- f. Accuracy of Contractor representations related to claims submitted by Contractor or any of their employees.

- 8.8.3 Contractor must require all payees (examples of payees include Subcontractors, Suppliers, Insurance Carriers, etc.) to comply with the provisions of this Section by including the requirements hereof in a written Contract Agreement between Contractor and payee. Contractor will ensure that all payees (including those entering into lump sum contracts) have the same right to audit provisions contained in this contract included in their contracts with Contractor.
- 8.8.4 City's authorized representative(s) (including, without limitation, Project Manager) must have reasonable access to Contractor's facilities, must be allowed to interview all current or former employees to discuss matters pertinent to the performance of this contract and must be provided adequate and appropriate work space, in order to conduct audits in compliance with this Section.
- 8.8.5 If an audit inspection or examination in accordance with this Section, discloses overpricing or overcharges to City (of any nature) by Contractor or Contractor's Subcontractors in excess of \$100,000 in addition to making adjustments for the overcharges, the reasonable actual cost of City's audit must be reimbursed to City by Contractor. Any adjustments or payments which must be made as a result of any such audit or inspection of Contractor's invoices or records must be made within a reasonable amount of time (not to exceed 90 Days) from presentation of City's findings to Contractor.
- 8.8.6 In addition to the normal paperwork documentation Contractor typically furnishes to City, Contractor agrees to furnish, upon written request from City, any of the documentation necessary for City to exercise its audit rights under this Section 8.8 in computer readable file formats (Word, Excel, or .pdf), as City may designate.
- 8.8.7 City, its authorized representative, and the appropriate agency, reserve the right to audit Contractor's records in compliance with local, state or federal policies, statutes or at City's discretion, within three (3) years of Final Acceptance of the Work.

SECTION 9 - CHANGES TO THE CONTRACT

9.1 FIELD ORDERS

City may authorize minor changes in the Work not involving an adjustment in the Contract Price or the Contract Times, which are consistent with the overall intent of the Contract Documents. These may be accomplished by a written Field Order on the standard form approved and executed by City. Such Field Orders must be binding and Contractor must perform the change promptly. If Contractor believes that a Field Order justifies an increase in the Contract Price or Contract Time, Contractor may make a claim therefor as provided in Section 7.2.

9.2 EXTRA WORK/CHANGES IN THE WORK

- 9.2.1 City reserves the right to make such changes in the Plans and Specifications for the Work, as it may deem appropriate and any such change as set forth in a written Change Order must be deemed a part of this Contract as if originally incorporated herein.
- 9.2.2 In the event City and Contractor cannot agree on the terms of a Change Order, or when circumstances otherwise require, the Project Manager has the authority to direct the Contractor to perform extra work, if the work in question is an item not provided for in the Contract as awarded. The Project Manager will have the authority to determine, based upon factual evidence presented by the Contractor, whether the work in question is an

item not provided for in the Contract as awarded. If the Project Manager directs the Contractor to perform extra work, the Project Manager's instructions will include a price that the Contractor cannot exceed in charging the City for the extra work. Upon receipt of the Project Manager's directions to perform extra work, the Contractor must promptly proceed with the extra work and document the actual cost thereof. Contractor's right to payment for extra work will be determined under Subsection 9.2.4 below. The Contractor is responsible to manage the extra work to ensure that the price limits set by the Project Manager are not exceeded. Contractor must perform the extra work and submit documentation for the actual cost of the extra work to the City. A Change Order will be issued to cover this work.

9.2.3 Contractor will not be entitled to payment for extra work unless a written Change Order, in form and content prescribed by City, has been executed by City. On all requests for Change Orders, Contractor must specify the increased or decreased costs and whether it believes any extensions of time will be necessary to complete its Work as modified by the Change Order. If extra work is performed under Subsection 9.2.2 above, a corresponding Change Order will be prepared, approved and processed by City before payment can be made to Contractor.

9.2.4 In general, pricing for Change Orders will include the same mark-up percentages that were in effect when the Contract was awarded. The cost or credit to the City resulting from a change in the Work is subject to Appendix 1 (Policy Statement for Calculating Delays and Damages) and will be determined, based on the type of pricing for the Contract involved, as follows:

- a. By mutual acceptance of a lump sum properly itemized in a form acceptable to City;
- b. By unit prices stated in the Contract Documents;
- c. When the City determines that a Unit Price Book Job Order associated with a Job Order Contract requires a Change Order, by using the same Total Cost Data and CCI that are in effect when the Change Order is anticipated to be issued; or
- d. By actual cost and a percentage fee covering overhead and profit, as follows:
 - (i) Contractor will perform the extra work and be compensated for actual cost of labor, materials and equipment.
 - (ii) Contractor will have the right to add the fee percentage applicable to the Work under the Contract, or if no such fee has been agreed to by the parties, not more than five percent (5%) to the Subcontractor's prices for authorized extra work performed solely by Subcontractors. Such percentage will include all of Contractor's charges for overhead, profit, administration and supervision.
 - (iii) Contractor or Subcontractor will have the right to add the fee percentage applicable to Work under the Contract for self-performed extra work, or if no such fee has been agreed to by the parties, Contractor's or Subcontractor's maximum total allowable additions for overhead, profit, administration and supervision will not exceed ten percent (10%) of actual verifiable labor, materials and equipment for such self-performed extra work.

9.2.5 Any agreement which modifies the terms of the Contract (including Change Orders) will be approved in writing by the Project Manager. Once properly executed by both parties, these modifications to the Contract will have the same effect as if they had been included in the original Contract.

9.3 **ACCURACY OF CHANGE ORDER PRICING INFORMATION**

9.3.1 Subject to Sections 9.3.2 through 9.3.4, signature by the contracting parties constitutes full accord and satisfaction between City and Contractor for all costs, damages, and expenses of whatever kind of nature, including delay, impact or acceleration damages, which may be occasioned by a Change Order or other modification of the Contract agreed to in writing.

9.3.2 Accurate Change Order Pricing Information: Contractor agrees that it is responsible for submitting accurate cost and pricing data to City to support its Fixed Price, Unit Price, or Cost Plus Change Order Proposals or other Contract Price adjustments under the Contract. Contractor further agrees to submit Change Order proposals with cost and pricing data which is accurate, complete, current, and in accordance with the terms of the Contract with respect to pricing of change orders. Contractor agrees that any "buy-out savings" on Change Orders will accrue 100% to Owner. "Buy-out savings" are defined as any savings negotiated by the Contractor with a Subcontractor or a Material Supplier after receiving approval of a Change Order amount that was designated to be paid to a specific Subcontractor or Supplier for the Approved Change Order work.

9.3.3 Right to Verify Change Order Pricing Information: Contractor agrees that City, through its designated representative, will have the right to examine, copy, and scan the records of the Contractor, Subcontractor or Sub-Subcontractor's records (during the Contract period and up to three years after final payment is made on the Contract) to verify the accuracy and appropriateness of the pricing data used to price all Change Order proposals or claims. Contractor agrees that if City determines the cost and pricing data submitted (whether approved or not) was inaccurate, incomplete, not current, or not in compliance with the terms of the Contract regarding pricing of Change Orders, an appropriate Contract Price adjustment will be made. Such post-approval Contract Price adjustments will apply to all levels of contractors and Subcontractors and to all types of Change Order proposals, specifically including Fixed Price, Unit Price, and Cost Plus Change Orders.

9.3.4 Requirements for Detailed Change Order Pricing Information: Contractor agrees to provide a detailed breakdown of allowable labor and labor burden cost (i.e., base wage rate of applicable classifications of workers, payroll taxes, and insurance and benefits costs). This information will be used to evaluate the potential cost of labor and labor burden related to Change Order work. It is intended that this information represent an accurate estimate of the Contractor's actual labor and labor burden cost components. Information is not intended to establish fixed billing or Change Order pricing labor rates. However, at the time Change Orders are priced, the submitted cost data for labor rates may be used to price Change Order work. The accuracy of any such agreed upon labor rate cost components used to price Change Orders will be subject to later audit. Approved Change Order amounts may be adjusted later to correct the impact of inaccurate labor cost components if the agreed upon labor cost components are determined to be inaccurate.

9.4 **EMERGENCIES**

In any emergency affecting the safety of persons or property, Contractor will act, at its

discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price or Contract Time resulting from emergency work will be determined as provided in this Section.

9.5 **DIFFERING SITE CONDITIONS**

9.5.1 If Differing Site Conditions are encountered at the Project Site, then notice by the observing party must be given to the other party promptly before conditions are disturbed (to the extent practicable) and in no event later than 14 Days after first observance of the conditions. City will promptly investigate such conditions and, if City determines that Differing Site Conditions exist and they materially cause an increase in the cost of, or time required for, performance of any part of the Work, Contractor will be entitled to equitable adjustment in the Contract Price or Construction Schedule (and other time requirements), or both. If it is determined by City that the conditions at the Project Site are not Differing Site Conditions and no change is justified, then City will so notify Contractor in writing, stating the reasons. Claims in opposition to such determination must be made within 14 Days after City has given notice of its decision. If City and Contractor cannot agree on an adjustment in the Contract Price or Construction Schedule (and other time requirements), the adjustment may be submitted to dispute resolution as provided these General Conditions.

9.6 **CHANGES IN LAWS, REGULATIONS, OR LEGAL REQUIREMENTS OR TAXES**

In the event of a material change in applicable Laws, Regulations, or Legal Requirements, or taxes subsequent to the date of the Contract by the parties, Contractor may be entitled to a Change Order, in City's discretion, to the extent Contractor can document to the satisfaction of City that such change significantly increases Contractor's actual cost of performance of the Work.

SECTION 10 -SUSPENSION AND TERMINATION

10.1 **SUSPENSION**

City may suspend the Contract and Contractor's performance in accordance with MAG Specifications § 105.1 and 108.7.

10.2 **TERMINATION BY THE CITY FOR CAUSE**

10.2.1 MAG Specifications § 108.11 applies to the Contract.

10.2.2 City may also terminate the Contract if City determines, in its sole discretion that Contractor has:

- a. After prior written notice, refused or failed to supply enough properly skilled workers or proper materials;
- b. After prior written notice, failed to make payment to Subcontractors for materials or labor in accordance with the respective agreements between Contractor and the Subcontractors;
- c. After prior written notice, disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction;
- d. After prior written notice, repeatedly failed to comply with written directives from City;
- e. Is adjudged as bankrupt or insolvent;
- f. Made a general assignment for the benefit of creditors;

- g. Appointed a trustee or receiver for itself or any of its property;
- h. Filed a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws; or
- i. Otherwise breached a provision of the Contract Documents or any other contract between City and Contractor.

10.2.3 When any of the above reasons exist, City may terminate the Contract, without prejudice to any other rights or remedies of City, after giving Contractor and Contractors' surety, if any, 7 Days written notice of City's intent to terminate the Contract and Contractor's failure to cure any such reasons. Upon such termination, City may: (1) take possession of the Site and of all materials thereon owned by Contractor; or (2) finish the Work by whatever reasonable method City may deem expedient. When City terminates the Contract for one of the reasons state above, Contractor will not be entitled to receive further payment until the Work is finished. If the unpaid balance of the Contract Price existing at the time of such termination exceeds the costs and expenses of finishing the Work and any other damages incurred by City, such excess will be paid to Contractor. If such costs, expenses and damages exceed such unpaid balance, Contractor must pay the difference to City. This obligation for payment will survive termination of the Contract.

10.3 **TERMINATION BY CITY FOR CONVENIENCE**

City may also terminate the Contract at any time for its convenience upon 7 Days written notice to Contractor specifying the termination date. In the event of termination which is not the fault, in whole or in part, of Contractor, City will pay to Contractor only such compensation, including reimbursable expenses, due for Work properly performed on the Project prior to the termination date. Upon any termination of the Contract, no further payments will be due from City to Contractor.

10.4 **A.R.S. § 38-511**

The Contract is subject to, and may be terminated by City in accordance with, the provisions of A.R.S. § 38-511.

SECTION 11 -INSURANCE AND BONDS

11.1 **INSURANCE REQUIREMENTS**

11.1.1 After Contract award, the Contractor must furnish the City a certificate of insurance on a standard insurance industry ACORD form. The ACORD form must be issued by an insurance company authorized to transact business in the State of Arizona possessing a current A.M. Best, Inc. rating of A-7, or better and legally authorized to do business in the State of Arizona with policies and forms satisfactory to City. Provided, however, the A.M. Best rating requirement may not be deemed to apply to required Worker's Compensation coverage.

11.1.2 The Contractor and any of its Subcontractors must procure and maintain, until all of their obligations have been discharged, including any warranty periods under this Contract are satisfied, the insurances set forth below.

11.1.3 The insurance requirements set forth below are minimum requirements for this Contract and in no way limit the indemnity covenants contained in this Contract.

11.1.4 The City in no way warrants that the minimum insurance limits contained in this Contract are sufficient to protect Contractor from liabilities that might arise out of the performance

of the Contract services under this Contract by Contractor, its agents, representatives, employees, or Subcontractors and the Contractor is free to purchase any additional insurance as may be determined necessary.

11.1.5 Failure to demand evidence of full compliance with the insurance requirements in this Contract or failure to identify any insurance deficiency will not relieve the Contractor from, nor will it be considered a waiver of its obligation to maintain the required insurance at all times during the performance of this Contract.

11.1.6 Use of Subcontractors: If any Work is subcontracted in any way, the Contractor must execute a written agreement with Subcontractor containing the same Indemnification Clause and Insurance Requirements as the City requires of the Contractor in this Contract. The Contractor is responsible for executing the Contract with the Subcontractor and obtaining Certificates of Insurance and verifying the insurance requirements.

11.2 **MINIMUM SCOPE AND LIMITS OF INSURANCE**

11.2.1 The Contractor must provide coverage with limits of liability not less than those stated below.

11.2.1.1 Commercial General Liability-Occurrence Form. Contractor must maintain "occurrence" form Commercial General Liability insurance with a limit of not less than \$2,000,000 for each occurrence, \$4,000,000 aggregate. Said insurance must also include coverage for products and completed operations, independent contractors, personal injury and advertising injury. If any Excess insurance is utilized to fulfill the requirements of this paragraph, the Excess insurance must be "follow form" equal or broader in coverage scope than underlying insurance.

11.2.1.2 Automobile Liability-Any Automobile or Owned, Hired and Non-Owned Vehicles. Contractor must maintain Business/Automobile Liability insurance with a limit of \$1,000,000 each accident on Contractor owned, hired, and non-owned vehicles assigned to or used in the performance under this Contract. If any Excess or Umbrella insurance is utilized to fulfill the requirements of this paragraph, the Excess or Umbrella insurance must be "follow form" equal or broader in coverage scope than underlying insurance.

11.2.1.3 Workers Compensation and Employers Liability Insurance. Contractor must maintain Workers Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of Contractor employees engaged in the performance of Work under this Contract and must also maintain Employers' Liability insurance of not less than \$1,000,000 for each accident and \$1,000,000 disease for each employee.

11.2.1.4 Builders' Risk/Installation Floater Insurance. The Contractor bears all responsibility for loss to all equipment or Work under construction. Unless waived in writing by the City the Contractor will purchase and maintain in force Builders' Risk/Installation Floater insurance on the entire Work until completed and accepted by the City. This insurance will be Special Causes of Loss policy form, (minimally including perils of fire, flood, lightning, explosion, windstorm and hail, smoke, aircraft and vehicles, riot and civil commotion, theft, vandalism, malicious mischief, and collapse), completed value, replacement cost policy form equal to the contract price and all subsequent modifications. The Contractor's Builders' Risk/Installation Floater insurance must be primary and not contributory.

a. Builders' Risk/Installation Floater insurance must cover the entire Work

including reasonable compensation for architects and engineers' services and expenses and other "soft costs" made necessary by an insured loss. Builders' Risk/Installation Floater insurance must provide coverage from the time any covered property comes under the Contractor's control and or responsibility, and continue without interruption during course of construction, renovation and or installation, including any time during which any Project property or equipment is in transit, off Site, or while on Site for future use or installation. Insured property must include, but not be limited to, scaffolding, false work, and temporary buildings at the Site. This insurance must also cover the cost of removing debris, including demolition as may be legally required by operation of any law, ordinance, regulation or code.

- b. The Contractor must also purchase and maintain Boiler and Machinery insurance with the same requirements as Builders' Risk/Installation Floater insurance cited above if the Work to be performed involves any exposures or insurable property normally covered under a Boiler and Machinery insurance policy or made necessary as required by law or testing requirements in the performance of this Contract/Agreement. The Contractor will be responsible for any and all deductibles under these policies and the Contractor waives all rights of recovery and subrogation against the City under the Contractor- Builders' Risk/Installation Floater insurance described herein.
- c. Builders' Risk/Installation Floater Insurance must be maintained until whichever of the following first occurs: (i) final payment has been made; or, (ii) until no person or entity, other than the City, has an insurable interest in the property required to be covered.
- d. The Builders' Risk/Installation Floater insurance must be endorsed so that the insurance will not be canceled or lapse because of any partial use or occupancy by the City.
- e. The Builders Risk/Installation Floater insurance must include as named insureds, the City, the Contractor, and all tiers of Subcontractors and others with an insurable interest in the Work who will be named as additional insureds unless they are able to provide the same level of coverage with the City and Contractor named as additional insureds. Certificates must contain a provision that the insurance will not be canceled or materially altered without at least 30 Days advance notice to the City. The City must also be named as a Loss Payee under the Builders' Risk/Installation Floater coverage.
- f. The Builders Risk/Installation Floater insurance must be written using the Special Causes of Loss policy form, replacement cost basis.
- g. All rights of subrogation under the Builders Risk/Installation Floater insurance are, by this Contract/Agreement, waived against the City, its officers, officials, agents and employees.
- h. The Contractor is responsible for payment of all deductibles under the Builders' Risk/Installation Floater insurance policy.

11.2.1.5 Pollution Liability Insurance (Including Errors and Omissions). For Job Orders, Pollution Liability Insurance is only required if applicable and determined on a project specific basis.

Contractor must maintain Pollution Liability Insurance with a limit of not less than \$5,000,000 per loss, \$5,000,000 aggregate for losses caused by pollution conditions including coverage for bodily injury, property damage, defense costs, clean-up costs, and completed operations that arise from the operations of Contractor as described in this Contract.

- a. The policy must provide for complete professional service coverage, including coverage for pollution liability that is a result of a breach of professional duties.
- b. The policy must provide for protection against claims for third-party bodily injury, property damage, or environmental damage caused for pollution conditions resulting from general contracting activities for which Contractor is legally liable.
- c. The policy must provide for cleanup costs when mandated by governmental entities, when required by law, or as a result of third-party claims.
- d. Completed Operations Coverage must be kept in place for up to the statute of repose.
- e. The policy must be endorsed to include the following additional insured language: "City, its elected officials, trustees, employees, agents, and volunteers must be named as additional insureds with respect to liability arising out of the activities performed by, or on behalf of Contractor".
- f. If Work under this Contract requires the transportation of any hazardous material or regulated substances, Contractor must carry Auto Liability with a CA 9948 endorsement or equivalent.
- g. If Work under this Contract requires the disposal of any hazardous materials from the job site, Contractor must obtain a certificate of insurance for Pollution Legal Liability from the disposal site operator with a limit of not less than \$5,000,000 per loss, \$5,000,000 aggregate.

11.3 ADDITIONAL POLICY PROVISIONS REQUIRED

- 11.3.1 Self-Insured Retentions or Deductibles. Any self-insured retentions and deductibles must be declared and approved by the City. If not approved, the City may require that the insurer reduce or eliminate any deductible or self-insured retentions with respect to the City, its officers, officials, agents, employees, and volunteers.
- 11.3.2 The Contractor's insurance must contain broad form contractual liability coverage.
- 11.3.3 The Contractor's insurance coverage must be primary insurance with respect to the City, its officers, officials, agents, and employees. Any insurance or self-insurance maintained by the City, its officers, officials, agents, and employees will be in excess of the coverage provided by the Contractor and must not contribute to it.
- 11.3.4 The Contractor's insurance must 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.
- 11.3.5 Coverage provided by the Contractor must not be limited to the liability assumed under the indemnification provisions of this Contract.

- 11.3.6 The policies must contain a severability of interest clause and waiver of subrogation against the City, its officers, officials, agents, and employees, for losses arising from Work performed by the Contractor for the City.
- 11.3.7 The Contractor, its successors and or assigns, are required to maintain Commercial General Liability insurance as specified in this Contract for a minimum period of 3 years following completion and acceptance of the Work. The Contractor must submit a Certificate of Insurance evidencing Commercial General Liability insurance during this 3 year period containing all the Contract insurance requirements, including naming the required Additional Insureds set forth herein.
- 11.3.8 If a Certificate of Insurance is submitted as verification of coverage, the City will reasonably rely upon the Certificate of Insurance as evidence of coverage but this acceptance and reliance will not waive or alter in any way the insurance requirements or obligations of this Contract.
- 11.3.9 Insurance Cancellation During Contract Term.
- 11.3.9.1 If any of the required policies expire during the life of this Contract, the Contractor must forward renewal or replacement Certificates to the City within 10 Days after the renewal date containing all the required insurance provisions.
- 11.3.9.2 Each insurance policy required by the insurance provisions of this Contract must provide the required coverage and must not be suspended, voided or canceled except after 30 Days prior written notice has been given to the City, except when cancellation is for non-payment of premium, then 10 Days prior notice may be given. Such notice must be sent directly to Chandler Law-Risk Management Department, Post Office Box 4008, Mailstop 628, Chandler, Arizona 85225. If any insurance company refuses to provide the require notice, the Contractor or its insurance broker must notify the City of any cancellation, suspension, non-renewal of any insurance within 7 Days of receipt of insurers' notification to that effect.
- 11.3.10 City as Additional Insured. The above-referenced policies are to contain, or be endorsed to contain, the following provisions:
- 11.3.10.1 The Commercial General Liability and Automobile Liability policies are to contain, or be endorsed to contain, the following provisions: The City, its officers, officials, agents, and employees are additional insureds with respect to liability arising out of activities performed by, or on behalf of, the Contractor including the City's general supervision of the Contractor; Products and Completed Operations of the Contractor; and automobiles owned, leased, hired, or borrowed by the Contractor.
- 11.3.10.2 The City, its officers, officials, agents, and employees must be additional insureds to the full limits of liability purchased by the Contractor even if those limits of liability are in excess of those required by this Contract.
- 11.4 **BONDS AND OTHER PERFORMANCE SECURITY**
- 11.4.1 After Contract award, Contractor must provide a Performance Bond and a Payment Bond, each in an amount equal to the full amount of the Contract Price.
- 11.4.2 Each such bond must 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 and must be named in the current list of "Companies

Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. A copy of the Certificate of Authority must accompany the bonds. The Certificate must have been issued or updated within two (2) years prior to the execution of this Agreement. The bonds must 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 this state, as by law required.

- 11.4.3 The bonds must be made payable and be acceptable to City. The bond forms for the performance and payment bonds must be in the forms required under A.R.S. § 34-221, *et. Seq.*, as in Appendices 4 and 5 of these General Conditions.
- 11.4.4 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, Contractor must promptly furnish a copy of the bonds or must permit a copy to be made.
- 11.4.5 All bonds submitted for this Project must be provided by a company which has been rated AM Best rating of A- or better for the prior four quarters by the latest edition of the 'Results Best's Key Rating Guide (Property/Casualty)' published by the A.M. Best Company.
- 11.4.6 Personal or individual bonds are not acceptable.
- 11.4.7 If the surety on any Bond furnished by Contractor is declared a bankrupt or becomes insolvent, or Contractor's right to do business is terminated in any state where any part of the Project is located, or it ceases to meet the requirements of this Section 11.4, Contractor must within 5 Days thereafter substitute another Bond and surety, both of which must be acceptable to City.

SECTION 12 - INDEMNIFICATION

- 12.1 To the extent permitted by law, the Contractor and its owners, officers, directors, agents, employees, and subconsultants (collectively "Indemnitor") must indemnify, save, and hold harmless the City and its officers, officials, agents, and employees (collectively "Indemnatee") from any and all claims, actions, liabilities, damages, losses, or expenses (including court costs, attorneys' fees, and costs of claim processing, investigation, and litigation) (collectively "Claims") caused or alleged to be caused, in whole or in part, by the negligent, reckless, wrongful, or willful acts, errors, or omissions of Indemnitor in connection with this Agreement. This indemnity includes any Claim or amount arising out of or recovered under workers' compensation laws or on account of Indemnitor's failure to conform to any federal, state, or local law, statute, ordinance, rule, regulation, or court decree. Indemnitor must indemnify Indemnatee from and against any and all Claims, except those arising solely from Indemnatee's own negligent, reckless, wrongful, or willful acts, errors, or omissions. Indemnitor is responsible for primary loss investigation, defense, and judgment costs where this indemnification applies. In consideration of the award of this Agreement, Indemnitor agrees to waive all rights of subrogation against Indemnatee for losses arising from or related to this Agreement. Indemnitor's obligations under this provision survive the termination or expiration of this Agreement.

SECTION 13 -DISPUTE RESOLUTION

- 13.1 All disputes arising out of or relating to the Contract, the Work or the Project, other than termination under Section 10, will be resolved pursuant to the Dispute Resolution

process set forth in Appendix 6 of these General Conditions, and not pursuant to MAG Specifications § 110.

13.2 Contractor agrees that during any dispute between the parties, Contractor will continue to perform its obligations under the Contract until such dispute is resolved.

13.3 Notwithstanding any other provision in this Contract, City has the right to immediately file in court and pursue an action for a temporary restraining order and injunctive relief against Contractor if City determines that such action is necessary to protect its interests under the Contract, to obtain specific performance of any provision of the Contract, to advance the completion of the Project, or to protect health, welfare and safety.

SECTION 14 - MISCELLANEOUS PROVISIONS

14.1 CONTRACT DOCUMENTS

14.1.1 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.

14.1.2 It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result must be provided by Contractor whether or not specifically called for at no additional cost to City.

14.1.3 The Contract Documents establish the rights and obligations of the parties and include the Contract, Addenda (which pertain to the Contract Documents), Contractor's Bid or Proposal (including documentation accompanying the Bid and any post-Bid documentation submitted prior to Contract award) when attached as an exhibit to the Contract, the accepted Project Schedule, the Notice to Proceed, the Performance Bond, the Payment Bond, Project Design, Engineering and Specifications, these General Conditions, the Project Specific Special Provisions, Technical Specifications, Contract Drawings, as the same may be more specifically identified in the Contract, Change Orders, Work Change Directives, Field Orders and the written interpretations and clarifications of the Design Professional or City representative and Modifications issued after execution of the Contract. Approved Shop Drawings and the reports and drawings of subsurface and physical conditions are not Contract Documents.

14.1.4 In the event of any inconsistency, conflict, or ambiguity between or among the Contract Documents, the Contract Documents will take precedence as follows from highest to lowest: Change Orders, Addenda, Contract, Project Specific Special Provisions, General Conditions, Technical Specifications, Drawings/Plans, Chandler Amendments to MAG Standard Specifications and Chandler Standard Details, and MAG Uniform Standard Specifications and Details for Public Works Construction. If applicable to this Contract, Federal Provisions prevail.

14.1.5 On the Drawings, given dimensions will take precedence over scaled measurements and

large scale drawings over small-scale drawings.

- 14.1.6 Clarifications and interpretations of the Contract Documents will be issued by the Design Professional through the City.
- 14.1.7 The headings used in this Agreement or any other Contract Documents, are for ease of reference only and must not in any way be construed to limit or alter the meaning of any provision.
- 14.1.8 The Contract Documents form the entire agreement between City and Contractor. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.
- 14.1.9 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 in the form of a Change Order.
- 14.1.10 Re-Use of Documents. Neither Contractor nor any Subcontractor, manufacturer, fabricator, supplier or distributor will have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of the Design Professional; and they must not re-use any of them on extensions of the Project or any other project without written consent of City and the Design Professional and specific written verification or adaptation by the Design Professional.

14.2 **REFERENCE STANDARDS**

- 14.2.1 Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, will mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
- 14.2.2 The provisions of any such standard, specification, manual or code, or any instruction of a Supplier will not change the duties or responsibilities of City, Contractor, Design Professional or Project Manager, or any of their Subcontractors, consultants, agents, or employees from those set forth in the Contract Documents, nor will any such provision or instruction assign to City, Contractor, Design Professional, or any of their agents, or employees any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

14.3 **COMPLIANCE WITH ARIZONA LAW AND FEDERAL LAW**

- 14.3.1 Compliance with A.R.S. § 41-4401. Pursuant to the provisions of A.R.S. § 41-4401, the Contractor hereby warrants to the City that the Contractor and each of its subcontractors ("Subcontractors") must comply with all Federal Immigration laws and regulations that relate to the immigration status of their employees and the requirement to use E-Verify set forth in A.R.S. §23-214(A).
- 14.3.2 A breach of the Contractor Immigration Warranty constitutes a material breach of this Contract and subject to penalties up to and including termination of this Contract.

- 14.3.3 The City retains the legal right to inspect the papers of any Contractor or Subcontractor employee who works on this Contract to ensure that the Contractor or Subcontractor is complying with the Contractor Immigration Warranty. The Contractor agrees to assist the City in the conduct of any such inspections.
- 14.3.4 The City may, at its sole discretion, conduct random verifications of the employment records of the Contractor and any Subcontractors to ensure compliance with Contractors Immigration Warranty. The Contractor agrees to assist the City in performing any such random verifications.
- 14.3.5 The provisions of this Article must be included in any contract the Contractor enters into with any and all of its subcontractors who provide services under this Contract or any subcontract. "Services" are defined as furnishing labor, time or effort in the State of Arizona by a contractor or subcontractor. Services include construction or maintenance of any structure, building or transportation facility or improvement to real property.

14.4 **HAZARDOUS ENVIRONMENTAL CONDITIONS**

- 14.4.1 Contractor will not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Document to be within the scope of the Work. Contractor will be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- 14.4.2 If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition. Contractor must immediately:
- a. Secure or otherwise isolate such condition;
 - b. Stop all Work in connection with such condition and in any area affected thereby; and
 - c. Notify City and promptly thereafter confirm such notice in writing.
- 14.4.3 City will promptly retain a qualified expert to evaluate such condition or take corrective action, if any.
- 14.4.4 Contractor will be responsible for any and all civil or criminal penalties, fines, damages, or other charges imposed by any regulatory agency or court for sewage discharges that are in violation of applicable statutes and laws and that are a result, direct or indirect, of work performed under this Contract. Contractor will also be responsible for reimbursement to City for administration, reporting, and tracking expenses required as a result of any spill event. In the event the regulatory agency or court imposes a probationary period, Contractor must post bond for the probationary period to ensure that all such costs are reimbursed to City. This responsibility will apply whether penalties are imposed directly on Contractor or any of its Subcontractors, or the City of Chandler. Contractor must defend and indemnify City against such penalties. Regulatory agencies may include, but are not limited to, the Arizona Department of Environmental Quality (ADEQ) and the United States Environmental Protection Agency (USEPA).

14.5 **COOPERATION AND FURTHER DOCUMENTATION**

Contractor agrees to provide City such other duly executed documents as may be reasonably requested by City to implement the intent of the Contract Documents.

14.6 **ASSIGNMENT**

Neither Contractor nor City will, without the written consent of the other assign, transfer or sublet any portion of this Agreement or part of the Work or the obligations required by the Contract Documents, any such assignment will be void, will transfer no rights to the purported assignee, and would be a material breach of the Contract.

14.7 **SUCCESSORS**

Contractor and City intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

14.8 **LAWFUL PRESENCE**

Pursuant to A.R.S. §§ 1-501 and 1-502, City is prohibited from awarding a contract to any natural person who cannot establish that such person is lawfully present in the United States. To establish lawful presence, a person must produce qualifying identification and sign a City-provided affidavit affirming the identification provided is genuine. This requirement will be imposed at the time of contract award. This requirement does not apply to business organizations such as corporations, partnerships, or limited liability companies.

14.9 **NO BOYCOTT OF ISRAEL CERTIFICATION**

By Contractor's signature on this Contract, Contractor certifies under A.R.S. § 35-393.01 that Contractor is not currently engaged in and for the duration of this Contract will not engage in a boycott of Israel.

14.10 **NO THIRD PARTY BENEFICIARY**

Nothing under the Contract Documents will be construed to give any rights or benefits in the Contract Documents to anyone other than City and Contractor, and all duties and responsibilities undertaken pursuant to the Contract Documents will be for the sole and exclusive benefit of City and Contractor and not for the benefit of any other party, unless otherwise expressly set forth in the Contract Documents.

14.11 **GOVERNING LAW AND VENUE**

The Agreement and all Contract Documents will be deemed to be made under, and will 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 court action to enforce any provision of the Contract or to obtain any remedy with respect hereto must be brought in the Superior Court, Maricopa County, Arizona, and for this purpose, each party hereby expressly and irrevocably consents to the jurisdiction and venue of such Court.

14.12 **SEVERABILITY**

If any provision of the Contract Documents or the application thereof to any person or circumstance will be invalid, illegal or unenforceable to any extent, the remainder of the affected provision, the remainder of the Contract Documents, and the application thereof will not be affected and will be enforceable to the fullest extent permitted by law.

14.13 **LEGAL REQUIREMENTS**

At all times relevant to its entry into this Contract and performance of the Services and the Work, Contractor must fully comply with all Laws, Regulations, or Legal Requirements applicable to City, the Project, and the Contract, including, without limitation, those set

forth on Exhibit C of the Contract.

14.14 **PARTIAL INVALIDITY**

If any provision of the Contract is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions will nevertheless continue in full force without being impaired or invalidated in any way.

14.15 **ATTORNEYS' FEES**

Should either party to the Contract bring an action to enforce any provision of the Contract, the prevailing party will be entitled to recover reasonable attorneys' fees and costs in connection therewith.

14.16 **CONFLICT OF INTEREST**

14.16.1 Contractor agrees to disclose any financial or economic interest with the Project property, or any property affected by the Project, existing prior to the execution of the Contract. Further, Contractor agrees to disclose any financial or economic interest with the Project property, or any property affected by the Project, if Contractor gains such interest during the course of this Contract. If Contractor gains financial or economic interest in the Project during the course of this Contract, this may be grounds for terminating this Contract. Any decision to terminate the Contract must be at the sole discretion of City.

14.16.2 Contractor will not engage the services on this Contract of any present City employee who was involved as a decision maker in the selection or approval processes, or who negotiated or approved billings or Contract Modifications for this Contract.

14.16.3 Contractor agrees that it will not perform services on this Project for a contractor, subcontractor, or any supplier, not covered under this Contract.

14.17 **INDEPENDENT CONTRACTOR**

Contractor is and must be an independent contractor. Any provisions in the Contract Documents that may appear to give City the right to direct Contractor as to the details of accomplishing the Work or to exercise a measure of control over the Work means that Contractor must follow the wishes of City as the results of the Work only. These results must comply with all applicable laws and ordinances.

14.18 **NOTICE OF INJURY**

Should City or Contractor suffer injury or damage to their person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim must be made in writing to the other party within 7 Days of the first observance of such injury or damage.

14.19 **CONFIDENTIALITY**

Contractor, for the benefit of City, hereby agrees it will not release or cause or permit to be released to the public any press notices, publicity (oral or written) or advertising promotion relating to, any statement regarding, or any other public announcement or disclosure or cause or permit to be publicly announced or disclosed, in any manner whatsoever, the specific terms and conditions of this Agreement or any comment relating to the Project or the Site. Notwithstanding the foregoing, Contractor will be entitled to disclose the terms of the Agreement to the extent required by law or in the course of enforcing or defending a claim or action hereunder. Contractor must give City reasonably prompt notice of any disclosure or statement made pursuant to this provision.

14.20 **DATA CONFIDENTIALITY**

- 14.20.1 As used in the Contract, “data” means all information, whether written or verbal, including plans, specifications, renderings, photographs, studies, investigations, audits, analyses, samples, reports, calculations, internal memos, meeting minutes, data field notes, work product, proposals, correspondence and any other similar documents or information prepared by, obtained by, or transmitted to the City in the performance of this Contract.
- 14.20.2 Contractor agrees that all data, regardless of form, including originals, images, and reproductions, prepared by, obtained by, or transmitted to City in connection with the Contractor’s performance of this Contract is confidential and proprietary information belonging to City.
- 14.20.3 Except as specifically provided in this Contract, Contractor or its Subcontractors must not divulge data to any third party without prior written consent of City. Contractor or its Subcontractors must not use data for any purposes except to perform Work required under this Contract. These prohibitions will not apply to the following data provided Contractor has first given the required notice to City:
- a. Data which was known to Contractor or its Subcontractors prior to its performance under this Contract unless such data was acquired in connection with Work performed for City;
 - b. Data which was acquired by Contractor or its Subcontractors in its performance under this Contract and which was disclosed to Contractor or its Subcontractors by a third party, who to the best of Contractor’s or its Subcontractor’s knowledge and belief, had the legal right to make such disclosure and Contractor or its Subcontractors are not otherwise required to hold such data in confidence; or
 - c. Data which is required to be disclosed by virtue of law, regulation, or court order, to which the Contractor or its Subcontractors are subject.
- 14.20.4 In the event the Contractor or its Subcontractors are required or requested to disclose data to a third party, or any other information to which the Contractor or its Subcontractors became privy as a result of any other contract with City, the Contractor must first notify City as set forth in this Section of the request or demand for the data. The Contractor or its Subcontractors must give City sufficient facts so that City can be given an opportunity to first give its consent or take such action that City may deem appropriate to protect such data or other information from disclosure.
- 14.20.5 Unless prohibited by law, within 10 Days after completion of services for a third party on real or personal property owned or leased by City, the Contractor must promptly deliver, as set forth in this Section, a copy of all data to City. All data will continue to be subject to the confidentiality agreements of this Contract.
- 14.20.6 Contractor or its Subcontractors assume all liability for maintaining the confidentiality of the data in its possession and agree to compensate City if any of the provisions of this Section are violated by Contractor, its employees, agents, or Subcontractors. Solely for the purposes of seeking injunctive relief, it is agreed that a breach of this Section will be deemed to cause irreparable harm that justified injunctive relief in court. Contractor agrees that the requirements of this Section will be incorporated into all subcontracts entered into by Contractor. A violation of this Section may result in immediate termination of this Contract

without notice.

14.21 **SURVIVAL**

All warranties, representations and indemnifications by Contractor must survive the completion or termination of this Agreement.

14.22 **COVENANTS AGAINST CONTINGENT FEES**

Contractor 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 City Council, or any employee of City has any interest, financially, or otherwise, in the firm. For breach or violation of this warrant, City will have the right to annul the Contract 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.

14.23 **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 must not be construed to be a waiver of such provisions, nor will 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.

14.24 **NONEXCLUSIVE REMEDIES**

The remedies set forth in this Contract are cumulative and not exclusive, and failure to exercise any remedy (including, without limitation, any right to terminate) will not preclude any party from exercising any other right in seeking any other remedy available to it at law or in equity.

14.25 **PROJECT COMMUNICATIONS**

14.25.1 All communications concerning the performance of the Work or the Project will be provided to the designated Project Manager and Contractor's Representative set forth in Article 1 of the Contract. City may change the designated Project Manager and, subject to Section 4.4.20 of these General Conditions, Contractor may change Contractor Representative, by written notice to the other.

14.25.2 Project communications may be exchanged by e-mail, but email communications cannot change the terms of the Contract or the Scope of Work, or effectuate any change that requires a written Change Order.

14.25.3 When any provisions of the Contract Documents requires Contractor or the Design Professional to give written notice to City, it will be deemed to have been validly given if delivered in person or if delivered at or sent by registered or certified mail, postage prepaid, to the Parties indicated in Contract Article 1, incorporated by reference.

14.25.4 When any provisions of the Contract Documents requires City, Project Manager, or the Design Professional to give written notice to Contractor, it will be deemed to have been validly given if delivered in person to the person designated in the Contract Documents as Contractor's Resident Superintendent, or if delivered at or sent by registered or certified mail, postage prepaid, to Contractor at the last address in the Contract Documents or such substitute address which Contractor designates in writing, or to the business address known to the giver of notice.

14.26 **DRUG FREE WORKPLACE PROGRAM**

14.26.1 City has adopted a policy establishing a drug free workplace for itself and as a requirement for Contractors doing business with City, to ensure the safety and health of employees working on City projects.

14.26.2 Contractor must require a drug free workplace for all employees working under the Contract. Specifically, all employees of Contractor who are working under a Contract with City must be notified, in writing, by Contractor that they are prohibited from the manufacture, distribution, dispensation, possession or unlawful use of a controlled substance in the workplace.

14.27 Failure to require a drug free workplace in accordance with the City's policy may result in termination of the Contract and possible debarment from bidding on future City projects.

SECTION 15 - PROVISIONS APPLICABLE SOLELY TO GMP AND COST-BASED CONTRACTS, CHANGE ORDERS, AND JOB ORDERS

15.1 **ADDITIONAL DEFINITIONS**

The definitions set forth in Section 2 apply to GMP and Cost-Based Contracts, Change Orders, and Job Orders, together with the additional definitions set forth below.

Baseline Cost Model –

A breakdown and estimate of the scope of the Project developed by CM@Risk pursuant to Section 17.5 of these General Conditions.

CM@Risk or Construction Manager at Risk –

The person or firm selected by City to provide pre-construction and/or construction services as detailed in a Construction Manager at Risk Contract with City. In these General Conditions, the term "Contractor" includes CM@Risk under both Pre-Construction and Construction Services Contracts.

CM@Risk Fee or Contractor's Fee –

An agreed to percentage in an accepted GMP that represents the Contractor's fee for performance of the Work.

Contract Documents –

Where compensation under the Contract is based upon a GMP accepted by City, the term "Contract Documents" also includes the accepted GMP Proposal.

Contract Price –

Where compensation under the Contract based upon a GMP accepted by City, the term "Contract Price" refers to the GMP.

Cost-Based Contract, Change Order, or Job Order –

A Contract, Change Order, or Job Order where the Contract Price is based upon the actual cost of performing the Work, subject to the terms of the Contract Documents, including this Section 15. These would include those generally referred to as "Cost of the Work plus a Fee with a GMP," "Time and Materials," or "Cost Plus a Fee."

Cost of the Work –

The direct costs necessarily incurred by Contractor in the proper, timely, and complete performance on the Work. The Cost of the Work will include only those costs set forth in Section 15.2 of these General Conditions.

Deliverables –

The work products prepared by Contractor in performing the scope of work described in the Contract. Some of the major deliverables to be prepared and provided by Contractor during pre-construction may include but are not limited to: the Baseline Cost Model and Schedule that validate City's plan and budget, Construction Management Plan, Detailed Project Schedule, Schedule of Values, alternative system evaluations, procurement strategies and plans, Detailed Cost Estimates, construction market surveys, cash flow projections, GMP Proposals, Subcontractor procurement plan, Subcontractor agreements, Subcontractor bid packages, Supplier agreements, Constructability Review, Cost Control Log, Traffic control and phasing plans and others as indicated in this Contract or required by the Project Team.

Pre-Construction Services Contract –

The Contract entered into between City and the CM@Risk for Pre-Construction Services to be provided by the CM@Risk, including, without limitation, the generation of a GMP Proposal. If the GMP Proposal is accepted by City and a Construction Contract is entered into between City and CM@Risk, the duties, obligations and warranties of the CM@Risk under the Pre-Construction Services Contract survive and are incorporated into the resulting Construction Contract.

Pre-Construction Services –

The services to be provided under the Pre-Construction Services Contract, including Section 17 of these General Conditions.

Detailed Project Schedule –

The Detailed Project Schedule developed by the CM@Risk for the review and approval of the Project Manager in accordance with Section 17.3 of these General Conditions, if applicable.

General Conditions Costs –

Those costs set forth in Section 4 of Appendix 9 to these General Conditions.

GMP Plans and Specifications –

The plan and specifications upon which the Guaranteed Maximum price Proposal is based.

GMP Proposal –

The proposal of Contractor submitted pursuant to Section 17.7 of these General Conditions for the entire Work and/or portion (phases) of the Work.

Guaranteed Maximum Price or GMP –

The Guaranteed Maximum Price set forth in the Contract, Change Order, or Job Order if applicable.

15.2 CONTRACT PRICE

- 15.2.1 The Contract Price for all Contracts, Change Orders, and Job Orders based upon payment of the Cost of the Work plus a Fee with a GMP, time and materials, or cost-plus a fee will be the Cost of the Work incurred plus the Fee agreed to in writing by City, limited to the amount of the GMP, if agreed to. Unless otherwise expressly provided in the Contract, Change Order, or Job Order, all Cost Based pricing will be subject to and limited to GMP.
- 15.2.2 The Contract Price may only be changed as set forth in Section 9 above.
- 15.2.3 Only costs specifically designated as reimbursable costs are eligible for payment by City or may be charged against the Contract Price. All other costs will not be paid by City and will

not be chargeable against the Contract Price.

- 15.2.4 Cost-Based Contracts. For Contracts, Change Orders, or Job Orders, reimbursable costs must be determined pursuant to Appendix 9 to these General Conditions, Cost of the Work, and not by MAG Specifications §109.5.

15.3 **ALLOWANCES**

- 15.3.1 Contractor must include in the Contract Price all Allowances stated in the Contract Documents and agreed to in writing by City. Items covered by these Allowances must be supplied for such amounts and by such persons as City may direct, provided Contractor will not be required to employ persons against whom Contractor makes a reasonable objection. Materials, labor, and equipment under an Allowance will be selected by City in accordance with a schedule to be mutually agreed upon by City, Design Professional and Contractor or otherwise in reasonably sufficient time to avoid delay in the Work.

- 15.3.2 Unless otherwise provided in the Contract Documents:

- 15.3.2.1 These Allowances must cover the cost to Contractor, less any applicable trade discount, of the materials, labor, and equipment required by the Allowances, delivered at the Site, and all applicable taxes;

- 15.3.2.2 Contractor's costs for unloading and handling on the Site, labor, installation costs, overhead, profit and other expenses relating to materials, labor, and equipment required by the Allowance must be included in the Contract Sum and not in the Allowance; and

- 15.3.2.3 Whenever the cost is more or less than the Allowance, the Contract Sum must be adjusted accordingly by Change Order, the amount of which will recognize the difference between actual costs for an Allowance item and the amount of the Allowance item and changes, if any, in handling costs on the Site, labor, installation costs, overhead, profit and other expenses.

15.4 **CONTINGENCY**

An agreed to amount in the GMP that may only be used in accordance with the terms set forth in these General Conditions and with prior written approval by the City.

- 15.4.1 Construction Contingency. This GMP includes a dollar amount listed as a Construction Contingency which will be readily available for increased costs for subcontractors, material, and equipment subject to prior approval of City, which approval will not be withheld unreasonably. The Construction Contingency may also be used, at the discretion of City, to reimburse CM@Risk for unexpected costs due to (a) scope gaps between trade subcontractors; (b) contract default by trade subcontractors; (c) unforeseen field conditions, but only as defined in Section 9.5 above; (d) work completed to meet the intent of the design, but which was not indicated on the plans; (e) costs overruns not covered by allowances; (f) costs of corrective work not provided for elsewhere; and (g) implementation of any Recovery Plan. Cost for which CM@Risk desires to be paid from the Construction Contingency must be documented by CM@Risk on a time and materials basis and are subject to verification by City. If agreed to by City, a "Use of Contingency" form will be executed by both parties authorizing the actual cost of the work to be paid and included in the Work Item Direct Costs. The Construction Contingency is not allocated to any particular item of the Project but may be used for any portion of the work as determined above. Any amount not used in the Construction Contingency will belong to City and will reduce the

GMP.

- 15.4.2 Owner's Contingency. This GMP also includes a dollar amount listed as an Owner's Contingency which may be used only by the City (owner department) for upgrades and changes in scope or other changes not already included within the intent of the Project Program. City will provide CM@Risk with a Work Change Directive authorizing CM@Risk to perform the additional work and to transfer funds from the Owner's Contingency to the Work Item Direct Costs category to be paid with such direct costs. These additional costs will be in an amount mutually agreed upon by CM@Risk and City or will be documented by CM@Risk on a time and materials basis and are subject to verification by City. Any amount not used in the Owner's Contingency will belong to the City and will reduce the GMP.

15.5 **REDUCTION IN RETENTION**

If the Contract Price is based upon a GMP, in order to receive payment of one-half of the retention as set forth in Section 8.1.5 above, Contractor must also submit to the Project Manager a complete accounting of the Actual Reimbursable Cost of the Work to date, including all such documentation (including, without limitation, invoices, subcontract, subcontractor change orders, purchase orders, records of payment, etc.) as City may require, to establish whether the payments made to Contractor equal, exceed, or are less than the actual reimbursable Cost of the Work to date. Any excess payments by City, as determined by the Project Manager, will be deducted from the one-half retention payment to be made to Contractor, and any additional excess amounts paid to Contractor will be refunded by Contractor to City. The Project Manager's determinations as to Actual Reimbursable Cost of the Work will be the basis of payment until final Project Closeout and Final Payment under the Contract.

15.6 **FINAL PAYMENT**

If the Contract Price is based upon a GMP, as a further condition precedent to Final Payment by City, Contractor must submit to the Project Manager a complete final accounting of the Actual Reimbursable Cost of the Work, including all such documentation (including, without limitation, invoices, subcontracts, subcontractor change orders, purchase orders, records of payment, etc.) as City may require, to establish whether the payments made to Contractor equal, exceed, or are less than the Actual Reimbursable Cost of the Work to date. Any excess payments by City, as determined by the Project Manager, will be deducted from the one-half retention payment to be made to Contractor, and any additional excess amounts paid to Contractor will be refunded by Contractor to City. Disputes relating to the Final Cost of the Work will be subject to City's audit rights under Sections 8.8 above and 15.7 below, and the dispute resolution process under Section 13 above.

15.7 **OPEN BOOK**

On any GMP-based or Cost-Based Contract, Job Order, or Change Order, City may attend any and all meetings or discussions pertaining to the Project, including bid openings, and must have access to all books, invoices, accounts, memoranda, correspondence, and written communications or records of any kind pertaining to the Project, including without limitation, those stored in electronic format.

15.8 **DIFFERING SITE CONDITIONS AND/OR CHANGE IN LAWS**

A Change Order for increased costs under Section 9.5 or 9.6 above will only be considered or granted by City to the extent such actual, documented costs are justified.

SECTION 16 - PROVISIONS APPLICABLE SOLELY TO JOB ORDER CONTRACTS (JOC)

16.1 **ADDITIONAL DEFINITIONS**

The definitions set forth in Sections 2 and below will apply to all Job Order Contracts and Job Orders. In addition, the definitions set forth in Section 15.1 above will apply to all Cost-Based Job Orders.

Contract –

Includes the Job Order Master Agreement and Job Order Project Agreements issued and agreed to by City and JOC Contractor.

JOC Contractor's Coefficient –

A numerical factor that represents JOC Contractor total costs (indirect and direct costs, sales tax, profit, etc.) and other adjustments for market conditions.

Job Order Request for Proposal (RFP) –

The Request for Proposals issued by City for each Job Order Project Agreement relating to a specific Project.

Job Order Cost Proposal –

The Proposal submitted by JOC Contractor in response to a Job Order Request for Proposal (RFP) issued by City to develop a Job Order Project Agreement for a specific Project.

Guaranteed Maximum Price (GMP) Job Order –

Job Order under which JOC Contractor is compensated for actual costs incurred.

Job Order Project Agreement (Job Order) –

The agreement for a specific project, as it may be modified by all Change Orders, executed by the Parties, which incorporates the terms and conditions of the Job Order Master Agreement.

16.2 **ORDERING AND PROCESSING PROCEDURES FOR JOB ORDERS**

16.2.1 The process for developing and issuing a Job Order for a particular Project consists of three (3) procedures: (1) issuance of a RFP by City; (2) JOC Contractor's response to the RFP in the form of JOC Contractor's Job Order Cost Proposal; and (3) Issuance of a Job Order by City, as set for below.

16.2.2 RFP's For Job Orders

16.2.2.1 City will provide to JOC Contractor RFP with a Scope of Work (SOW) describing the Work to be performed, which may include special instructions and conditions, material submittal requirements, and, if applicable, a complete set of sketches, construction drawings and specifications for the Job Order.

16.2.2.2 Some Job Order RFP's will be issued by City without detailed sketches, drawing and specifications and will rely on JOC Contractor to produce them for City review and approval and is considered to be Pre-Construction and incidental design services included in JOC Contractor's overhead for GMP Job Orders. In addition JOC Contractor will not be reimbursed for any Pre-Job Order costs, including proposal preparation, attendance during negotiations, or site visits.

16.2.3 JOC Contractor's Job Order Cost Proposal

16.2.3.1 JOC Contractor must respond within ten (10) calendar days of the RFP date or site visit,

whichever is later or as otherwise indicated on a case-by-case basis, by submitting JOC Contractor's Job Order Cost Proposal to the City representative.

16.2.3.2 Unless otherwise required under the terms of the RFP, JOC Contractor's Job Order Cost Proposal must include the following.

- a. JOC Contractor's Job Order Cost Proposal in PDF and electronic format;
- b. A Project Schedule and schedule of values that reflects the costs of each work element on the schedule. The schedule must show all milestones (e.g., permits, submittals, ordering materials, demolition, work phases, closeout and completion date); and
- c. Necessary documentation will be required to indicate that adequate scoping, layout, setup and planning to accomplish the Work has been done. Examples of documentation that might reasonably be expected include sketches, drawings, calculations, catalog cuts and specifications produced to a level of detail and skill that could be expected of experienced, competent Project Managers with five or more periods experience in their respective trade.

16.2.3.3 JOC Contractor must select Subcontractors based on qualifications alone or on a combination of qualifications and price and must not select Subcontractors based on price alone. A qualifications and price selection may be a one-step selection based on a combination of qualifications and price or two-step selection. In a two-step selection, the first step must be based on qualifications alone and the second step may be based on a combination of qualifications and price or on price alone.

16.2.3.4 Upon request, JOC Contractor must provide City with copies of Subcontractor quotes and the basis for selection of each Subcontractor.

16.2.3.5 If City objects to a selected Subcontractor, City will make the objection and the reasons for the objection known to the JOC Contractor. JOC Contractor must then present an acceptable Subcontractor for the applicable discipline. City will not unreasonably object to or withhold approval of a Subcontractor.

16.2.3.6 For self-performed work, the City retains the right to have the JOC Contractor establish JOC Contractor's costs by bidding their costs against at least three (3) other interested trade Contractors. No self-performed work will be allowed to be performed on a lump sum basis.

16.2.4 Issuance of Job Order

16.2.4.1 City Representative will compare the JOC Contractor's Job Order Cost Proposal with the City's estimate, schedules and other requirements, and then, if the City Representative determines it is in the best interest of City, arrange a meeting with JOC Contractor, at which time the JOC Contractor's Job Order Cost Proposal will be discussed and negotiated.

16.2.4.2 If the City Representative determines that it is in the best interest of the City, City will then issue a Job Order to JOC Contractor for execution.

16.2.4.3 Specific Job Orders may vary, but unless agreed to by City in writing otherwise, the content of Job Orders under the Contract will generally be as follow, all of which will be signed and/or initialed by JOC Contractor's designated representative:

- a. The description of the Scope of the Work and Project Schedule (attached as Exhibit A to the Job Order);
- b. The address or location of the Work;
- c. The Contract Price for Work (Construction) included in the Project (attached as Exhibit B to the Job Order);
- d. The name of the JOC Contractor representative for the Project;
- e. The Drawings and Specifications for the Project;
- f. If any shop drawings, project date and/or samples are required for the Job Order, the date for delivery of each required item (included in the Project Schedule, Exhibit A to the Job order); and
- g. Project Specific Provisions, if any, in Exhibit A to the Job Order, including, without limitation, whether any of the following are required: Pre-Construction Conference, weekly progress meetings, field office, storage enclosure, materials and equipment handling facility, submittals, shop drawings, product data, equipment list, samples, project manual, schedule of values, Construction progress schedule, narrative reports, progress report, progress charts, progress photographs, materials status report, Construction diagram, Construction status report, operation and maintenance data, operating maintenance instructions and parts list, and as-build drawings.

16.2.5 Job Order Intent. Each Job Order will be interpreted to include all items reasonably necessary to complete the Project under that Job Order as described in the scope of the Work in that Job Order. All Work must be performed in a professional manner and all materials used must be new and of the highest quality and of the type best adapted to their purpose, unless otherwise specified. The Notice to Proceed date, and the award date established therein, will be deemed an integral part of the Job Order the same as if set forth therein.

16.3 **INCIDENTAL DESIGN SERVICES**

16.3.1 This effort includes all “extensions of design” for systems that are typically specified in a performance oriented manner by consultants and designers. Examples include: fire sprinkler systems, fire alarm and sprinkler systems, DDC controls, control systems, prefabricated metal building and similar situations. These designs are normally provided under submittals as a shop drawing with engineering backup and as appropriate, seals of registered engineers specializing in the particular system.

16.3.2 Incidental design includes all documents, sketches, schematic diagrams, floor plan layouts, equipment schedules and other documents produced by the JOC Contractor to define the work required for projects that the City does not develop formal or abbreviated designs requiring a seal by a registered engineer. Incidental design does not include preparation of designs requiring an architect or engineer seal.

16.3.3 JOC Contractor represents, covenants, and agrees, and contractually assumes the obligation to furnish, all of the required Design Services through properly licensed and experienced Design Professionals in complete accordance with all of the duties imposed on a Design Professional under the Contract Documents, Laws, Regulations, or Legal

Requirements, and the common law.

- 16.3.4 All Design Documents (and all other Project-related documents, models, computer drawings and other electronic expression, photographs and other expressions CADD, and BIM files and images included) that JOC Contractor and/or JOC Contractor's Design Professional(s) prepare in connection with a Job Order and the copyrights therein (collectively, the "Instruments of Service") will be the property of City. JOC Contractor covenants and agrees to execute any additional document reasonably requested by City to confirm such assignment without any additional compensation.

16.4 **CONSTRUCTION SERVICES**

- 16.4.1 The following subsections of this Section 16.4 set forth requirements beyond those set forth in Section 4 above which apply to Construction Services performed under a Job Order.

- 16.4.2 JOC Contractor must perform the Work using only those firms, team members and individuals designated by JOC Contractor consistent with each Job Order or otherwise approved by City pursuant to the General Conditions. No other entities or individuals may be used without the prior written approval of the Project Manager.

16.4.3 Construction Phasing

- 16.4.3.1 City use of the facilities is anticipated while the Work is being performed. The Work must be planned and accomplished so that there will be a minimum of interference and inconvenience to occupants in the building and agencies in the vicinity and to other craftsmen who may have to do work in the affected facilities. Any blockage of building exits or driveways must be coordinated in advance.

- 16.4.3.2 If applicable, furniture, portable office equipment and wall appurtenances not rigidly fastened to the walls must be moved by JOC Contractor, protected from damage and replaced to the original position upon completion of the work. If the work required by the Job Order will not allow furniture and portable office equipment to be replaced to its original position, new locations will be designated by City. Incidental costs associated with moving one-piece furnishings up to approximately 150 pounds to perform such tasks as painting, carpet or tile replacement, etc., are considered a general cost of building renovation and must be included in the JOC Contractor's Coefficient. Costs for large scale or wholesale removal and replacement of large quantities of desks or modular workstations, copiers, multiple full file cabinets, etc. to another location or storage outside the work space, or disassembly and reassembly of modular furniture is not considered part of the JOC Contractor's Coefficient and will be priced separately.

- 16.4.3.3 The work must, so far as practicable, be done in definite sections or divisions and confined to limited areas which must be completed before work in other sections or divisions are begun.

- 16.4.4 Work Site Conflicts. In the event of a conflict between JOC Contractor and others in an occupied facility or where other Contractors are performing work on the same facility under other Contracts, City will decide to dispute and that decision will be final.

- 16.4.5 Ownership of Work Product. Work Product prepared or otherwise created in connection with the performance of this Contract, including the Work, are to be and remain the property of City. For purposes of this provision, "Work Product" will include all designs,

drawings, plans, specifications, ideas, renderings and other information or matter, in whatever form created (e.g., electronic or printed) and in all media now known or hereinafter created. All Work Product will be considered Work Made for Hire as defined in the United States Copyright Act 17 U.S.C. §101 (Copyright Act). If for any reason any such Work is found not to be a work for hire, JOC Contractor hereby transfers and assigns ownership of the copyright in such Work to City. The rights in this Section are exclusive to City in perpetuity.

16.5 OPTIONAL LIQUIDATED DAMAGES

16.5.1 Specific Job Orders. City will have the right to assess liquidated damages in relation to any specific JOC Project Agreement as set forth below.

16.5.2 Substantial Completion Liquidated Damages. JOC Contractor acknowledges and agrees that if JOC Contractor fails to obtain Substantial Completion of the Work within the Contract Time, City will sustain extensive damages and serious loss as a result of such failure. The exact amount of such damages will be extremely difficult to ascertain. Therefore, City and JOC Contractor agree that if JOC Contractor fails to achieve Substantial Completion of the Work within the Contract Time, City will be entitled to retain or recover from JOC Contractor, as liquidated damages and not as a penalty, the sum per calendar day as indicated in MAG § 108.9.

16.5.3 Final Acceptance Liquidated Damages. For the same reasons set forth in Section 16.5.2 above, City and JOC Contractor further agree that if JOC Contractor fails to achieve Final Acceptance of the Work within the Contract Time, City will be entitled to retain or recover from JOC Contractor, as liquidated damages and not as a penalty, the sum per calendar day as indicated in MAG § 108.9 commencing from the actual date of Substantial Completion or Final Acceptance as required under any specific JOC Project Agreement.

16.5.4 MAG Liquidated Damages. Liquidated damages provisions in MAG § 108.9 may apply to any specific JOC Project Agreement.

16.5.5 City may deduct liquidated damages assessed pursuant to this Section 16.5 from any unpaid amounts then or thereafter due JOC Contractor under the Contract or any specific JOC Project Agreement between JOC Contractor and City. Any liquidated damages not so deducted from any unpaid amounts due JOC Contractor must be payable to City at the demand of City, together with interest from the date of the demand at the highest lawful rate of interest payable to JOC Contractor.

16.6 PERFORMANCE MEASUREMENT

16.6.1 Performance Assessment. After the Final Acceptance of Work under each Job Order, City will complete a written evaluation of the performance of JOC Contractor on the Job Order.

16.6.2 Consideration in Assignment of Work. JOC Contractor's record of cost, schedule and quality performance and comparative assessments will be significant considerations in City's determination whether to award future Job Orders. JOC Contractor agrees that any determination by City not to award future Job Orders or Option periods based on performance will be at the sole discretion of City.

SECTION 17 - PROVISIONS APPLICABLE SOLELY TO PRE-CONSTRUCTION SERVICES FOR CONSTRUCTION MANAGER AT RISK

17.1 **ADDITIONAL DEFINITIONS**

The definitions set forth in Section 2 and 15.1 above will apply to all Pre-Construction Services Contracts.

17.2 **GENERAL**

17.2.1 CM@Risk must perform the Services required by, and in accordance with the Contract Documents and as outlined in Exhibit A of the Contract to the satisfaction of the Project Manager, exercising the degree of care, skill, diligence and judgment a professional construction manager experienced in the performance of such services for construction and/or facilities of similar scope, function, size, quality, complexity and detail to the Project in urban areas throughout the United States, would exercise at such time, under similar conditions. CM@Risk must, at all times, perform the required services consistent with sound and generally accepted engineering principles and construction management and construction contracting practices.

17.2.2 As a participating member of the Project Team, CM@Risk must provide to City and Design Professional a written evaluation of City's Project Program and budget, each in terms of the other, with recommendations as to the appropriateness of each. CM@Risk must prepare a Baseline Cost Model that validates City's budget. The Baseline Cost Model must include all assumptions and basis of estimates in enough detail so that the Project Team can compare future detail estimates to the Baseline Cost model for variances. City and Design Professional will provide all the reasonably required data that is available in order to reach agreement between the team members that the Baseline Cost Model is an accurate projection of the costs of the Project.

17.2.3 CM@Risk must attend Project Team meetings, which may include, but are not limited to, bi-weekly Project management meetings, Project workshops, special Project meetings, construction document rolling reviews, public meetings and partnering sessions. CM@Risk attendance at design or other meetings in which CM@Risk is provided the opportunity but does not actively participate and/or is not properly prepared is not acceptable. Repeated instances of non-participation and/or lack of preparedness will be grounds for termination of CM@Risk Contract for default.

17.2.4 CM@Risk must provide Pre-Construction Services, described herein, in a timely manner and consistent with the intent of the most current Drawings and Specifications. CM@Risk must promptly notify City in writing whenever CM@Risk determines any Drawings or Specifications are inappropriate for the Project and/or cause changes in the scope of Work that deviates more than the allowed contingencies within the Baseline Cost Model or requires an adjustment in the Baseline Cost Model, Detailed Cost Estimate, Detailed Project Schedule, GMP Proposals and/or in the Contract Time for the Work, to the extent such as established.

17.2.5 CM@Risk when requested by City, must attend, make presentations and participate as may be appropriate in public agency and or community meetings, relevant to the Project. CM@Risk must provide drawings, schedule diagrams, budget charges and other materials describing the Project when their use is required or appropriate in any such public agency meetings.

17.2.6 Ownership of Work Product. All Work Product prepared or otherwise created in connection with the performance of this Contract, including the Work, are to be and remain the property

of City. For purposes of this provision, "Work Product" will include all designs, drawings, plans, specifications, ideas, renderings and other information or material, in whatever form created (e.g., electronic or printed) and in all media now know or hereinafter created. All Work Product will be considered Work Made for Hire as defined in the United States Copyright Act 17 U.S.C.

§101 (Copyright Act). If for any reason any such Work is found not to be a work for hire, Contractor hereby transfers and assigns ownership of the copyright in such Work to City. The rights in this Section are exclusive to City in perpetuity.

- 17.2.7 CM@Risk represents to City in completing Pre-Construction Services and providing the reports and analysis required thereunder, that Work can be properly and timely constructed within the GMP Proposal, if accepted. CM@Risk does not assume any design responsibilities unless specifically called for in the scope of work, but CM@Risk will be responsible for their errors, omissions or inconsistencies included in the Work.

17.3 **DETAILED PROJECT SCHEDULE**

- 17.3.1 The fundamental purpose of the Detailed Project Schedule is to identify, coordinate and record the tasks and activities to be performed by all of the Project Team members and then for the Project Team to utilize that Deliverable as a basis for managing and monitoring all member's compliance with the schedule requirements of the Project. Each Project Team member is responsible for its compliance with the Detailed Project Schedule requirements. CM@Risk must, however, develop and maintain the Detailed Project Schedule on behalf of and to be used by the Project Team based on input from the other Project Team members. The Baseline Project Schedule must be developed as part of the Baseline Cost Model. The Detailed Project Schedule must use the Critical Path method ("CPM") technique, unless required otherwise, in writing by City. CM@Risk must use scheduling software acceptable to City to develop the Detailed Project Schedule. The Detailed Project Schedule must be presented in graphical and tabular reports as agreed upon by the Project Team. If Project phasing as described below is required, the Detailed Project Schedule must indicate milestone dates for the phases once determined. As part of construction phase, City may require CM@Risk to prepare a "resource loaded" schedule for all work, including work performed by Subcontractors, detailing each of the project tasks and the required/anticipated number of personnel per day for each task. CM@Risk must also indicate on the schedule its ability to meet said required/anticipated personnel requirements.

- 17.3.2 CM@Risk must include and integrate in the Detailed Project Schedule the services and activities required of City, Design Professional and CM@Risk including all construction phase activities based on the input received from City and the Design Professional. The Detailed Project Schedule must define activities as determined by City to the extent required to show: (a) the coordination between preliminary design and various pre-construction documents, (b) any separate long-lead procurements, (c) any permitting issues, (d) any land, right-of-way, or easement acquisition, (e) bid packaging strategy and awards to Subcontractors and Suppliers, (f) major stages of construction, (g) start-up and commissioning, and (h) occupancy of the completed Work by City. The Detailed Project Schedule must include by example and not limitation, proposed activity sequences and durations for design, procurement, construction and testing activities, milestone dates for actions and decisions by the Project Team, preparation and processing of shop drawings and samples, delivery of materials or equipment requiring long-lead time procurement (if any), milestone dates for various construction phases, Total Float for all activities to the

extent authorized by City, relationships between the activities, City's occupancy requirements showing portions of the Project having occupancy priority, and proposed dates for Final Acceptance.

- 17.3.3 A Baseline Project Schedule must be initiated with the project Baseline Cost Model and agreed to by the project team at the same time. CM@Risk must update and maintain a detailed Project Schedule throughout pre-construction such that it will not require major changes at the start of the construction phase to incorporate CM@Risk's plan for the performance of the construction phase Work. CM@Risk must provide updates and/or revisions to the Detailed Project Schedule for use by the Project Team, whenever required, but no less often than at the Project Team meetings. CM@Risk must include with such submittals a narrative describing its analysis of the progress achieved to-date vs. the Baseline Project Schedule, including any concerns regarding delays or potential delays, and any recommendations regarding mitigating actions.
- 17.3.4 If phased construction is deemed appropriate at the time of developing the Baseline Cost Model or during the development of the Detailed Project Schedule, and City approves, CM@Risk must review the design and make recommendations regarding the phased issuance of Construction Documents to facilitate phased construction of the Work, with the objective of reducing the Project Schedule and/or Cost of the Work. CM@Risk must take into consideration such factors as natural and practical lines of work severability, sequencing effectiveness, access and availability constraints, total time for completion, construction market conditions, labor and materials availability, and any other factors pertinent to saving time and cost.
- 17.3.5 Long Lead Time Items. As part of developing the Detailed Project Schedule, CM@Risk must identify all long lead time materials, fabrications, equipment, or other items which may impact the Project Schedule and may require early action on the part of the Project Team. Dates for selecting and ordering long lead time items will be included and highlighted in the Detailed Project Schedule
- 17.3.6 Equipment Plan. Contractor must develop an Equipment Plan that addresses all rental and owned equipment, regardless of whether such equipment will be provided by CM@Risk or subcontractor(s), that will be necessary to construct the Project and the cost of which will be included as a Cost of the Work in the GMP Proposal. The Equipment Plan will seek to minimize the cost of the equipment to City and maximize the efficient and coordinated use of the equipment for completion of the Project. The Equipment Plan will not only include the costs and allowable lease rates for the equipment, but will also include an equipment schedule that will be incorporated into the Detailed Project Schedule and the Schedule of Values submitted with the GMP Proposal.
- 17.4 **DESIGN DOCUMENT REVIEWS**
- 17.4.1 CM@Risk must evaluate periodically the availability of labor, materials/equipment, cost-sensitive aspects of the design; and other factors that may create an unacceptable variance to the Baseline Cost Model and/or Baseline Project Schedule.
- 17.4.2 CM@Risk must recommend, in conjunction with the Project Team, those additional surface and subsurface investigations that, in its professional opinion, are required to provide the necessary information for CM@Risk to construct the Project. These additional investigations, if agreed to be necessary by the Project Manager and the Design Professional, will be acquired by City and copies of the reports will be provided to CM@Risk.

- 17.4.3 CM@Risk must meet with the Project Team as required to review designs during their development. CM@Risk must familiarize itself with the evolving documents through pre-construction. CM@Risk must proactively advise the Project Team and make recommendations on factors related to construction costs, and concerns pertaining to the feasibility and practicality of any proposed means and methods, selected materials, equipment and building systems, and, labor and material availability. CM@Risk must furthermore advise the Project Team on proposed site improvements, excavation and foundation considerations, as well as, concerns that exist with respect to coordination of the Drawings and Specifications. CM@Risk must use established value analysis principles in recommending cost effective alternatives.
- 17.4.4 CM@Risk must routinely conduct constructability and bid-ability reviews of the Drawings and Specifications as necessary to satisfy the needs of the Project Team. The reviews must attempt to identify all discrepancies and inconsistencies in the Construction Documents especially those related to clarity, consistency, completeness and coordination of Work of Subcontractors and Suppliers.
- 17.4.4.1 CM@Risk must evaluate whether: (a) the Drawings and Specifications are configured to enable efficient construction; (b) design elements are standardized; (c) construction efficiency is properly considered in the Drawings and Specifications; (d) module/preassembly design is prepared to facilitate fabrication, transport and installation; (e) sequences of Work required by or inferable from the Drawings and Specifications are practicable; (f) the design has taken into consideration efficiency issues concerning access and entrance to the site, laydown and storage of materials, staging of site facilities, construction parking, and other similar pertinent issues; and (g) the design maintains continued operation of the existing City systems and maintains traffic on adjacent roadways. CM@Risk must also review the Drawings and Specifications to ensure that what is depicted therein can be constructed as designed and must promptly inform the Project Team of any issues.
- 17.4.4.2 CM@Risk must check cross-reference and complementary Drawings and sections within the Specifications and in general evaluate whether: (a) the Drawings and Specifications are sufficiently clear and detailed to minimize ambiguity and to reduce scope interpretation discrepancies; (b) named materials and equipment are commercially available and are performing well, or otherwise, in similar installations; (c) Specifications include alternatives in the event a requirement cannot be met in the field; and (d) in its professional opinion, the Project is likely to be subject to Differing Site Conditions.
- 17.4.4.3 The results of the reviews must be provided to Project Team in formal, written reports clearly identifying all reviewed documents and the discovered discrepancies and inconsistencies in the Drawings and Specifications with notations and recommendations made on the Drawings, Specifications and other documents. CM@Risk must meet with Project Team to discuss any findings and review reports.
- 17.4.4.4 CM@Risk's reviews must be from a Contractor's perspective, and though it will serve to eliminate/reduce the number of RFIs and changes during the construction phase, responsibility for the Drawings and Specifications will remain with the Design Professional and not CM@Risk.
- 17.4.5 It is CM@Risk's responsibility to assist the Design Professional in ascertaining that, in CM@Risk's professional opinion, the Construction Documents are in accordance with

applicable Laws, Regulations, or Legal Requirements, building codes, sound engineering principle's rules and regulations. If CM@Risk recognizes that portions of the Construction Documents are at variance with applicable laws, statutes, ordinances, building codes, sound engineering principle's rules and regulations, it must promptly notify the Project Team in writing, describing the apparent variance of deficiency. However, the Design Professional is ultimately responsible for the compliance of the Drawings and Specifications with those laws, statutes, ordinances, building codes, rules and regulations.

- 17.4.6 The Project Team will routinely identify and evaluate using value analysis principles and alternate systems, approaches, design changes that have the potential to reduce Project costs while still delivering a high quality and fully functional Project consistent with the Project Program. If the Project Team agrees, CM@Risk in cooperation with the Design Professional, will perform a cost/benefit analysis of the alternatives and submit such in writing to the Project Team. City, through the Project Manager, will direct which alternatives will be incorporated into the Project. The Design Professional will have full design responsibility for the review and incorporation of CM@Risk suggested alternatives into the Drawings and Specifications. CM@Risk must analyze the costs and schedule impacts of the alternatives against the Baseline Cost Model and Schedule and provide a recommendation for the Project Team's consideration and City's approval prior to the establishment of the GMP.

17.5 **BASELINE COSTS MODEL, DETAILED COST ESTIMATES, AND SCHEDULE OF VALUES**

- 17.5.1 At the conclusion of the Master Planning and Programming, if required, CM@Risk will review all available information regarding the design and scope of the Project using CM@Risk's experience in performing similar work, knowledge of similar projects and current and projected construction costs and, based upon that review, must develop a Baseline Cost Model for review by the Project Team and approval by City. Once approved by City, the Baseline Cost Model will be continually referenced as detailed estimates are created as the design progresses throughout Pre-Construction until the final GMP for the entire Project is established. A final GMP for the entire Project must be established and approved by City prior to the start of construction. It is the responsibility of CM@Risk to ensure City has sufficient information to evaluate and approve a final GMP prior to the time necessary to start construction so construction can be completed within the Contract Time. The Project Detailed Cost Estimate will be the best representation from CM@Risk of what the complete functional Project's construction costs will be as indicated by the most current available documents and will be constantly checked against the Baseline Cost Model. CM@Risk must communicate to the Project Team and assumptions made in preparing the Baseline Cost Model. The Baseline Cost Model must support CM@Risk's Detailed Cost Estimates and may be broken down initially as dictated by the available information, as required by City.
- 17.5.2 After receipt of the Design Professional's most current documents from certain specified pre- construction milestones, CM@Risk must provide a draft Detailed Cost Estimate including a detailed written report detailing any variances to the Baseline Cost Model and Baseline Project Schedule. The Design Professional and CM@Risk will reconcile any disagreements on the estimate to arrive at an agreed upon Detailed Cost Estimate for the construction costs based on the scope of the Project through that specified pre-construction milestone. Pre-Construction milestones applicable to this paragraph are: Master Planning and Programming, Schematic Design, 50% Design Development, 100% Design Development, and 50% Construction Drawings, If no consensus is reached, City will

make the final determination. If the Project Team requires additional updates of the Detailed Cost Estimate beyond that specified in this paragraph, CM@Risk must provide the requested information in a timely manner.

- 17.5.3 If at any point the Detailed Cost Estimate submitted to City exceeds the previously accepted Baseline Cost Model or previously approved Detailed Cost Estimate agreed to as set forth in Section 17.5.2 above, CM@Risk must make appropriate recommendations to project Team on means/methods, materials, and or other design elements that it believes will reduce the estimated construction costs, such that it is equal to or less than the established Project Team's Baseline Cost Model.
- 17.5.4 Unless other levels of completion are agreed to in writing in the Construction Documents, at 50% Construction Drawings and included with the associated report, CM@Risk must also submit to the Project Team for review and approval a Schedule of Values that complies with the following requirements. The Schedule of Values must be based on City standard bid schedule and highlight significant variances from any previously submitted Schedule of Values. The Schedule of Values must be directly related to the breakdowns reflected in the Detailed Project Schedule and CM@Risk's Detailed Cost Estimate. In addition, the Schedule of Values must: (a) detail unit prices and quantity take-offs, (b) detail all other contingencies and unit price Work shown and specified in the detailed design documents.
- 17.5.5 CM@Risk is to track, estimate/price and address the Project Team's overall project cost issues that arise outside of the Baseline Cost Model and the latest approved Detailed Cost Estimate such as: City generated changes, Project Team proposed changes, alternate system analysis, constructability items and value engineering analysis. The system used to implement this process will be referred to as the Design Evolution Log. This is to be addressed between the Baseline Cost Model and the Master Planning and Programming Detailed Cost Estimate, and then (unless other levels of completion are agreed to in writing in the Construction Documents) between the Detailed Cost Estimates for each of the pre-construction milestones thereafter, Schematic Design, 50% Design Development, 100% Design Development, and 50% Construction Documents, and the bid packages for all Phases.
- 17.5.6 Upon request by City, CM@Risk must submit to City a cash flow projection for the Project based on the current updated/revised Detailed Project Schedule and the anticipated level of payments for CM@Risk during the design and construction phases. In addition, if requested by City and based on information provided by City, CM@Risk must prepare a cash flow projection for the entire Project based on historical records for similar types of projects to assist City in the financing process.
- 17.5.7 Construction Water. CM@Risk must estimate the quantity of water to be used and include the cost thereof in each Detailed Cost Estimate and GMP Proposal provided by City.

17.6 **SUBCONTRACTOR AND MAJOR SUPPLIER SELECTIONS**

- 17.6.1 There are two ways to select Subcontractors and major Suppliers prior to submission of a GMP Proposal: (1) qualifications-based selection; or (2) a combination of qualifications and price. Except as noted below, the selection of Subcontractors/Suppliers is the sole responsibility of CM@Risk. In any case, CM@Risk is solely responsible for the performance of the selected Subcontractors/Suppliers, and for compliance with the requirements of Title 34 of the Arizona Revised Statutes in the selection of a Subcontractors/Suppliers, to the extent applicable. CM@Risk must comply with its Subcontractor Selection Plan

- submitted with its Statement of Qualifications.
- 17.6.2 City may approve the selection of a Subcontractor(s) or Suppliers(s) based only on their qualifications when CM@Risk can demonstrate it is in the best interest of the Project. All Work that is performed, after such a qualifications-based selection, for a price that is negotiated by CM@Risk will be billed in accordance with the GMP for actual costs and may be subject to audit by City.
- 17.6.2.1 Qualifications based selection of a Subcontractor(s)/Supplier(s) should only occur prior to the submittal of the GMP Proposal.
- 17.6.2.2 If a Subcontractor/Supplier selection plan was submitted and agreed to by City, CM@Risk must apply the plan in the evaluation of the qualifications of a Subcontractor(s) or Supplier(s) and provide City with its review and recommendations.
- 17.6.2.3 CM@Risk must receive written City approval for each selected Subcontractor(s) and Supplier(s).
- 17.6.2.4 CM@Risk must negotiate costs for services/supplies from each Subcontractor/Supplier selected under this method.
- 17.6.3 All Work must be competitively bid unless a Subcontractor or Supplier was selected pursuant to Section 17.6.2 above.
- 17.6.3.1 CM@Risk must develop Subcontractor and Supplier interest, submit the names of a minimum of three qualified Subcontractors or Suppliers for each trade in the Project for approval by City and solicit bids for the various Work categories. If there are not three qualified Subcontractors/Suppliers available for a specific trade or there are extenuating circumstances warranting such, CM@Risk may request approval by City to submit less than three names. Without prior written notice to City, no change in the recommended Subcontractors/Supplies will be allowed.
- 17.6.3.2 If City objects to any nominated Subcontractor/Supplier or to any self-performed Work for good reason, CM@Risk must nominate a substitute Subcontractor/Supplier that is acceptable to City.
- 17.6.3.3 CM@Risk must distribute Drawings and Specifications, and when appropriate, conduct a Pre- Bid Conference with prospective Subcontractors and Suppliers.
- 17.6.3.4 If CM@Risk desires to self-perform certain portions of the Work, it must request to be one of the approved Subcontractor bidders for those specific bid packages. CM@Risk's bid will be evaluated in accordance with the process identified below. If events warrant and City concurs that it is necessary in order to ensure compliance with the Project Schedule and/or the most recent Detailed Cost Estimate, CM@Risk may be authorized to self-perform Work without bidding or rebidding the Work. When CM@Risk self-performs work without bidding, only the actual costs associated with performing the Work in accordance with the approved GMP will be billed and may be subject to audit by City.
- 17.6.3.5 CM@Risk must receive, open, record and evaluate the bids; provided, however, that if CM@Risk or one of its affiliates is bidding to self-perform the Work that is the subject of the bid, then the bids must be received, opened, recorded and evaluated by Project Manager instead of CM@Risk. Bids for each category of Work must be opened and recorded at a pre-determined time. The apparent low bidders must be interviewed to determine the

responsiveness of their proposals. In evaluating the responsiveness of bid proposals CM@Risk, in addition to bid price, may consider the following factors: past performance on similar projects, qualifications and experience of personnel assigned, quality management plan, approach or understanding of the Work to be performed, and performance schedule to complete the Work. The final evaluation of Subcontractor/Supplier bids must be done with Project Manager in attendance to observe and witness the process. CM@Risk must resolve any Subcontractor/Supplier bid withdrawal, protest or disqualification in connection with the award at no increase in the Cost of Work.

17.6.4 CM@Risk will be required to prepare two different reports on the subcontracting process.

17.6.4.1 Within fifteen days after each major Subcontractor/Supplier bid opening process; CM@Risk must prepare a report for City's review and approval identifying the recommended Subcontractors/Supplier for each category of Work. The report must detail: (a) the name of the recommended Subcontractor/Supplier and the amount of the Subcontractor/Supplier bid for each sub-agreement; (b) the sum of all recommended Subcontractor/Supplier bids received; (c) and trade work and its cost that CM@Risk intends to self-perform, if any.

17.6.4.2 Upon completion of the Subcontractor/Supplier bidding process, CM@Risk must submit a summary report to City of the entire Subcontractor/Supplier selection process. The report must indicate, by bid process, all Subcontractors/Suppliers contacted to determine interest, the Subcontractors/Suppliers solicited, the bids received and costs negotiated, and the recommended Subcontractors/Suppliers for each category of Work.

17.6.5 The approved Subcontractors/Suppliers will provide a Schedule of Values with their bid proposals, which will be used to create the overall Project Schedule of Values.

17.6.6 If after receipt of sub-bids or after award to Subcontractors and Suppliers, City objects to any nominated Subcontractor/Supplier or to any self-performed Work without any reasonable basis, CM@Risk must nominate a substitute Subcontractor or Supplier, preferably if such option is still available, from those who submitted Subcontractor bids for the Work affected. Once such substitute Subcontractors and Suppliers are consented to by City, CM@Risk's proposed GMP for the Work or portion thereof must be correspondingly adjusted to reflect any higher or lower costs from any such substitution.

17.7 **GMP PROPOSAL**

17.7.1 When a GMP Proposal is submitted for a phase of the Work, the GMP will have a Detailed Cost Estimate of the Costs of the Work (as set forth in Section 15.2) in each phase of the Work that is being proposed plus the current estimate for all other Work. City will not approve the GMP for the phase of work without a total estimate for the complete Project. City may request a GMP Proposal for all or any portion of the Project and at any time during pre-construction. Any GMP Proposals submitted by CM@Risk must be based on and consistent with Baseline Cost Model and the current update/revised Detailed Cost Estimate at the time of the request and include any clarifications or assumptions upon which the GMP Proposal(s) are based.

17.7.2 A GMP Proposal for the entire Project will be the sum of the Cost of the Work, CM@Risk Fee, and General Conditions Cost. CM@Risk guarantees to complete the Project at or less than the final GMP Proposal amount plus approved Change Orders. CM@Risk will be responsible for any costs for expenses that would cause the Cost of the Work actually incurred,

including the Construction Fee and General Conditions Costs, to exceed the GMP.

- 17.7.3 CM@Risk must prepare its GMP Proposal in accordance with City's request for GMP Proposal requirements based on the most current completed Drawings and Specifications at that time, which unless otherwise directed by City in writing, will be at 100% Construction Drawings. CM@Risk must mark the face of each document of each set upon which its GMP Proposal is based. These documents must be identified as the GMP Plans and Specifications. CM@Risk must send one set of those documents to the Project Manager, keep one set and return the third set to the Design Professional.
- 17.7.4 An updated/revised Detailed Project Schedule, Equipment Plan, and Schedule of Values must be included in any GMP Proposal(s), all of which must reflect the GMP Plans and Specifications the Detailed Project Schedule must be shown in relationship to the Project Schedule and identify any variance to the Baseline Project Schedule. Any such Detailed Project Schedule updates/revisions must continue to comply with the requirements of Section 17.3.1 through 17.3.5.
- 17.7.5 GMP Proposals(s) Review and Approval
- 17.7.5.1 CM@Risk must meet with the Project Team to review the GMP Proposal(s) and the written statement of its basis. In the event the Project Team discovers inconsistencies or inaccuracies in the information presented, CM@Risk must make adjustments as necessary to the GMP Proposal.
- 17.7.5.2 If during the review and negotiation of GMP Proposals design changes are required, City may authorize and cause the Design Professional to revise the GMP Plans and Specifications to the extent necessary to reflect the agreed-upon assumptions and clarifications contained in the final approved GMP Proposal. Such revised GMP Plans and Specification will be furnished to CM@Risk. CM@Risk must promptly notify the Project Team in writing if any such revised GMP Plans and Specifications are inconsistent with the agreed upon assumptions and clarifications.
- 17.7.6 All portions of or items comprising the GMP Proposal are subject to audit by City, as deemed appropriate by City, including, without limitation, any based upon unit prices or Work to be self-performed by CM@Risk, or its affiliates.
- 17.8 **PAYMENT PROCEDURE FOR PRE-CONSTRUCTION SERVICES**
- 17.8.1 Requests for monthly payments by CM@Risk for Pre-Construction Services must be submitted monthly and must be accompanied by a progress report, detailed invoices and receipts, if applicable. Any requests for payment must include, as a minimum, a narrative description of the tasks accomplished during the billing period, a listing of any Deliverables submitted, and copies of any Subconsultants' requests for payment, plus similar narrative and listings of Deliverables associated with their Work. Payment for services negotiated as a lump sum will be made in accordance with the percentage of work completed during the preceding month.
- 17.8.2 In no event will City pay more than seventy-five (75%) of the Contract Price until acceptance of ALL Pre-Construction Services and award of the final approved Construction Services Contract for the entire Project by City Council. If CM@Risk does not prepare a GMP Proposal that is acceptable to City, or the GMP Proposal exceeds the City's Construction Budget, then CM@Risk understands and acknowledges that it will forfeit any right to

receive the 25% of the Contract Price being retained by City.

17.8.3 CM@Risk agrees that no charges or claims for costs or damages of any type will be made by it for any delays or hindrances beyond the reasonable control of City during the progress of any portion of Pre-Construction Services specified in this Contract. Such delays or hindrances, if any, will be solely compensated for by an extension of time for such reasonable period and may be mutually agreed between the parties. It is understood and agreed, however, that permitting CM@Risk to proceed to complete any such Services, in whole or in part after the date to which the time of completion may have been extended, will in no way act as a waiver on the part of City of any of their respective legal rights herein.

17.8.4 No compensation to CM@Risk will be allowed contrary to Article I, Chapter I, Title 34 of the Arizona Revised Statutes.

17.8.5 If any service(s) executed by CM@Risk is abandoned or suspended in whole or in part, for a period of more than 180 days through no fault of CM@Risk, CM@Risk is to be paid for the services performed prior to the abandonment or suspension.

17.9 **SURVIVAL OF THE DESIGN SERVICES CONTRACT, DUTIES, OBLIGATIONS AND WARRANTIES**

If the GMP Proposal is accepted by City and a Construction Contract is entered into between City and CM@Risk, the duties, obligations and warranties of CM@Risk under the Pre- Construction Services Contract survive and are incorporated into the resulting Construction Contract.

General Conditions Appendices

SECTION 15 – APPENDICES

The following Appendices attached hereto are referenced in the General Conditions and are incorporated herein.

- Appendix 1 – Policy Statement for Calculating Delays and Damages
- Appendix 2 – Cost Reduction Incentive Proposals for Design Bid Build Contracts
- Appendix 3 – Contractor's Affidavit Regarding Settlement of Claims
- Appendix 4 – Forms of Performance Bond
- Appendix 5 – Forms of Payment Bond
- Appendix 6 – Dispute Resolution
- Appendix 7 – Certificate of Completion
- Appendix 8 – Construction Sign Detail
- Appendix 9 – Cost of the Work (Applicable solely to Construction Manager at Risk and Job Order Contracting)
- Appendix 10 – Landscape Establishment Period

CALCULATING DELAYS AND DAMAGES

The purpose of this policy statement is to establish guidelines and procedures for negotiation between the Contractor and City of Chandler relating to compensation for delays pursuant to Arizona Revised Statutes (A.R.S.) 34-221(F). This policy statement contains notice requirements in addition to those set forth in the Contractor Documents, and will be the Contract Provision contemplated by that statute.

NOTE: As used herein, the term "Engineer" will refer to the City of Chandler City Engineer or his/her designated representative. Nothing in this Policy Statement will be construed to void any provision in the Contract which requires timely notice of delays or provides for arbitration or any other procedure for settlement or provides for liquidated damages.

I. TYPES OF DELAYS:

For the purposes of this document, there are essentially four types of delays encountered by City of Chandler Construction Contractors; excusable/compensable, excusable/non-compensable, non-excusable, and concurrent. Only delays that extend Contract Completion Time set forth in the Contract Document will be considered for issues relating to Contract extensions or additional compensation. All other delays are considered to be activity delays and do not entitle the Contractor to either time extensions or additional compensation. Contract Completion Time will be defined as the date set forth in Maricopa Association of Governments (MAG) Uniform Standard Specification Section 101 and as may be modified by the Contract Documents.

A. Excusable/Compensable:

These are delays caused solely by the City's actions or inactions, are unreasonable under the circumstances, and which were not within the contemplation of the parties to the Contract at or prior to the time of execution of the Contract. Since the Contractor presumably has no control over the events causing the delay, he may be entitled to both contract time extensions and additional compensation for delay damages. Further, he/she may be entitled to additional compensation from the impact of that delay on other work. Examples of excusable/compensable (E/C) delays include: failure to properly locate an underground City-owned utility within 2 feet of the actual location; failure to relocate City-owned utilities far enough in advance of construction in an area where the Contractor is scheduled to work that it delays start or completion of the Contractor's regularly scheduled work; failure to provide City-furnished equipment or materials in a timely manner if required by the Contract; failure to acquire necessary Right-of-Way or Public Utility Easements prior to the Contractor beginning Work in the area; failure to timely return Shop Drawings or other Contract Submittals in accordance with the Contract; unreasonable delay by the City in making decisions which affect critical activities; surveying errors when the City is contractually responsible for providing Project Surveying. This list is not meant to be all inclusive, but is intended merely as examples of the type of City action or inaction which can result in a Contractor's claim for additional time and compensation.

B. Excusable/Non-compensable:

These are delays over which neither the City nor the Contractor had control. Since both parties to the Contract have been potentially damaged by the delay, but neither have caused it, only Time Extensions are warranted. Examples of excusable, non-compensable (E/N) delays include: unusually severe weather; fire; acts of God; failure of non-City owned utilities (SRP, CenturyLink, Cable TV, Southern Pacific Railroad, and Southwest Gas, etc.) to properly or timely locate accurately; failure of non-City owned utilities to relocate in advance of construction; the voluntary or involuntary filing for Bankruptcy protection by a Supplier or Subcontractor which causes the Supplier/Subcontractor to fail to meet a contractual deadline provided the Contractor can provide documentation that he/she executed the required Purchase Orders/Subcontract Agreements and received delivery schedules which, if met, would have eliminated the delay; delays as a result of an incomplete shutdown of a City or non-City owned utility main (the City does not guarantee a complete shutdown). This list also is not necessarily all inclusive but merely indicative of type and class of E/N delays.

C. Non-excusable/Non-compensable:

These are delays caused by the actions or inactions of Contractor or an officer, employee, agent, Subcontractor, Supplier or any other party for whom the Contractor is responsible. Since the Contractor has assumed responsibility for the risks associated with the events that caused the delay, he/she are not entitled to either time extensions or monetary delay damages. All non-excusable delays are also non-compensable. Examples of non-excusable, non-compensable (N/N) delays include: failure to perform by the Contractor, its Subcontractors and/or Suppliers (except as noted in section I.B above); failure to provide adequate labor, materials, and/or equipment on the Project; failure to perform contractually-required coordination with utilities, agencies and other Contractors; failure to notify the Engineer, in writing, of delay impacts within two working days, as required by MAG 104.2.3, or the next work day, as required by MAG 109.8.2; failure to timely submit Shop Drawings; failure to pothole or otherwise visually locate utilities sufficiently ahead of the Work to allow the Engineer to direct corrective action when necessary; delays due to retesting of previously failed work, re-inspection, and/or restaking resulting from faulty workmanship, poor quality control, or lack of compliance with Contract Specifications. Again, this list is not necessarily all inclusive.

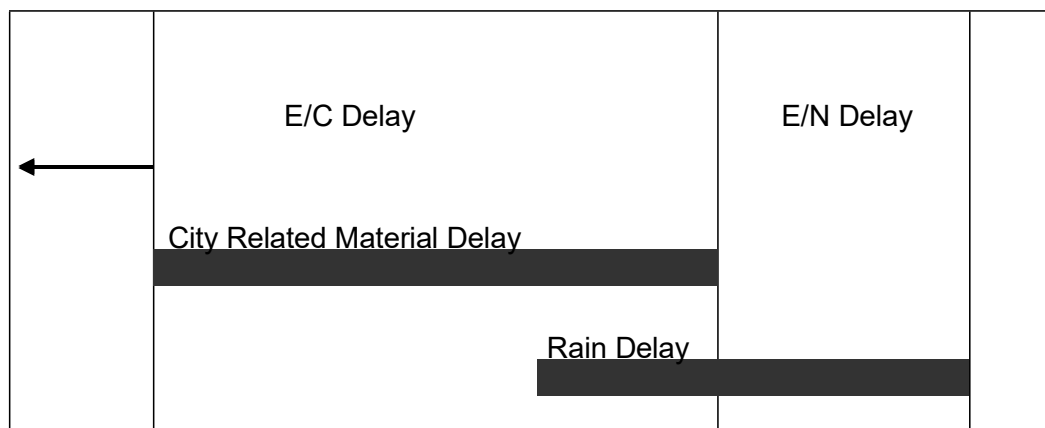
D. Concurrent:

When two or more delays occur simultaneously or overlap, each delay is analyzed separately to determine its impact on the overall project completion date based on when that delay started. Once again, only those delays which actually extend the contract completion time are considered as delays. The concurrent delay is considered an additional delay only to the extent it prolongs the delay to the Contract Completion Time beyond the date that the one it is concurrent with had already delayed that date. For example, if two delays are concurrent, and one is five days long and the second is seven days long, the second concurrent delay will

only extend the Contract Completion Time by two days. The same method of analysis is used when there are multiple concurrent delays. Only those extending the Project Completion Date are considered to be delays for the purposes of this policy. The portion of each concurrent delay that delays the completion of the work is classified in the same manner as described previously for individual delays and being either E/C, E/N or N/N.

An example of a concurrent delay is where the City delays furnishing material, but the Contractor could not have installed it anyway due to unusually severe weather. The effect of the first delaying activity will extend for the full duration and will be considered controlling on the Contractor's schedule. A subsequent, concurrent delay will thereafter only be considered to effect the project completion (if at all) once the first delaying activity has ceased to impact the project completion. In this case, if the unusually severe weather continued and delayed the work after the material was delivered, the first portion of the delay would be classified E/C (delay for material) and the second as E/N (delay due to unusually severe weather). Using the procedure set forth above, the entire concurrent portion would be considered E/C as shown in the chart which follows.

Example of a Concurrent Delay:



II. ANALYZING THE DELAY:

The Contractor must provide all documents required or requested by the Engineer to analyze the delay(s). It is important to understand that, prior to the delay analysis, delays and their impacts are alleged issues. The information the Contractor provides will be compared with the Inspector's Daily Log, Schedules and other available Project information and together they will support or refute that delays occurred and, if so, how they impact other work and the overall project completion. The Contractor's delay in providing these documents will be considered prima facie evidence that either the delay did not occur or it did not impact the Project Completion Date and any claim for time extension or damages will be denied.

The Engineer will accept delay analyses in CPM format, as these may demonstrate to his/her satisfaction whether or not Project Completion has been impacted by a specific event. If the Contractor chooses not to use CPM scheduling procedures, then the burden will be on the Contractor to prove to the Engineer's satisfaction that the Project Completion has been impacted. The procedures below assume that the Contractor is using CPM scheduling methods.

As a minimum the Contractor must provide the following materials to the Engineer:

- A. As-Planned Schedule. The initial construction schedule, required by the Contract Documents, will be considered the baseline schedule. It is to the Contractor's advantage that the As-Planned (baseline) Schedule be as detailed as possible in order for delays, as they occur, to be incorporated into the schedule in representative locations. It is also to the Contractor's advantage to use a computer software program to generate the schedule since updated schedules are required monthly by the Contract Documents and since updated schedules are required to support delays and requests for additional compensation for delays. The As-Planned (baseline) Schedule must be presented in network format which clearly shows the interrelationships of the activities. The Contractor must also provide a printout of the activities showing early start, early finish, late start, late finish, duration and float. The activity list printout must also indicate predecessor and successor activities.
- B. As-Built Schedules. The as planned (baseline) schedule must be updated with complete progress-to-date information (actualized) up to the date of the start of the alleged delay. Each updated schedule will serve as the as-built schedule for analyzing the alleged delay and provide a new baseline as-planned schedule for the next delay. This process must be repeated for each alleged delay as it occurs. In updating the baseline schedule, the alleged delay must be treated as an activity and inserted into the schedule as a predecessor to the impacted activity (ies). When an activity that has already started is impacted, it is preferable to divide this activity into two parts and show the impact affecting the second part. For schedules which incorporate a time line (or data date), the delay activity must be inserted at the time it actually occurred. Some software scheduling programs have a PAUSE-RESUME feature that can be used to facilitate the requirements. The updated schedule must also be accompanied by a listing of activities as with the baseline schedule. This activities list must contain the alleged delay as an activity showing the duration and the activities which are predecessors and successors to it. When computer generated schedules are used, the Contractor must provide, in electronic media format, the complete data files for the updated schedule that included the delay activity, preferably either in Suretrak or in Microsoft Project. Each electronic media must contain a label identifying the Project name, Contractor's name, program name and version number, data date and project finish date.
- C. Other Documents: In order to determine the amount of the alleged delay and if it is compensable, the Contractor must provide all backup documentation relevant to the issue and as required by the Engineer. This documentation must include copies of such items as: purchase orders; delivery schedules; correspondence; memoranda of telephone calls; force account daily worksheets (initialed by the Inspector); payroll data; estimating (bid) worksheets; and any other materials which may be requested by the Engineer.
- D. Procedure: Only after receipt of sufficient documentation will the Engineer analyze each alleged delay and determine if it is supported or refuted. If supported, the Engineer will determine if it is excusable or non-excusable, compensable or non-compensable. If the Engineer determines that the delay did not affect the Project Completion, the as-planned schedule, which has been updated to the date of the alleged delay, must be revised to indicate this. If the Engineer determines the delay

did occur but was N/N, then no time extension will be granted. It is imperative that an actualized schedule be submitted as soon as the occurrence of the alleged delay is known. In no event will the Contractor submit an actualized updated schedule later than 60 days after the occurrence of the alleged delay becomes known.

If the Engineer determines the delay did occur and was excusable but, due to a reason listed in section I.B. is non-compensable, he/she will determine the length of the E/N delay and prepare a Change Order to add that time to the Contract. The Engineer's decision will be final.

If the Engineer determines the delay was excusable and compensable, he/she will determine the length of the E/C delay and proceed to review the Contractor's damage calculations in accordance with Section III. The Engineer will check the Contractor's calculations, review the backup documentation provided, and prepare a Change Order to cover both the additional compensation and the time extension. The Engineer's decision on both the time extension and additional compensation for the delay will be final.

If the issue involves a concurrent delay, the Engineer will analyze available data to determine the portions which are E/C, E/N, and/or N/N as described above. The Engineer will proceed to determine the length of E/C delay and verify the Contractor's delay damage calculations, if any are provided. Upon completion of this review, the Engineer will prepare a Change Order for the Contractor's review and signature. The Engineer's decision regarding excusable delay and additional compensation for the delay is final.

The amount of time the Engineer will require to analyze the alleged delay(s) will depend upon the Engineer's workload, the complexity of the delay analysis, availability of supporting data, extent of cooperation by the Contractor, and other factors beyond the Engineer's control. It is entirely possible other delay(s) may occur while the Engineer is analyzing particular claim for delay(s). The Engineer's failure to respond to the Contractor in a set period of time will not be used as the basis for a further delay claim or as justification for extending and existing delay claim. The time required for delay analysis by the Engineer will not be counted against the time allotted for processing Final Payment as required by (MAG Section 109.7(B)) or the release of retention and Final Payment as prescribed by A.R.S. Arizona Revised Statutes §34-221.

III. CALCULATING MONETARY DELAY DAMAGES:

Additional compensation for delay, when authorized by the Engineer, will be calculated in accordance with MAG Section 109.5 ACTUAL COST WORK with the following exceptions:

- A. No additional compensation or other monetary damages will be awarded or paid for any loss of anticipated profits by the Contractor, Subcontractors or Suppliers.
- B. No additional compensation or other monetary damages will be awarded for home office overhead or non-project general conditions of the Contractor, Subcontractors or Suppliers.
- C. Equipment:

1. Contractor-owned equipment rate calculations must be computed in accordance with Section 109.04(D)(3), Arizona Department of Transportation "Standard Specifications for Road and Bridge Construction," 2008 or latest edition and as modified herein. Year and regional adjustment factors must be based on the most recent publications of the Rental Rate Blue Book for Construction Equipment, published by the Equipment Guide-Book Company, San Jose, CA, same as provided by ADOT and in print as of the date of alleged delay. In no event will the compensation for Contractor-owned equipment exceed the purchase price, including tax, paid by the Contractor for the equipment. Compensation will not be allowed for small tools or equipment that show a daily equipment rental rate of less than \$5.00 per day or for unlisted equipment that has a value of less than for hundred dollars (\$400.00).
2. For leased and rented equipment or equipment not otherwise listed in the Blue Book, rental contracts, or other supporting data will be used to establish the hourly rate. No hourly operating expense will be allowed for delay on standby equipment. In no case will equipment be considered for rental which exceeds the hourly rate for the first eight hours and the daily rate divided by eight for all additional hours as compared with similar equipment listed in the Blue Book. The hourly standby rate must be computed as the lesser of:
 - a. Dividing the monthly invoice or rental value by 176 hours per month when the equipment is utilized by the Contractor for more than three weeks;
 - b. Dividing the monthly invoice or rental value by 40 hours per week when the equipment is utilized by the Contractor for more than three days.

In no event will compensation be paid for delay at more than 8 hours per day or 40 hours per week.
3. Except for vehicles used by supervisory personnel, all equipment will be paid at the "standby" rate during the delay period.
4. Equipment brought solely to mitigate the delay (such as pumps, light plants, etc.) may be paid in accordance with ADOT section 109.04(D) (3).
5. The Blue Book regional adjustment will apply in determining rental rates.

D. Material:

Allowable material charges may include, in addition to material incorporated in the work material used to mitigate the delay such as barricades, plates, shoring, cold mix, etc. Except in emergencies the Contractor will not employ such material without the prior written approval of the Engineer.

E. Labor:

1. Except for Supervisory Personnel (Superintendent, Project Engineer, and Foremen), labor wages will not be paid after the first one-half day of

claimed delay or impact. It is expected the Contractor will reassign or layoff unneeded employees.

2. For Foreman wages to be included, that Foreman must have been actively employed on the project prior to the commencement of the delay and be directly responsible for the activity being delayed.
3. Labor burden must be actual amounts incurred but must not exceed the ADOT approved rate.

- F. All costs (equipment, material, and labor) must be substantiated by the City of Chandler's Daily Work Reports.

IV. DOCUMENT REQUIRED FOR CLAIM ANALYSIS:

For purposes of reviewing the Contractor's request for additional compensation, it will be required that the Contractor submit the following listed information. Information requested must be prepared on forms which are substantially similar to the City of Chandler's Daily Work Report form, a copy of which is attached as an exhibit.

A. Labor:

For each employee, laborer, and foreman, for which compensation is requested: Name, classification, dates of work performed, daily hours worked, total hours worked, labor rates, labor burden rates, overtime or premium time charges. Further, the Contractor must make available for inspection and copying to the Engineer the following listed documentation.

1. Certified payroll reports for the period of work claimed.
2. Accounting of Fringe Benefits – certified by a CPA.
3. Contractor's and Subcontractor's daily field reports and daily diaries.

B. Materials:

For all materials for which compensation is requested, if any, total quantities of materials, prices, extensions and transportation costs must be provided on a daily basis. Further, the Contractor must make available for inspection and copying to the Engineer the following listed documentation.

1. Invoices for all materials incorporated.
2. Weigh tickets.
3. Purchase orders.
4. Delivery schedules.
5. Quotes or proposals from manufacturers or supplier.
6. Freight bills, Bills of Lading, or other documentation to show transportation costs.
7. Restocking charges-invoices from vendor.

C. Equipment:

For all equipment, the Contractor must provide the Engineer with the designation, dates and hours of usage, dates and hours of standby, if any, daily hours, total hours,

rental rates and extension for each unit of equipment and machinery. Rental rates will be as established in Section III. Further, the Contractor must make available for inspection and copying to the Engineer the following listed documentation.

1. Owned:
 - a. Purchase contracts(s).
 - b. Depreciation schedule(s).
 - c. Invoices for fuel, lube, repairs and other operating costs.
2. Leased:
 - a. Lease agreement with hourly rate, overtime rate, double shift rate, etc.
 - b. Invoices or other documentation showing hours worked on a daily basis.

D. Subcontractors/Owner-Operators:

In the event the Contractor submits a claim which includes requests for compensation for Subcontractors of Owner-Operators, the same information requested of the Contractor must be provided by the Subcontractor/Owner-Operator. Further, the Contractor must make available for inspection and copying to the Engineer the following listed documentation.

1. Bid/Estimate work sheets and/or spreadsheets.
2. Subcontract Agreements or Agreements with Owner-Operator.
3. All invoices and billing statements received from the Subcontractor/Owner-Operator which relates to the amount requested.

E. Miscellaneous:

Further, the Contractor must make available for inspection and copying to the Engineer the following listed documentation.

1. Evidence of payment for bonds and insurance premiums (MAG 109.5.6).
2. Taxes – unless the Contractor can show otherwise, taxes are reimbursable at 65% of the total cost (less bonds and insurance).

V. TIME LIMIT ON SUBMISSIONS OF CLAIM FOR DELAY OR IMPACT DAMAGES:

No claims for delay or impact damages will be considered or allowed more than 45 days after the event or occurrence which the Contractor claims gives rise to the delay or impact. In no event will a claim for delay or impact damages be considered after submission by the Contractor of the Final Payment Request.

COST REDUCTION INCENTIVE PROPOSALS FOR DESIGN BID BUILD CONTRACTS

The Contractor may submit to the Engineer proposals for modifying the Plans, Specifications, or other requirements of the Contract for the sole purpose of reducing the total cost of Project construction. The proposals must not impair in any manner the essential functions or characteristics of the project; including but not limited to service life, economy of operations, ease of maintenance, desired appearance, compatibility with existing or planned equipment, standardization of systems, or design and safety standards.

It must not be inferred from this Policy that the Engineer is required to consider any proposal submitted.

Submissions that propose changes in the basic design of a bridge, propose changes in pipe line size, materials, bedding conditions, pipe specifications; or that propose any change in pavement design will not be considered.

Proposals submitted pursuant to this Policy will be identified as Cost Reduction Incentive Proposals. They must be submitted in writing and, at a minimum, contain the following.

1. Complete the attached or similar cost reduction incentive proposal form.
2. A description of both the existing Contract Requirements for performing the work and the proposed changes.
3. All Engineering Drawings and computations necessary for the thorough and expeditious evaluation.
4. An itemization of the existing Contract Requirements that must be changed if the Proposal is adopted and a recommendation as to the manner in which the change should be made.
5. A detailed estimate of the cost of performing the Work under the existing Contract and under the proposed changes, including the cost of developing and implementing the changes.
6. The Contract items affected by the proposed changes and any variations in quantities resulting from the changes.
7. An objective estimate of any effects the proposal will have on collateral cost to the City, costs of related items, and cost of maintenance and operation.
8. A statement as to the effect that the Proposal will have on the time for the completion of the Project.
9. A statement as to the time by which a Change Order adopting the Proposal must be executed or when the Engineer must have given verbal approval.

Proposals will be processed expeditiously; however, the City will not be liable for any delay in acting upon any Proposal nor for any failure to accept any Proposal pursuant to this Special Provision.

General Conditions

Appendix 2

The Engineer will be the sole judge of the acceptability of a Proposal and of the estimated net savings in construction costs from the adoption of all or any part of the Proposal. The Contractor will be notified in writing by the Engineer as to whether his/her Proposal has been accepted. The decision by the Engineer is final.

When the City deems such action to be appropriate, it reserves the right to require the Contractor to share equally in the cost to the City of investigating, evaluating, and processing the proposal as a condition for the consideration of such Proposal. Such cost must be shared whether the Proposal is accepted or rejected. When such a condition is imposed, the City will estimate these costs and the Contractor must indicate his acceptance thereof in writing. Such acceptance will authorize the City to deduct the Contractor's share of the costs from any monies due or that may become due to the Contractor under the Contract.

If the Contractor's Proposal is accepted in whole or in part, the necessary Contract Modifications and Contract Price Adjustments will be affected by the execution of a Change Order which will specifically state that it is executed pursuant to this Special Provision.

The Contractor must continue to perform the work in accordance with the requirements of the Contract until a Change Order incorporating the Proposal has been executed or until he/she has been given verbal approval by the Engineer that his/her Proposal has been accepted. If the Change Order has not been executed or he/she has not been given verbal approval on or before the date specified on the attached cost reduction incentive proposal form or on or before such other date as the Contractor may have subsequently specified in writing, the Proposal may be deemed to be rejected.

The executed Change Order will incorporate the changes in the Plans, Specifications, or other requirements of the Contract which are necessary to permit the Proposal, or such part of it which has been accepted, to be put into effect, and will include any condition – upon which the City's approval thereof is based, if such approval is conditional. The executed Change Order may also extend the time for the completion of the Contract if such an extension has been deemed to be warranted by the Engineer as a result of his evaluation of the Proposal.

The executed Change Order will also establish the estimated net savings in the cost of performing the Work attributable to the Proposal effectuated by the Change Order. In determining the net savings, the right is reserved to the Engineer to disregard the Contract bid prices if, in his/her judgment, such prices do not represent a fair measure of the value of the Work to be performed or to be deleted. The net savings will be established by determining the Contractor's cost of performing the Work, taking into account his/her cost of developing the Proposal and implementing the change, and reducing this amount by any ascertainable collateral costs to the City. The executed Change Order may provide that the Contractor be paid 50 percent of the estimated net savings amount.

The executed Change Order may also provide for the adjustment in Contract prices. Contract prices may be adjusted by subtracting the City's share of the accrued net savings.

The amount specified to be paid to the Contractor in the executed Change Order which effectuates a Cost Reduction Proposal will constitute full compensation to the Contractor for the Cost Reduction Proposal and the performance of the work thereof pursuant to the said Change Order.

Upon acceptance of a Cost Reduction Incentive Proposal, any restrictions imposed by the

General Conditions Appendix 2

Contractor on its use or on disclosure of the information will become void, and the City thereafter will have the right to use all or any part of the Proposal without obligation or compensation of any kind to the Contractor.

COST REDUCTION INCENTIVE PROPOSAL FORM

TO: CIP City Engineer

FROM:

PROJECT NAME: DOBSON ROAD IMPROVEMENTS AT INTEL DRIVEWAYS #1 AND #4

CITY PROJECT NUMBER: ST2009.401

DATE:

Summary of Change (Brief description of proposed change including advantages and disadvantages):

ESTIMATED COST SUMMARY (Attached detailed estimate):

A.	Original Cost:	\$
B.	Proposed Cost:	\$ _____
C.	Construction Savings (A-B):	\$ _____
D.	Gross Savings (Included OH %, Bond %)	\$ _____
E.	Contractor Implementing	\$ _____
F.	City Implementing Cost:	\$ _____
	Reduction in Contract Price (C+D-E-F) x 50%:	\$ _____

Date by which a Change Order must be issued so as to obtain maximum cost reduction:

**CITY OF CHANDLER, ARIZONA
PUBLIC WORKS & UTILITIES DEPARTMENT**

CONTRACTOR'S AFFIDAVIT REGARDING SETTLEMENT OF CLAIMS

_____, Arizona
Date _____

Project Name: DOBSON ROAD IMPROVEMENTS AT INTEL DRIVEWAYS #1 AND #4
City Project No.: ST2009.401

To the City of Chandler, Arizona

Gentlemen:

This is to certify that all lawful claims for materials, rental of equipment and labor used in connection with the construction of the above project, whether by subcontractor or claimant in person, have been duly discharged.

The undersigned, for the total compensation of \$_____, as set out in the final pay application, as full and complete payment under the terms of the contract, hereby waives and relinquishes any and all further claims or right of lien under, in connection with, or as a result of the above described project. The undersigned further agrees to indemnify and save harmless the City of Chandler against any and all liens, claims or liens, suits, actions, damages, charges and expenses whatsoever, which said City may suffer arising out of the failure of the undersigned to pay for all labor performances and materials furnished for the performance of said installation.

Signed and dated at _____, this _____ day of _____ 20_____.

CONTRACTOR

By _____

STATE OF ARIZONA)
) SS
COUNTY OF MARICOPA)

The foregoing instrument was subscribed and sworn to before me this _____ day of _____ 20_____.

Notary Public

My Commission Expires

PERFORMANCE BOND

ARIZONA STATUTORY PERFORMANCE BOND
PURSUANT TO TITLES 28, 34, AND 41, ARIZONA REVISED STATUTES
(Penalty of this bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS THAT: DCS Contracting, Inc.

(hereinafter "Principal"), and Merchants Bonding Company (mutual) (hereinafter "Surety"), a corporation organized and existing under the laws of the State of Iowa with its principal office in the City of West Des Moines, IA, holding a certificate of authority to transact surety business in Arizona issued by the Director of Insurance pursuant to Title 20, Chapter 2, Article 1, as Surety, are held and firmly bound unto City of Chandler, AZ (hereinafter "Obligee") in the amount of TWO HUNDRED THIRTY NINE THOUSAND FIVE HUNDRED TWENTY AND 46/100 (Dollars) (\$ 239,525.46), for the payment whereof, Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__ for construction of **DOBSON ROAD IMPROVEMENTS AT INTEL DRIVEWAYS #1 AND #4, ST2009.401** which contract is hereby referred to and made a part hereof as fully and to the same extent as if copies at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal faithfully performs and fulfills all the undertakings, covenants, terms, conditions and agreements of the contract during the original term of the contract and any extension of the contract, with or without notice of the Surety, and during the life of any guaranty required under the contract, and also performs and fulfills all the undertakings, covenants, terms, conditions, and agreements of all duly authorized modifications of the contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, the above obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond will be determined in accordance with the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if it were copied at length in this Contract.

The prevailing party in a suit on this bond may recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the court.

Witness our hands this 7th day of February, 2022

USI Insurance Services, LLC
AGENT OF RECORD

2375 E. Camelback Rd Ste 250 Phx, Az 85016
AGENT ADDRESS

DCS Contracting, Inc.

PRINCIPAL SEAL

By Matthew Byrne
Matthew Byrne - VP/Chief of Estimating

Merchants Bonding Company (mutual)

SURETY SEAL

BY: Jessika Gulliver
Jessika Gulliver, Attorney-In-Fact

PAYMENT BOND

ARIZONA STATUTORY PAYMENT BOND
PURSUANT TO TITLES 28, 34, AND 41, OF THE ARIZONA REVISED STATUTES
(Penalty of this Bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS THAT: DCS Contracting, Inc.

(hereinafter "Principal"), as Principal, and Merchants Bonding Company (mutual) (hereinafter "Surety"), a corporation organized and existing under the laws of the State of Iowa with its principal office in the City of West Des Moines, holding a certificate of authority to transact surety business in Arizona issued by the Director of the Department of Insurance pursuant to Title 20, Chapter 2, Article 1, as Surety, are held and firmly bound unto City of Chandler, AZ (hereinafter "Obligee") in the amount of TWO HUNDRED THIRTY NINE THOUSAND FIVE HUNDRED TWENTY AND 46/100 (Dollars) (\$ 239,525.46), for the payment whereof, the Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee, dated the _____ day of _____, 20__ for construction of **DOBSON ROAD IMPROVEMENTS AT INTEL DRIVEWAYS #1 AND #4, ST2009.401** which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal promptly pays all moneys due to all persons supplying labor or materials to the Principal or the Principal's subcontractors in the prosecution of the work provided for in said contract, this obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2 Arizona Revised Statutes, and all liabilities on this bond will be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if it were copied at length in this Contract.

The prevailing party in a suit on this bond may recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the court.

Witness our hands this 7th day of February, 2022

USI Insurance Services, LLC
AGENT OF RECORD

2375 E. Camelback Rd Ste 250 Phx, Az 85016
AGENT ADDRESS

DCS Contracting, Inc.

PRINCIPAL SEAL

By

Matthew Byrne - VPI Chief of Estimating

Merchants Bonding Company (mutual)

SURETY SEAL

BY:

Jessika Gulliver, Attorney In Fact

MERCHANTS
BONDING COMPANY™
POWER OF ATTORNEY

Know All Persons By These Presents, that MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., both being corporations of the State of Iowa (herein collectively called the "Companies") do hereby make, constitute and appoint, individually,

Andrea Krahn; Benjamin A Greer; Carl N Carter; Chris Johnston; Doris R Van Leeuwen; Jessika Gulliver; Jorge Luis Mendez; Kisha Rushing;
Linda M Hurst

their true and lawful Attorney(s)-in-Fact, to sign its name as surety(ies) and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

This Power-of-Attorney is granted and is signed and sealed by facsimile under and by authority of the following By-Laws adopted by the Board of Directors of Merchants Bonding Company (Mutual) on April 23, 2011 and amended August 14, 2015 and adopted by the Board of Directors of Merchants National Bonding, Inc., on October 16, 2015.

"The President, Secretary, Treasurer, or any Assistant Treasurer or any Assistant Secretary or any Vice President shall have power and authority to appoint Attorneys-in-Fact, and to authorize them to execute on behalf of the Company, and attach the seal of the Company thereto, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof."

"The signature of any authorized officer and the seal of the Company may be affixed by facsimile or electronic transmission to any Power of Attorney or Certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligations of the Company, and such signature and seal when so used shall have the same force and effect as though manually fixed."

In connection with obligations in favor of the Florida Department of Transportation only, it is agreed that the power and authority hereby given to the Attorney-in-Fact includes any and all consents for the release of retained percentages and/or final estimates on engineering and construction contracts required by the State of Florida Department of Transportation. It is fully understood that consenting to the State of Florida Department of Transportation making payment of the final estimate to the Contractor and/or its assignee, shall not relieve this surety company of any of its obligations under its bond.

In connection with obligations in favor of the Kentucky Department of Highways only, it is agreed that the power and authority hereby given to the Attorney-in-Fact cannot be modified or revoked unless prior written personal notice of such intent has been given to the Commissioner-Department of Highways of the Commonwealth of Kentucky at least thirty (30) days prior to the modification or revocation.

In Witness Whereof, the Companies have caused this instrument to be signed and sealed this 22nd day of April, 2020.



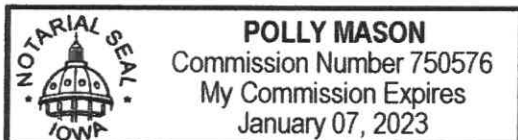
MERCHANTS BONDING COMPANY (MUTUAL)
MERCHANTS NATIONAL BONDING, INC.

By

Larry Taylor
President

STATE OF IOWA
COUNTY OF DALLAS ss.

On this 22nd day of April, 2020, before me appeared Larry Taylor, to me personally known, who being by me duly sworn did say that he is President of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC.; and that the seals affixed to the foregoing instrument are the Corporate Seals of the Companies; and that the said instrument was signed and sealed in behalf of the Companies by authority of their respective Boards of Directors.



(Expiration of notary's commission
does not invalidate this instrument)

Polly Mason
Notary Public

I, William Warner, Jr., Secretary of MERCHANTS BONDING COMPANY (MUTUAL) and MERCHANTS NATIONAL BONDING, INC., do hereby certify that the above and foregoing is a true and correct copy of the POWER-OF-ATTORNEY executed by said Companies, which is still in full force and effect and has not been amended or revoked.

In Witness Whereof, I have hereunto set my hand and affixed the seal of the Companies on this 7th day of February, 2022.



William Warner Jr.
Secretary

DISPUTE RESOLUTION

A. INFORMAL DISPUTE RESOLUTION

The parties to the Contract agree that time is of the essence in relation to performance of the Contract and completion of the Project, therefore any and all disputes in relation to the Contract will initially be referred to the Project Manager, the Design Professional Representative and/or the Contractor Representative as applicable to the dispute, for immediate resolution. If, after good faith efforts to reach a resolution, none is reached, any party to the dispute may submit the dispute to the Dispute Resolution Representative ("DRR") process set forth below, which is intended to be an expedited process.

B. DISPUTE RESOLUTION REPRESENTATIVE ("DRR") PROCESS

1. The Parties under the Contract agree that all claims and disputes in relation to the Project which are not resolved in the ordinary course of the Project ("Claim" or "Claims") will, as a prerequisite to any mediation, or litigation of the Claim, first be submitted for resolution between the designated Dispute Resolution Representatives of the Parties as set forth herein (the "DRR Process").
2. The DRR Process will be initiated through service of a DRR Notice as set forth below:
 - a. For claims by the Contractor or the Design Professional, the DRR Process will be initiated by the party asserting the claim serving written notice on the City setting forth in detail: (i) the basis for the claim; (ii) the effect of the Claim upon the construction of, and/or Project Schedule for, the Project; (iii) the specific relief requested, the amount thereof, and how such was calculated; (iv) the parties involved in the Claim, and how they are involved; (v) the specific contract provisions in the Contract Documents (including, if applicable, drawings and specifications) which apply; and (vi) efforts made to date to resolve the Claim.
 - b. For claims by the City, the DRR process will be initiated by the City providing written notice to the other parties of the basis and amount of its claim, the parties involved in the Claim, and how they are involved, the provisions in the Contract Documents that apply, and the relief requested.
 - c. The DRR Notice will be hand-delivered and e-mailed to the other parties' designated Dispute Resolution Representatives.
3. The other parties will respond in writing to the DRR Notice ("DRR Response") within ten (10) calendar days of receipt of the DRR Notice, setting forth those items set forth in the DRR Notice that they agree with, dispute, and/or have questions concerning. The DRR Response will be hand-delivered and e-mailed to the other parties' Dispute Resolution Representatives.

4. The designated Dispute Resolution Representatives for the Parties to the claim will then meet as soon as possible and in any event within twenty (20) calendar days of submission of the DRR Notice (regardless of whether a DRR Response has been submitted by all parties involved in the dispute), at a mutually agreed upon time and place, to attempt to resolve the Claim based upon the DRR Notice and DRR Response.
5. At any time after the first meeting required above, either party may terminate the DRR Process by written notice to the other party.
6. The parties may agree, in writing, to extend or modify the time limits or other provisions of the DRR process in relation to a specific pending Claim.
7. Unless otherwise designated in a written notice to the other parties, the City and the representatives of the Contractor and of the Design Professional will act as the parties' designated Dispute Resolution Representatives.
8. If a resolution of the Claim is reached, that resolution must be set forth in writing and must be signed by the Parties' designated Dispute Resolution Representative. If the resolution involves a change in any Contract Documents, the Contract Price, the Project Schedule, or any other change requiring a written Change Order or Amendment, the parties must execute an appropriate written Change Order or Amendment pursuant to the terms of the Contract Documents.

C. MEDIATION

1. Unless extended by written agreement of the parties involved in the dispute, any Claim not resolved through the DRR process set forth above within five (5) calendar days after the meeting required under B (4) above, or after the DRR is terminated pursuant to ¶ B (5) above, whichever is earlier, will be submitted to mediation as a condition precedent to litigation by either party.
2. The mediation will be commenced by written demand upon the other party for mediation. If the parties cannot agree upon a mediator within ten (10) calendar days of the written demand, either party may make a request to the Civil Presiding Judge of the Maricopa County Superior Court to appoint a mediator. The mediation will occur within forth (40) calendar days of the written demand for mediation, unless the parties agree, in writing, to a longer period of time.
3. The qualifications for the mediator will be that he/she be: (a) an experienced mediator, arbitrator or litigator of construction disputes; and (b) having engaged a significant portion of his/her time involving and/or resolving construction disputes for at least the past five (5) years.
4. Each party will provide to the other party and the mediator all of the information and documentation required under B(1) and (2) above, together with any additional information and documentation which the party believes relevant. In addition, the parties will exchange, and provide to the mediator such additional memoranda, information and/or documentation, as the

mediator may request, and in the form and at such times, as the mediator may direct.

5. The parties will share the mediator's fee and any filing fees equally. The mediation will be held in Chandler, Arizona, unless another location is mutually agreed upon. Agreements reached in mediation will be specifically enforceable in any court having jurisdiction thereof.

D. LITIGATION

Any claim arising out of or related to the Contract, except Claims relating to aesthetic effect and except those claims waived as provided for in the Contract Documents, must be resolved through litigation in the Maricopa County, Arizona Superior Court.



**CITY OF CHANDLER, ARIZONA
PUBLIC WORKS & UTILITIES DEPARTMENT**

CERTIFICATE OF COMPLETION

PROJECT NAME:	DOBSON ROAD IMPROVEMENTS AT INTEL DRIVEWAYS #1 AND #4		
CITY PROJECT NO.:	ST2009.401		
<i>If Federally Funded:</i>			
FEDERAL NO.:		ADOT NO:	

(This section to be completed by Prime)

I HEREBY CERTIFY THAT ALL GOODS AND/OR SERVICES REQUIRED BY CITY OF CHANDLER FOR THIS PROJECT HAVE BEEN DELIVERED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND BID SPECIFICATIONS AND ALL ACTIVITIES REQUIRED BY THE CONTRACTOR UNDER THE CONTRACT HAVE BEEN COMPLETED AS OF THE COMPLETION DATE LISTED HERE:

<u>FINAL ACCEPTANCE DATE:</u>	
--------------------------------------	--

PRIME CONTRACTOR:

FIRM NAME:			
PRINCIPAL:			
TITLE:			
SIGNATURE:		DATE:	

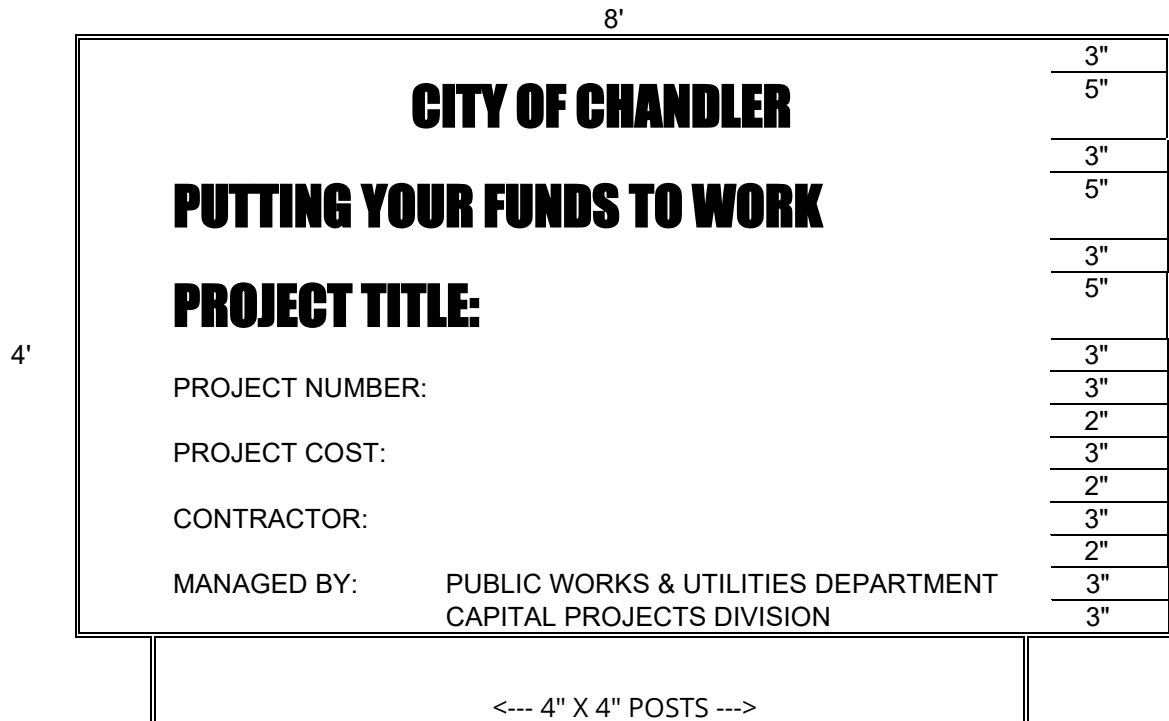
CERTIFIED BY [INSERT NAME AND TITLE OF PARTY THAT OVERSEES CONSTRUCTION]:

FIRM NAME:			
SIGNATURE:		DATE:	

PROJECT ACCEPTED BY CITY OF CHANDLER:

NAME:			
SIGNATURE:		DATE:	

CONSTRUCTION SIGN DETAIL



NOTES:

SIGN(S) MUST BE FURNISHED AND ERECTED PRIOR TO COMMENCEMENT OF CONSTRUCTION. POSTS MUST BE ANCHORED A MINIMUM OF TWO FEET INTO THE GROUND. BOTTOM OF SIGN MUST BE A MINIMUM OF FOUR FEET ABOVE THE GROUND.

TYPICAL PROJECT IDENTIFICATION SIGN FOR GENERAL PROJECTS MUST BE NON-REFLECTORIZED GREEN BACKGROUND, AND NON-REFLECTORIZED WHITE LETTERS AND NUMERALS.

ONE SIGN MUST BE ERECTED FOR BUILDINGS AND OTHER LIMITED AREA SINGLE SITES. FOR MULTIPLE SITES, ONE SIGN MUST BE ERECTED AT EACH SITE.

FOR LINEAR PROJECTS ONE HALF MILE OR LONGER, PLACE ONE SIGN AT EACH END OF THE PROJECT.

COST OF THE WORK

(APPLICABLE SOLELY TO CONSTRUCTION MANAGER AT RISK AND JOB ORDER CONTRACTING)

SECTION 1 – COSTS TO BE REIMBURSED

1.1 Cost of the Work

The term Cost of the Work will mean costs necessarily incurred by Contractor in the proper performance of the Work. Such costs must be at rates not higher than the standard paid at the place of the Project except with prior consent of City. The Cost of the Work will include only the items set forth in this Section 1.

1.2 Labor Costs

- 1.2.1 Wages of construction workers directly employed by the Contractor to perform the construction of the Work at the site or, with City's approval, at off-site workshops. Cost to be reimbursed will be the actual wages paid to the individuals performing the work.
- 1.2.2 Wages or salaries of the Contractor's supervisory and administrative personnel when stationed at the site with City's approval. No Contractor personnel stationed at the Contractor's home or branch offices will be charged to the Cost of the Work. Non-field office based Contractor management and support personnel are expected to provide service and advice from time to time throughout the job and his/her time devoted to Project matters is considered to be covered by the Contractor's Fee.
- 1.2.3 Wages and salaries of Contractor's supervisory or administrative personnel who would normally be stationed at the field office in accordance with Section 1.2.2 but who become engaged, at factories, workshops or on the road, in expediting the production or transportation of materials or equipment required for the Work, but only for that portion of his/her time required for the Work. Employee bonuses and/or costs associated with Employee Stock Ownership Plans ("ESOP") will not be considered reimbursable labor or labor burden costs and will be considered non-reimbursable costs considered to be covered by the Contractor's Fee.
- 1.2.4 Costs paid or incurred by Contractor for taxes, insurance, contributions, assessments and benefits required by law or collective bargaining agreements and, for personnel not covered by such agreements, customary benefits such as sick leave, medical and health benefits, holiday, vacations and pensions, provided such costs are based on wages and salaries included in the Cost of the Work under Subparagraphs 1.2.1 through 1.2.3.
 - 1.2.4.1 Cost of the Work will include the actual net cost to Contractor for worker's compensation insurance attributable to the wages chargeable to the Cost of Work per this Agreement. The actual net cost of worker's compensation must take into consideration all cost adjustments due to experience modifiers, premium discounts, policy dividends, retrospective rating plan premium adjustments, assigned risk pool rebates, any applicable weekly maximums, etc. Contractor may charge an estimated amount for worker's compensation insurance costs, but will make appropriate cost adjustments to actual costs within 45 days of receipt of actual cost adjustments from the insurance carrier.

- 1.2.4.3 Overtime wages paid to salaried personnel (if approved in advance in writing by City) will be reimbursed at the actual rate of overtime pay paid to the individual. No time charges for overtime hours worked on the Project will be allowed if the individual is not paid for the overtime worked.
- 1.2.4.4 Any overtime premium or shift differential expense to be incurred by Contractor for hourly workers will require City's advance written approval before the incremental cost of the overtime premium or shift differential will be considered a reimbursable cost. If the Contractor is required to work overtime as a result of an inexcusable delay or other coordination problems caused by the Contractor or anyone he/she is responsible for, the overtime premium and/or shift differential expense portion of the payroll expense and related labor burden costs will be considered as cost not to be reimbursed.
- 1.2.4.5 Reimbursable labor burden costs will be limited to payroll taxes, worker's compensation insurance, the employer's portion of union benefit costs for union employees working on the Project, and the actual verifiable fringe benefit costs incurred by Contractor for non-union individuals working on the Project subject to the following maximum percentages for the following reimbursable non-union fringe benefit costs. The following maximums (as a percentage of reimbursable actual wages by individual) will apply for each of the following types of fringe benefit costs specifically attributable to each of the non-union personnel working on the Project:

- | | |
|---|--------|
| • Medical Insurance, Dental, Life & AD&D Insurance: | 12.00% |
| • Holiday, vacation and other paid time not worked: | 10.00% |
| • Pension Plan Contributions to Vested Employee Account, Simplified Employee Pension Plans, or 401K matching plans (Note: ESOP related costs are covered by the Contractor Fee) | 10.00% |

For non-union personnel, no other fringe benefit costs (other than the three specific categories listed immediately above, will be considered reimbursable Cost of Work. Any labor burden costs that are in excess of the amounts considered reimbursable or are otherwise not considered reimbursable under the terms of this agreement are intended to be covered by the Contractor Fee.

1.3 Subcontract Costs

- 1.3.1 Payments made by Contractor to Subcontractors in accordance with the requirements of the subcontracts.
- 1.3.2 For Scope of Work Bid Packages typically performed by Subcontractors, Contractor may "self- perform" such work on an actual cost basis subject to an agreed upon Guaranteed Maximum Price for the "self-performed work". The Contractor must, unless agreed to by City in writing, bid his/her proposed guaranteed Maximum Price for the work to be "self-performed" against at least three other interested trade Contractors. All savings under any such Subcontract for "self-performed work" must be applied to reduce the Cost of Work under the Contract and the Guaranteed Maximum Price. For purposes of defining "self-performed work" subject to this provision, any division of Contractor, or any separate Contractor or Subcontractor that is partially owned or wholly owned by the Contractor or any of his/her employees or employee's relatives will be considered a related party entity

and will be subject to this provision regarding “self-performed work”. No self-performed work will be allowed to be performed on a Fixed Price basis.

- 1.3.3 Contractor (with respect to its Suppliers, Subcontractors and all lower tier Subcontractors) must provide City advance written notice and must obtain City's approval for any proposed Subcontract Change Order, Material Purchase Order, or other financial commitment in an amount in excess of \$5,000 prior to placing such order or entering into such agreement (regardless of whether or not any such commitment will affect the prime contract Guaranteed Maximum Cost). It is agreed that sums applicable to any Subcontract Change Order, Purchase Order or other financial commitment entered into in violation of the above notice and approval requirement will not be included in the amounts owing to Contractor, Subcontractors or Suppliers whether as Costs of the Work or as reasonable termination costs in the event of termination.

1.4 Costs of Material and Equipment Incorporated in the Completed Construction

- 1.4.1 Costs, including transportation and storage, of materials and equipment incorporated or to be incorporated in the completed construction.
- 1.4.2 Costs of materials described in the preceding Subparagraph 1.4.1 in excess of those actually installed to allow for reasonable waste and spoilage. Unused excess materials, in any, will become City's property at the completion of the Work or, at City's option, may be sold by the Contractor. Any amounts realized from such sales must be credited to City as a deduction from the Cost of Work.
- 1.4.3 Proceeds from the sale of recyclable materials, scrap, waste, etc. will be credited to job cost.

1.5 Costs of Other materials and Equipment, Temporary Facilities and Related Items

- 1.5.1 Costs, including transportation and storage, installation, maintenance, dismantling and removal of materials, supplies, temporary facilities, machinery, equipment and hand tools not customarily owned by construction workers, that are provided by the Contractor at the site and fully consumed in the performance of the Work; and cost (less salvage value) of such items if not fully consumed, whether sold to others or retained by Contractor. Cost for items previously used by Contractor will mean fair market value.
- 1.5.2 Rental charges for temporary facilities, machinery, equipment, and hand tools not customarily owned by construction workers that are provided by Contractor at the site, whether rented from Contractor or others, and costs of transportation, installation, minor repairs and replacements, dismantling and removal thereof. Rates and quantities of equipment rented will be subject to City's prior written approval.
- 1.5.2.1 The Projected usage for each piece of equipment to be rented for use on the Project and the estimated total rentals must be considered by Contractor before the piece of equipment is rented so that an appropriate rent versus buy decision can be made. Purchased equipment must be considered “job owned”. At the completion of the Project, Contractor must transfer title and possession of all remaining job-owned equipment to City, or Contractor may keep any such equipment for an appropriate fair market value credit to job cost, which will be mutually agreed to by City and Contractor.

1.5.2.2 Each piece of equipment to be rented must have hourly, daily, weekly and monthly rates and the most economical rate available will be reimbursed based on the circumstances of actual need and usage of the piece of equipment while it is stationed at the jobsite. When the piece of equipment is no longer needed for the work, no rental charges will be reimbursed if the piece of equipment remains at the jobsite for the convenience of Contractor.

1.5.2.3 Equipment Rental Rates

1.5.2.3.1 Compensation for equipment used on the Project will be paid in accordance with the Equipment Plan submitted by Contractor in the accepted GMP Proposal and no payments will be made in excess of the rates set forth in the Equipment Plan, or actual documented costs, whichever is less.

1.5.2.3.2 All equipment rental rates and costs are subject to City's right to audit when submitted as part of Equipment Plan and/or at any time during the Project.

1.5.2.4 The aggregate rentals chargeable for each piece of Contractor owned tools or equipment must not exceed 50% of the fair market value of such equipment at the time of its commitment to the Work. The original purchase price and date of purchase of the equipment will be documented with a copy of the purchase invoice for the piece of equipment. Such aggregate limitations will apply and no further rentals will be charged even if a piece of equipment is taken off the job and is later replaced by a similar piece of equipment. For purposes of computing the aggregate rentals applicable to aggregate rental limitations, rental charges for similar pieces of equipment will be combined if the pieces of equipment were not used at the same time.

1.5.2.5 Fair market value for used material and equipment as referred to in the Contract Documents will mean the estimated price a reasonable purchaser would pay to purchase the used material or equipment at the time it was initially needed for the job. Note: This is usually lower than the price a reasonable purchaser would pay for similar new construction material or construction equipment.

1.5.2.6 All losses resulting from lost, damaged or stolen tools and equipment will be the sole responsibility of Contractor, and not City, and the cost of such losses will not be reimbursable under the Contract.

1.5.2.7 Contractor will be required to maintain a detailed equipment inventory of all job-owned equipment (either purchased and charged to job cost or job-owned through aggregate rentals) and such inventory must be submitted to City each month. For each piece of equipment, such inventory should contain at a minimum (1) original purchase price or acquisition cost (2) acquisition date (3) approved Fair Market Value at the time the piece of equipment was first used on the job and (4) final disposition.

1.5.2.8 All costs incurred for minor maintenance and repairs will be reimbursed at actual cost. Such costs include routine and preventative maintenance, minor repairs and other incidental costs. Repairs and/or replacement of a capital nature are considered to be covered by the rental rates. Major repairs and overhauls are not considered routine and ordinary; consequently such costs are not reimbursable and are intended to be covered by the rental

rates.

- 1.5.3 Costs of removal of debris from the Site.
- 1.5.4 Costs of document reproductions, facsimile transmissions and long-distance telephone calls, postage and parcel delivery charges, telephone service at the site and reasonable petty cash expenses of the site office.
- 1.5.5 That portion of the reasonable expenses of Contractor's personnel incurred while traveling in discharge of duties connected with the Work.
 - 1.5.5.1 No travel expenses will be reimbursed to Contractor's representatives unless Project related travel required them to travel to a destination more than 100 miles from the Project location. Any travel involving airfare will require advance written approval by an authorized City's representative.
- 1.5.6 Costs of materials and equipment suitably stored off the site at a mutually acceptable location, if approved in advance by the City.
- 1.5.7 Reproduction costs will be the actual costs of reproduction subject to a maximum of five cents (\$.05) per square foot for prints and a maximum of five cents (\$.05) per 8 ½ by 11-inch page for offset print or photo copied contract documents, specifications, etc. Telephone costs will be the actual costs paid to the third party telephone company for the field office telephone.

1.6 Miscellaneous Costs

- 1.6.1 That portion of insurance and bond premiums that can be directly attributed to the Contract. The City will reimburse Contractor for contractually required bond at time of first pay application for GMP and Cost-Based contracts upon receipt of proof of payment from the Contractor. If the Contractor completes Work for less than the Contract Price, Contractor must credit the City a pro-rated amount for the unused portion of the bond payment
 - 1.6.1.1 Contractor's actual cost for insurance will be considered to be included within the Maximum limit for General Conditions Costs. All premiums for any insurance and bonds required for the Project must reflect the net actual costs to Contractor after taking into consideration cost adjustments due to experience modifiers, premium discounts, policy dividends, retrospective rating plan premium adjustments, assigned risk pool rebates, refunds, etc.
 - 1.6.1.2 The amount to be reimbursed to Contractor for all contractually required insurance will be actual costs not to exceed a total of 2% of the Contract Value, unless Contractor establishes to City's satisfaction that the actual cost is higher and City agrees to such actual higher cost in writing. If Contractor's cost of contractually required insurance is greater than the amount agreed to be reimbursed per this Contract Provision, the difference will be considered to be covered by the Contractor's Fee. The City will reimburse Contractor for contractually required insurance on a monthly basis for GMP and Cost-Based contracts. If Contractor can demonstrate substantial savings by paying for all insurance in advance, the City may agree to reimburse all insurance costs at time of first pay application

for GMP and Cost-Based contracts with proof of payment from Contractor.

- 1.6.2 Sales, use or similar taxes imposed by a governmental authority that are related to the Work.
- 1.6.3 Fees and assessments for the building permit and for other permits, licenses and inspections for which Contractor is required by the Contract Documents to pay.
- 1.6.4 Fees of laboratories for tests required by the Contract Documents, except those related to defective or nonconforming Work and which do not fall within the scope of ¶ 1.7.3 below.
- 1.6.5 Royalties and license fees paid for the use of a particular design, process or product required by the Contract Documents; the cost of defending suites or claims for infringement of patent rights arising from such requirement of the Contract Documents; and payments made in accordance with legal judgments against Contractor resulting from such suites or claims and payments of settlements made with City's consent. However, such costs of legal defenses, judgments and settlements must not be included in the calculation of the Contractor's Fee or subject to the Guaranteed Maximum Price.
- 1.6.6 Data processing costs related to the Work. However, any such data processing costs will be limited to the cost of personal computer hardware used at the field office in the normal day to day administration, management and control of the Project. The aggregate charges for any such hardware must not exceed the Fair Market Value of the hardware at the time it was brought to the field office. If the total charges for any particular piece of hardware reach an amount equal to the Fair Market Value, that particular piece of hardware must be turned over to City whenever it is no longer needed for the Project. If Contractor elects to keep the particular piece of hardware, the job costs must be credited with a mutually agreeable amount which will represent the Fair Market Value of the particular piece of hardware at the time it was no longer needed for the job. Software or other costs associated with the use of computer programs will not be considered to be a reimbursable cost and will be considered to be covered by the Contractor's Fee.
- 1.6.7 Deposits lost for causes other than Contractor's negligence or failure to fulfill a specific responsibility to City as set forth in the Contract Documents.
- 1.6.8 Legal, mediation and arbitration costs, including attorneys' fees, other than those arising from disputes between City and Contractor, reasonably incurred by Contractor in the performance of the Work and with City's prior written approval; which approval will not be unreasonably withheld.
- 1.6.9 Expenses incurred in accordance with Contractor's standard personnel policy for relocation and temporary living allowances of personnel required for the Work, if pre-approved by City in writing. If City authorizes the reimbursement of relocation costs, the reimbursable relocation expenses will be limited to a maximum of \$50,000 per person. Any relocation cost incurred by Contractor in excess of the amount reimbursed by City will be considered to be covered by the Contractor's Fee.

1.7 Other Costs and Emergencies

- 1.7.1 Other costs incurred in the performance of the Work if and to the extent approved in

advance in writing by City.

- 1.7.2 Costs due to emergencies incurred in taking action to prevent threatened damage, injury or loss in case of an emergency affecting the safety of persons and property.
- 1.7.3 Costs of repairing or correcting damaged or nonconforming Work executed by Contractor, Subcontractors or Suppliers, provided that such damaged or nonconforming Work was not caused by negligence or failure to fulfill a specific responsibility of Contractor and only to the extent that the cost of repair or correction is not recoverable by Contractor from insurance, sureties, Subcontractors or Suppliers.

1.8 Related Party Transactions

- 1.8.1 The term “related party” will mean a parent, subsidiary, affiliate or other entity having common ownership or management with Contractor; any entity in which any stockholder in, or management employee of, Contractor owns any interest in excess of ten percent in the aggregate; or any person or entity which has the right to control the business or affairs of Contractor. The term “related party” includes any member of the immediate family of any person identified above.
- 1.8.2 If any of the costs to be reimbursed arise from a transaction between Contractor and a related party, Contractor must notify City in writing of the specific nature of the contemplated transaction, including the identity of the related party and the anticipated cost to be incurred, before any such transaction is consummated or cost incurred. If City, after such notification, authorizes in writing the proposed transaction, then the cost incurred will be included as a cost to be reimbursed, and Contractor must procure the Work, equipment, goods or service from the related party, as a Subcontractor. If City fails to authorize the transaction, Contractor must procure the Work, equipment, goods or service from some person or entity other than a related party.

SECTION 2 – COSTS NOT TO BE REIMBURSED

- 2.1 The Cost of Work must not include:
 - 2.1.1 Salaries and other compensation of Contractor’s personnel stationed at Contractor’s principal office or offices other than the site office, except as specifically provided in Subparagraphs 1.2.2 and 1.2.3.
 - 2.1.2 Expenses of Contractors’ principal office and offices other than the site office.
 - 2.1.3 Overhead and general expenses, except as may be expressly included in Section 1.
 - 2.1.3.1 Costs of Contractor’s home office computer services or other outside computer processing services will be considered overhead and general expense. Accordingly, Contractor should not plan to perform any such computer related services or alternatives at the field office when such services or functions can be performed at Contractor’s home or branch offices, or other outside service locations.
 - 2.1.4 Contractor’s capital expenses, including interest on Contractor’s capital employed for the Work.

- 2.1.5 Rental costs of machinery and equipment, except as specifically provided in subparagraph 1.5.2.
- 2.1.6 Except as provided in Subparagraph 1.7.3 of the Agreement, costs due to the negligence or failure to fulfill a specific responsibility of Contractor, Subcontractors and Suppliers or anyone directly or indirectly employed by any of them or for whose acts of them may be liable.
- 2.1.7 Any cost not specifically and expressly described in Section 1.
- 2.1.8 Costs, other than costs included in Change Orders approved by City that would cause the GMP to be exceeded.

SECTION 3 – DISCOUNTS, REBATES, REFUNDS AND SAVINGS

- 3.1 Cash discounts obtained on payments made by Contractor will accrue to City if (1) before making the payment, Contractor included them in an Application for Payment and received payment therefore from City, or (2) City has deposited funds with Contractor with which to make payments; otherwise, cash discounts will accrue to Contractor. Trade discounts, rebates, refunds and amounts received from sales or surplus materials and equipment will accrue to City, and Contractor must make provisions so that they can be secured.
 - 3.1.1 Cost of the Work will be credited with all insurance policy discounts, performance and payment bond rebates or refunds, refunds or return premiums from any Subcontractor default insurance, refunds or rebates from any Contractor controlled insurance programs applicable to the Project, merchandise rebates of any nature, refunds of any nature, insurance dividends; and a portion of any volume rebates or free material credits earned with purchase of material or other goods and services charged to the job.
 - 3.1.2 “Cash” discounts which may accrue to Contractor will be limited to a maximum of 1.5% of invoice cost. Any portion of “Cash” discounts greater than 1.5% will automatically accrue to City if Contractor is eligible to take advantage of the discounts.
- 3.2 Amounts that accrue to City in accordance with the provisions of Paragraph 3.1 will be credited to City as a deduction from the Cost of the Work.
- 3.3 Any and all savings on the GMP, or any separately guaranteed items comprising the GMP, will belong to City, subject to any express right in the Contract for Contractor to share in savings. Savings are subject to City's right to audit, and may be audited separately.

SECTION 4 – GENERAL CONDITIONS COSTS

- 4.1 General Conditions Costs may include, but are not limited to, the following types of costs incurred by Contractor during construction of the Work to the extent they are reimbursable Costs of the Work as delineated above: payroll costs for Work conducted at the site, payroll costs for the superintendent and full-time general foremen, payroll costs for management

personnel resident and working on the site workers not included as direct labor costs engaged in support (e.g. loading/unloading, clean-up, etc.), administrative office personnel, costs of offices and temporary facilities including office materials, office supplies, office equipment, minor expenses, utilities, fuel, sanitary facilities and telephone services at the site, costs of liability insurance premiums not included in labor burdens for direct labor costs, costs of bond premiums, costs of consultants not in the direct employ of Contractor or Subcontractors, fees for permits and licenses.

- 4.2 General Conditions Costs may be paid on a percentage of the Contract Price or on a lump/stipulate sum basis as set forth in the Contract. All costs included in the General Conditions Costs will not be separately invoiced to or paid by City.
- 4.3 The total amount of General Conditions Costs for the Work may be divided by the number of days allowed for performance of the Work, to determine a fixed daily rate for General Conditions Costs that may be used in computing the General Conditions Costs allocated to any period of time, or for any adjustments in the General Conditions Costs agreed to in writing by City.

LANDSCAPE ESTABLISHMENT PERIOD

Section 1 – Description and General

Contractor is in direct control of work performed under the Landscape Establishment Period. If work is subcontracted, a representative of the Contractor will be present at the site of the work for all hours that the subcontractor works. Subcontracting of Landscape Establishment work will be permitted for weed eradication with herbicides, because of special licensing. A licensed temporary service may be used to supply labor to Contractor if Contractor has received approval from City Representatives. Contractor will submit the required subcontract documentation.

Contractor must provide adequate personnel to accomplish the required maintenance of the plant materials at intervals acceptable to City Representatives.

If not healthy at the end of the maintenance period, the maintenance must be continued until the plant material is approved by City.

1.1 Time and Schedule

Unless otherwise expressly agreed to in writing by City, the Landscape Establishment Period will be per General Conditions Section 6.5.4.

1.2 Planted Stock and Seeding Establishment

- 1.2.1 Tree planting and staking must be per City of Chandler Standard Detail C-801.
- 1.2.2 All trees will stand erect on their own without stakes when brought to this site. If the tree cannot stand on its own when nursery stakes are removed, the tree will be removed and replaced.

1.3 Pre-Emergent Herbicide and Weed Control

- 1.3.1 Contractor will provide three applications of an approved pre-emergent herbicide on all unpaved areas of the project, as directed by City Representatives, to control weed growth in all areas of the project. The number of applications may be increased as directed by the City Representative, and at no additional cost to City, if the City Representative deems additional applications are required to control weed growth.
- 1.3.2 Application sequence will be approved in advance by City. The first application of pre-emergent will be completed prior to the application of Decomposed Granite and will be included with the cost of the Decomposed Granite as specified and part of the Construction Phase portion of work. The second application of pre-emergent will be completed after installation of the Decomposed Granite and no later than half-way through the Landscape Establishment Period. The third and final application of pre-emergent will be applied 15 days prior to completion of the Landscape Establishment portion of the project. The second and third pre-emergent applications will be included with the cost of Landscape Establishment. Watering will be completed in accordance with the manufacturer's recommendations, as included and as related to each application.
- 1.3.3 The pre-emergent herbicide will be applied in accordance with the Technical Specifications and the recommendations of the pre-emergent herbicide manufacturer, as approved by City Representatives.

- 1.3.4 The control of weeds will be accomplished by the use of herbicides. Manual removal of weeds will be required, after herbicides have taken affect.
- 1.3.5 Contractor is responsible for the removal and disposal of all trash and debris that during the Landscape Establishment Period. Contractor will keep the project in a neat and orderly manner during the duration of the Landscape Establishment Period.

1.4 Water

The water used during Landscape Establishment to properly maintain the plant material will be furnished by City, at designated sources from within the project limits, at no charge to Contractor. Contractor will be responsible for all equipment, materials and labor necessary to load, transport and unload water for watering purposes.

1.5 Plant Material Replacements

The plant material replacement will be considered as included in the work for Landscape Establishment, and will be made at no charge to the City.

- 1.5.1 Shrub and Plant Replacement - During the second half of the Landscaping Establishment period, Contractor will provide, where required, plant replacements as follows:

<u>Original Size</u>	<u>Replacement Size</u>
1 gallon	5 gallon
5 gallon	15 gallon
15 gallon	24-inch box
36-inch box	48-inch box

- 1.5.2 Tree Replacement – During the second half of the Landscape Establishment Period, Contractor will provide plant material replacements for existing plants that die as follows:

<u>Existing Plant Material Sizes</u>	<u>Replacement Size</u>
Trees:	
2-inch Caliper	24-inch box
4-inch Caliper	36-inch box
6-inch Caliper and greater	54-inch box
Shrubs:	
All Existing Shrubs	15 gallon

1.6 Measurement and Payment

See Technical Specifications for Measurement Payment provisions.

EXHIBIT C
TECHNICAL SPECIFICATIONS



DOBSON ROAD IMPROVEMENTS

INTEL DRIVEWAYS #1 & #4

CITY OF CHANDLER PROJECT NO. ST2009.201

TECHNICAL SPECIFICATIONS

PREPARED FOR:

CITY OF CHANDLER
PUBLIC WORKS & UTILITIES
CAPITAL PROJECTS

PREPARED BY:



**6437 W. CHANDLER BLVD, SUITE 1
CHANDLER, AZ 85225**

DATE: MAY 2021

This book of specifications and related documents represents the combined efforts of the following firms:

1. Olsson-Premier
2. Lee Engineering
3. EPG

The professional engineers of each firm has affixed their seals below, which attests that portions of these Technical Specifications were prepared under their direction

<u>Olsson-Premier</u> Prime Consultant - Civil Engineer	<u>EPG</u> Landscape Architect
<u>Lee Engineering</u> Traffic Engineer	

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APPENDIX A – GEOTECHNICAL / SOILS REPORT

APPENDIX B – GIS DATA DICTIONARY

PART A: BID ITEMS

The following items, though not a comprehensive list, are non-payment items being considered incidental to the project, the costs of which are to be included within other bid items:

- Saw cutting
- Locating (or pothole) of new or existing utilities
- Concrete curb and gutter transition, MAG Std. Det. 221
- Curb transition, MAG Det. 220-2 and 221
- SWPPP preparation and document maintenance
- Contractor's site office or yard.
- Roadway sweeping
- Any and all permits - preparation costs and permit fees
- Protective fencing or plating for open trenches
- Photographing and videotaping of the project
- Preparation of record drawings
- Crown line
- Temporary pavement as required for all pipeline and underground work
- Removal of existing landscape irrigation pipe, tubing, and equipment

ITEM NO. 1 CONSTRUCTION SURVEYING AND LAYOUT

Description:

The Contractor will furnish all labor, materials, and equipment necessary to perform all surveying, staking, laying out of control lines, and verifications of the accuracy of all existing control points that are delineated in the Contract Documents. The work will be done under the direction of a Registered Land Surveyor (RLS) licensed to practice in the State of Arizona.

Construction Requirements:

Staking Outline: Prior to beginning any survey operations, the Contractor will furnish to the Engineer, for approval, a written outline detailing the method of staking, interval of stakes, marking of stakes, grade control for various courses of materials, referencing, structure control, and any other procedures and controls necessary for survey completion. A part of this outline will also be a schedule that will show the sequencing of the survey and layout work, throughout the course of the contract, listing a percentage of completion for each month.

Field Books: The Contractor will furnish field books to be used for recording survey data and field notes. These books will be available for inspection by the City at any time and will become the property of the City upon completion of the work.

Survey Control Verification: Control Points (horizontal and vertical) -The existence and

location of all survey monuments, bench marks, and control points will be verified prior to demolition or construction activity. Immediately notify the City of Chandler Project Manager when location discrepancies greater than 0.02 foot horizontal or 0.01 foot vertical are found. All datum will be based upon the City of Chandler datum.

Control Lines: Construction control lines with grade breaks, transition points, horizontal and vertical curves, etc., will be established and referenced prior to construction.

Temporary Bench Marks: Temporary bench marks will be established prior to construction, maintained and periodically verified for accuracy throughout the construction phase.

Pre-Construction Location Survey: All existing features will be located prior to construction, referenced to survey monuments along control lines by stationing in accordance with the construction documents and by offset distance from the control lines. All features will be re-locatable after construction. Distances measured will be within 0.01 foot.

Survey monuments: The land surveyor will follow the requirements of A.R.S. § 33-103 when establishing, replacing or setting Public Land System Survey monuments at Section or Quarter Section corners and will follow the requirement in Section 9(C) of the Arizona Boundary Survey Minimum Standards when establishing new or replacement boundary monuments and witness corner monuments. Finally, land surveyors will also comply with the requirements of A.R.S. § 104 through 106 when establishing, replacing or setting any type of boundary monument. Whenever any monuments are established, including those set to replace missing or damaged monuments of a previous survey, those actions require the surveyor to create and record a survey drawing documenting the new monumentation as established.

Water and Sewer Line Appurtenances: Water and sewer line surface appurtenances such as manholes, valves, and cleanouts that lie within the construction area will be located and noted on the Contractor's approved construction documents prior to any demolition or excavation.

Match Points and Removals: Verify the location (horizontal and vertical) of existing facilities to which the project connects. Immediately notify City Representatives when location discrepancies of connecting facilities greater than 0.10 foot horizontal or 0.02 foot vertical are found.

Construction Stakes: The Contractor will set construction stakes and marks establishing lines and grades for road work, curbs, gutters, sidewalks, structures, buildings, centerlines for utilities and necessary appurtenances, and other work as indicated in the Contract Documents and will be responsible for their conformance with the Project Plans and Technical Specifications.

The stakes will be established in accordance with the following guidelines which represent the minimum standard and the Contractor will provide additional stakes and controls necessary to perform the work. The Contractor will be held responsible for the preservation of all stakes and marks and will replace, at no additional cost to the City, any construction stakes or marks which have been carelessly or willfully destroyed by any

party.

(a) Roadway: Subgrade stakes will be set to subgrade elevation at 50 foot intervals on straight sections, 25 foot intervals through vertical curves, on horizontal curves with radius of 600 feet or less, and/or slopes of less than 0.4%, and the beginning and end of horizontal and vertical curves and grade breaks. Stakes will be set at crown lines, at grade break lines, and at edges of pavement which do not abut concrete curb and gutter or at the edge of pavement abutting vertical curbs or other structures whose surface grade will not be flush with the finished pavement grade. Quarter lines will be staked where the distance between the crown line stakes and the curb and gutter face exceeds 20 feet. ABC stakes will be set to ABC elevation at 33 foot intervals on straight sections, 25 foot intervals through vertical curves, on horizontal curves with radius of 600 feet or less, and/or slopes of less than 0.4%, and the beginning and end of horizontal and vertical curves, and grade breaks. Stakes will be set at crown lines, at grade breaks, and at edges of pavement which do not abut concrete curb and gutter or at the edge of pavement abutting vertical curbs or other structures whose surface grade will not be flush with the finished pavement grade. Quarter lines will be staked where the distance between the crown line stakes and the curb and gutter face exceeds 20 feet.

(1) Where the existing pavement will be milled and inlaid, the Contractor will provide 10-foot grid interval surface control horizontally and vertically.

(2) Pavement edges will be controlled by utilizing a wire control mechanism or screeding along a concrete gutter or other structure whose surface grade is flush with the finished pavement grade. Stakes will be set to finished elevation at 33 foot intervals on straight sections, 25 foot intervals on curves with radius of 600 feet or less, and/or slopes of less than 0.4%, and the beginning and end of horizontal and vertical curves, and grade breaks.

(b) Sidewalk and Bike Paths: Stakes are not required for sidewalks five feet or less in width which are adjoining existing curb and gutter.

(1) Sidewalk stakes will be set to grade on an offset and tacked for line at 25 foot intervals at the beginning and end of horizontal and vertical curves and grade breaks.

(c) Storm Sewer and Drainage: All cuts will be to the invert of the pipe, given to the nearest 0.01 of a foot.

(1) Stakes for storm sewer will be driven flush with the existing ground, set on an offset at 50 foot intervals. Stakes will be marked with the offset and indicated cut.

(2) Wyes for laterals will be marked with a line only stake.

(3) Manholes will be marked with the offset and indicated cut to top of manhole grade and inverts.

(4) Stakes for storm water inlets, two per inlet, will be set on a line normal to the roadway at the center line of the inlet five and ten feet from the face of curb.

The stakes will be marked with the offset to the face of curb and the cut or fill to the top of curb and inverts.

- (5) Cut sheets will be supplied to the Contractor and City of Chandler Inspector.

(d) Water: All cuts will be to the invert of the pipe, given to the nearest 0.10 of a foot.

- (1) Stakes for water will be driven flush with the existing ground, set on an offset at 50 foot intervals and specified grade breaks. Stakes will be marked with the offset and indicated cut.
- (2) Fittings or other critical points such as tees will be marked with a line only stake.
- (3) Fire hydrants will be located with two stakes per hydrant set parallel with the roadway five feet from the centerline of the hydrant. The stakes will be marked with the offset to the hydrant and indicated cut to the top of curb at the centerline of the hydrant.
- (4) Water meters will be located with two stakes per meter set parallel with the roadway five feet from the centerline of the meter. The stakes will be marked with the offset to the meter and indicated cut to the top of curb at the centerline of the meter.

- (5) Cut sheets will be supplied to the Contractor and City of Chandler Inspector.

(e) Traffic Signing, Striping and Detector Loops: The Contractor will delineate the procedures and controls to be utilized in the Staking Outline.

(f) Inspection and Acceptance of Work: The City reserves the right to make inspections and random checks of any portion of the staking and layout work. If, in the City's opinion, the work is not being performed in a manner that will assure proper control and accuracy of the work, the City may order any or all of the staking and layout work redone at no additional cost.

Measurement and Payment:

Construction Surveying and Layout will be measured as a single complete unit of work and paid at the contract lump sum price, which price will be full compensation for the work as described herein and required to provide all necessary survey stakes and control. The approved schedule showing the sequencing and percentage of the survey and layout work will be the basis on which monthly progress payments will be made. This schedule will be subject to periodic review, at the request of either party, if the survey and layout work lags or accelerates. If necessary, the schedule will be revised to reflect changes in survey and layout progress. When approved, the revised schedule will become the basis for payment.

ITEM NO. 2 TREE PROTECTION FENCE

Description:

The work under these items will consist of furnishing materials, labor, and equipment necessary to install protective fencing to existing landscape to remain as indicated, at locations as specified in the Project Plans.

Construction Requirements:

All work under this item will be completed in conformance with MAG Standard Specifications Section 107 in its entirety except as modified herein.

All protective fencing shall be in place before earth moving equipment is moved onto the site and before salvage, clearing or grubbing takes place. The contractor is to schedule an inspection of construction fence by the Engineer.

A construction fence should be at the canopy edge or beyond to protect as much root zone as possible for plants that will remain in place and are within the construction fence/scope of work.

Minimum fence requirement is two (2) strands of gold rope on 6' T-Bar posts. Posts are to be placed a maximum of 8 feet on center and at angle points.

Measurement and Payment:

Tree Protection Fence will be measured as a single complete unit of work and paid for at the contract unit lump sum price, which price will be full compensation for the work, complete in place.

ITEM NO. 3 EROSION CONTROL (SWPPP PREPARATION, INSTALLATION, MAINTENANCE, AND REMOVAL)

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to prepare the SWPPP plan, furnish, install, maintain and remove (if applicable) erosion control best management practices as specified in the Project Plans and directed by City Representatives.

Materials:

All materials will conform to the requirements of ADOT Standard Specifications. Section 810-2.

Construction Requirements:

All work under this item will be completed in conformance with the Project Plans and all

applicable City, County, State, and Federal regulations.

Measurement and Payment:

Erosion Control (SWPPP Preparation, Installation, Maintenance, and Removal) will be measured as a single complete unit of work and paid at the contract lump sum price, which price will be full compensation for the work described herein and complete in place.

No payment will be made for rejected best management practices, for maintenance after a storm event, or for damage by the Contractor. No allowance will be made for extra material used in overlapping at splice joints.

ITEM NO. 4 MOBILIZATION/DEMOBILIZATION

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to conform to MAG Uniform Standard Specifications Section 109.10.

Measurement and Payment:

Mobilization/Demobilization will be measured as a single complete unit of work and paid at the contract lump sum price, which price will be full compensation for the work, complete in place.

ITEM NO. 5 CLEARING AND GRUBBING

Description:

The work under this item will consist of furnishing the materials, labor, and equipment necessary to conform to MAG Uniform Standard Specifications Section 201. The Contractor should review the landscape plans to identify trees and plants to be protected in place. The Contractor will clear and grub only the areas required to construct the project improvements.

Construction Requirements:

All work under this item will be completed in conformance with MAG Uniform Standard Specifications Section 201 in its entirety except as modified herein.

Burning of trash, debris, plant material, wood, or any other waste material will not be allowed.

Measurement and Payment:

Clearing and Grubbing will be measured as a single complete unit of work and paid at the

contact lump sum price, which price will be full compensation for the work, complete in place. No separate measurement will be made for trees 12 inches or less in diameter at 1-foot above the original ground surface.

ITEM NO. 6 TREE SALVAGE AND REINSTALLATION

Description:

The work under this item will consist of furnishing the labor and equipment necessary for the salvage, storage and protection, temporary irrigation, and reinstallation of existing trees, as shown on the Project Plans, in accordance with the requirements of MAG Standard Specifications Section 201.4 in its entirety except as modified herein.

Construction Requirements:

All tree salvage personnel will have a minimum of one-year experience in tree salvage and be supervised at all times by a foreman with a minimum of two years' experience. Background information on personnel associated with this task, along with references that will verify experience, will be submitted to City Representatives at the pre-construction meeting.

Salvage, nursery storage and protection, temporary irrigation, and reinstallation of existing trees.

Cavities resulting from the removal of rootball will be backfilled with material approved by City Representatives. The material will be compacted to a density of not less than 95 percent of the maximum density as determined in accordance with the requirements of the applicable test methods of the ADOT Materials Testing Manual and as directed and approved by City Representatives.

Contractor will coordinate with City Representatives no less than two weeks prior to this work to tag trees designated for salvage.

Measurement and Payment:

Tree Salvage and Reinstallation will be measured as a unit each for each tree or palm salvaged as indicated on the plans to be salvaged or as directed by the Engineer, and will be paid for at the contract unit price each. Price will be full compensation for the work, complete in place, including excavation and subsequent backfill, compaction, hauling, obtaining permits, and disposing of the trees/palms.

ITEM NO. 7 SUBGRADE PREPARATION

Description:

The work under this item will consist of furnishing all materials, labor, and equipment

necessary for the excavation for the grading and construction of the roadway as specified in the Project Plans.

Construction Requirements:

Subgrade Preparation will comply with MAG Standard Specifications Section 205 and 301 in its entirety, except as modified herein.

Measurement:

Subgrade Preparation will be measured per square yard including roadway excavation, borrow excavation, and fill construction.

Payment:

The accepted quantity of Subgrade Preparation, measured as provided above, will be paid for at the contract unit price per square yard, which price will be full compensation for the work, complete in place.

ITEM NO. 8 AGGREGATE BASE COURSE, 7 IN THICK
ITEM NO. 9 AGGREGATE BASE COURSE, 8 IN THICK

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary for the placement and construction of the aggregate base course as specified in the Project Plans.

Materials:

Aggregate Base will all comply with MAG Standard Specifications Section 702 in its entirety, except as modified herein.

The graded aggregate base course will meet City requirements, as shown in the table below:

Select Aggregate Base Conditions	
SIEVE SIZE (PER ASTM D422-63)	PERCENT PASSING BY WEIGHT
1 1/4 INCH	100
No. 4	38-65
No. 8	25-60
No. 30	10-40
No. 200	3-12
P.I. MAX	5

Construction Requirements:

The work under these items will comply with MAG Standard Specifications Section 310 in its entirety, except as modified herein.

Measurement:

Aggregate Base, per thickness as specified in the Project Plans and herein, will be measured per square yard.

Payment:

The accepted quantities of Aggregate Base, per thickness as specified in the Project Plans and herein, measured as provided above, will be paid for at the contract unit price per square yard which price will be full compensation for the work, complete in place. Payment will include the excavation of in-situ material to reach depths specified on the Project Plans, percolation tests, and filter fabric.

No additional payment will be made for the excavation of in-situ material to reach depths as specified in the Project Plans, percolation tests or filter fabric, the cost being considered incidental to this item

- | | |
|--------------------|---|
| ITEM NO. 10 | ASPHALTIC CONCRETE PAVEMENT (2 IN SURFACE COURSE, A-12.5 EVAC) |
| ITEM NO. 11 | ASPHALTIC CONCRETE PAVEMENT (3 IN SURFACE COURSE, R-12.5 EVAC) |
| ITEM NO. 12 | ASPHALTIC CONCRETE PAVEMENT (3 IN BASE COURSE, A-19.0 EVAC) |

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary for mixing at a plant, hauling, and placing a mixture of aggregate materials, mineral admixture and asphalt binder to form a pavement course upon a previously prepared base or sub base at all locations as specified in the Project Plans.

Materials:

Asphalt Concrete Pavement mix design will conform to current East Valley Asphalt Committee (EVAC) Hot Mix Approved Asphalt Mixes as follows:

2 in surface course will be A-1/2

3 in surface course will be R-1/2

3 in base course will be A-3/4

For current EVAC specifications see City of Mesa website located here:
<http://www.mesaaz.gov/business/engineering/approve-products-equipment-natural-gas-line-contractors>.

Construction Requirements:

The work under this item will comply with MAG Standard Specifications Section 321 in its entirety, except as modified herein.

The base prepared by the Contractor, on which the asphalt concrete pavement is to be placed, will be smooth, firm, and true to grade and cross-section as specified in the Project Plans, and will be so maintained throughout the period of placing asphalt concrete. If necessary, in order to obtain the above specified base condition, and if ordered by City Representatives, a leveling course of asphalt concrete compacted in layers not exceeding 2 inches in thickness or aggregate base will be spread to level irregularities such as dips, depressions, and sags. All irregularities such as humps or high spots will be removed in order to provide a smooth base of uniform grade and cross-section, so that subsequent surfacing will be of uniform thickness. No additional compensation will be allowed for furnishing and placing these materials and for all work incidental to the correcting of irregularities will be considered as included in the contract price for asphalt concrete pavement.

Cold joints between pavement sections will be saw cut.

Measurement and Payment:

Asphaltic Concrete Pavement will be measured per square yard and will be paid for at the contract unit price per square yard which price will be full compensation for the work, complete in place.

No additional payment will be paid for saw cutting associated with cold joints.

Measurement and payment for tack coat will be paid for under a separate item

ITEM NO. 13 BITUMINOUS TACK COAT SS-1H, DILUTED

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to apply a bituminous tack coat at all locations as specified in the Project Plans or as directed by City Representatives.

Materials:

Bituminous Tack Coat will be SS-1h type or approved equal and will conform to MAG Standard Specification Section 713 in its entirety.

Construction Requirements:

Bituminous Tack Coat will comply with MAG Standard Specifications Section 329 in its entirety, except as modified herein.

Tack coat will be applied at the rate of no less than 0.08 gallons per square yard or as directed by City Representatives.

Measurement:

Bituminous Tack Coat will be measured per square yard and will be paid for at the contract unit price per square yard, which price will be full compensation for the work, complete in place.

No additional payment will be made for application of Bituminous Tack Coat SS-1H, Diluted, the cost being considered incidental to this item.

ITEM NO. 14 CONCRETE LANDSCAPE HEADER

Description:

The work under this item will consist of furnishing the all materials, labor, and equipment necessary to construct concrete header with a medium broom finish at the locations as specified in the Project Plans and in accordance with the details shown on the Project Plans, these Technical Specifications, and the requirements of the MAG Standard Specifications.

Materials:

All materials will conform to MAG Standard Specifications Sections 342 in its entirety.

Construction Requirements:

The Contractor will be responsible for forming the concrete headers per the detail shown on the Project Plans and COC Detail C-225. Prior to placing the concrete header, the Contractor will obtain approval from City Representatives for the finish and forming to ensure it is consistent with the layout as specified in the Project Plans and that the finish is acceptable prior to proceeding with the work.

All exposed edges will have a 1/4-inch radius.

Measurement and Payment:

Concrete Header (6 in) will be measured by the linear foot and will be paid for at the contract unit price per linear foot, which price will be full compensation for the work complete in place.

- ITEM NO. 15 VERTICAL CURB & GUTTER, TYPE A, H=6 IN, MAG DET 220-1**
ITEM NO. 16 SINGLE CURB, TYPE A, MAG DET 222
ITEM NO. 17 END MEDIAN RAMP, COC DET C-225

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary to construct new curb and gutter, single curb, and end median ramp at locations as specified in the Project Plans.

Materials:

Curb & Gutter and transitions will comply with MAG Details 220-1. Single Curb, Type A & B will conform to MAG Detail 222. End Median Ramp will comply with COC Detail C-225.

Construction Requirements:

The work under these items will comply with MAG Standard Specifications Section 340 in its entirety, MAG Details 220-1 and 222, and COC Detail C-225.

Measurement:

Vertical Curb & Gutter and Single Curb will be measured per linear foot, including median nose transitions and curb and gutter transitions. End of Median Ramp will be measured as a unit for each, including concrete median paving and concrete curbs at the end of median ramp.

Payment:

Vertical Curb & Gutter and Single Curb, measured as provided above, will be paid for at the contract unit price per linear foot, which price will be full compensation for the work, complete in place.

End of Median Ramp, measured as provided above, will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place, including concrete median paving and concrete curb at the end of median ramp.

No additional payment will be paid for median nose transitions or curb/curb and gutter transitions, the cost being considered incidental to this item.

ITEM NO. 18 CONCRETE SIDEWALK, MAG DET 230

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary construct new concrete sidewalk per MAG Detail 230 at all locations as specified in the Project Plans.

Materials:

All materials will conform to MAG Detail 230 in their entirety, except as modified herein.

Construction Requirements:

Comply with Section 3.12 of City of Chandler Technical Design Manual #4 (2015) and MAG Detail 230 in their entirety and all City of Chandler supplements, except as modified herein.

Measurement and Payment:

Concrete Sidewalk will be measured per square foot and will be paid for at the contract unit price per square foot, which price will be full compensation for the work, complete in place.

**ITEM NO. 19 CONCRETE CURB RAMP WITH DETECTABLE WARNINGS, COC
DET C-258**

Description:

The work under this item will consist of furnishing of all materials, labor, and equipment necessary to construct concrete curb ramps at locations as specified in the Project Plans.

Materials:

All materials will conform to COC Detail C-258 in its entirety, including all City of Chandler supplements.

Construction Requirements:

Concrete Curb Ramps will comply with COC Detail C-258 in its entirety, including all City of Chandler supplements.

The work under this item includes construction of the adjacent concrete sidewalk areas and concrete curb as shown per COC Detail C-258 and as specified in the Project Plans and all City of Chandler supplements

Measurement:

Concrete Curb Ramps will be measured as a unit for each, including detectable warnings, additional sidewalk area, and concrete curb as specified in the Project Plans.

Payment:

The accepted quantities of Concrete Curb Ramps, measured as provided above, will be paid for at the contract unit price each, which price will be full compensation for the item, complete in place.

No additional payment will be made for additional sidewalk area, concrete curb, or detectable warnings, the cost being considered incidental to this item.

ITEM NO. 20 CONCRETE APRON AND VALLEY GUTTER, MAG DET 240

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to construct new concrete apron and valley gutters at all locations as specified in the Project Plans.

Materials:

All materials will conform to MAG Detail 240 in its entirety.

Construction Requirements:

The work under this item will comply with MAG Detail 240 in its entirety, including all City of Chandler supplements except as modified herein.

Measurement and Payment:

Concrete Apron and Valley Gutter will be measured per square foot and will be paid for at the contract unit price per square foot, which price will be full compensation for the work, complete in place.

ITEM NO. 21 ADJUST MANHOLE FRAME & COVER, MAG DET 422 & COC DET C-401

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to adjust existing manhole frames and covers to match the final surface grade at all locations as specified in the Project Plans including application of corrosion-protective coating system on all installed concrete adjustment rings.

Materials:

All materials will conform to MAG Detail 422 and COC Detail C-401.

Corrosion-protective coating system materials will be one of the systems included on the City of Chandler list of approved products.

Construction Requirements:

The work under this item will comply with MAG Detail 422 and COC Detail C-401 in their

entirety.

All concrete adjustment rings installed will have a corrosion-protective coating applied with the application completed in accordance with the manufacturer's specifications and City of Chandler's specifications on file.

Measurement and Payment:

Adjust Manhole Frame & Cover will be measured as a unit for each and will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place.

No additional payment will be made for the supply and application of corrosion-protective coating system on all installed adjustment rings, the cost being considered incidental to this item.

ITEM NO. 22 ADJUST VALVE BOX & COVER, MAG DET 391-1 AND COC DET C-307

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary to reset frames and covers for existing water and reclaimed water valve boxes and covers at all locations as specified in the Project Plans.

Materials:

All materials will conform to MAG Details 270, 391-1 and 391-2 and COC Detail C-307.

Construction Requirements:

Comply with, MAG Details 270, 391-1 and 391-2, and COC Details C-307 and C-317, in their entirety, including all City of Chandler supplements except as modified herein.

Measurement and Payment:

Adjust Valve Box & Cover will be measured as a unit for each and will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place.

ITEM NO. 23 REMOVE CATCH BASIN

Description:

The work under these items will consist of furnishing all materials, labor, and equipment for the removal and disposal of catch basins at locations as specified in the Project Plans.

Construction Requirements:

Removal and disposal of catch basins will comply with MAG Standard Specifications Section 350 in its entirety, including all except as modified herein. The work includes removal and disposal of the grates, backfill and compaction of the excavated area.

Measurement and Payment:

Remove Catch Basin will be measured as a unit for each and will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place. No additional payment will be made for removal and disposal of the grates, backfill and compaction of the excavated area, the cost being considered included in this item.

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| ITEM NO. 24 | REMOVE CONCRETE CURB & GUTTER |
| ITEM NO. 25 | REMOVE CONCRETE SINGLE CURB |
| ITEM NO. 26 | REMOVE CONCRETE HEADER |

Description:

The work under these items will consist of furnishing all materials, labor, and equipment for the removal and disposal of existing header curb, concrete single curb, concrete curb & gutter, and concrete irrigation ditch at locations as specified in the Project Plans.

Construction Requirements:

Removal and disposal of existing header curb, concrete single curb, and concrete curb & gutter will comply with MAG Standard Specifications Section 350 in its entirety, except as modified herein.

The Contractor will be responsible for removing the identified concrete improvements in their entirety. The Contractor will backfill the excavated area per the City's requirements for backfilling and compaction.

Measurement and Payment:

Remove Concrete Header, Concrete Single, and Concrete Curb & Gutter will be measured per linear foot and will be paid for at the contract unit price per linear foot, which price will be full compensation for the work, including all removals, disposals, backfilling, and compaction, complete in place.

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| ITEM NO. 27 | REMOVE VALLEY GUTTER |
| ITEM NO. 28 | REMOVE CONCRETE SIDEWALK |
| ITEM NO. 29 | REMOVE CONCRETE SIDEWALK RAMPS |

Description:

The work under these items will consist of furnishing all materials, labor, and equipment for the removal and disposal of existing concrete sidewalks, concrete sidewalk ramps, and concrete valley gutters and apron at locations as specified in the Project Plans.

Construction Requirements:

The work under these items will comply with MAG Standard Specifications Section 350 in its entirety, except as modified herein.

The Contractor will be responsible for removing and disposal of the identified concrete improvements in their entirety. The Contractor will backfill the excavated area per the City's requirements for backfilling and compaction.

Measurement and Payment:

Remove Concrete Sidewalk and Valley Gutter will be measured per square foot and will be paid for at the contract unit price per square foot, which price will be full compensation for the work, including all removals, disposals, backfilling, and compaction, complete in place.

Remove Concrete Sidewalk Ramps will be measured per each and will be paid for at the contract unit price per square foot, which price will be full compensation for the work, including all removals, disposals, backfilling, and compaction, complete in place.

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| ITEM NO. 30 | REMOVE & SALVAGE EXISTING SIGN |
| ITEM NO. 31 | REMOVE EXISTING POST & FOUNDATION |

Description:

The work under this item will consist of furnishing all materials, labor, and equipment required for the excavation, disassembling, removal, and salvage of existing signs, delineators, object markers, and milepost markers including sign post and foundation, at locations as specified in the Project Plans.

Construction Requirements:

The Contractor will remove all signs with the sign supports currently in place along the existing roadway alignments within the project limits at such time as City Representatives determine the signs are no longer necessary for traffic due to the construction work. The Contractor will utilize the existing stop signs and other signing items instead of temporary signing at those locations as much as possible until the existing signing items are no

longer determined to be necessary.

All items to be removed and which will not be incorporated into the new work will be removed in a manner which will not produce unnecessary damage or disturbance. The Contractor will not disturb any other signs, sign posts, foundations, delineators, object markers, or milepost markers not specifically indicated on the Project Plans or in these special provisions to be removed unless otherwise directed by City Representatives.

The Contractor shall completely backfill and compact the foundation excavation area in accordance with City requirements. Salvage and transporting of sign panels, post, foundation and other sign removal debris shall be the responsibility of the Contractor.

Any items, which are not identified to be removed but which, are damaged, as a result of the construction will be replaced at the Contractor's expense. The signs, sign posts, foundations, delineators, object markers, and milepost markers which are removed will become the property of the Contractor. They will be disposed of at an acceptable location off the project limits.

Measurement and Payment:

Remove & Salvage Existing Sign and Remove Existing Post & Foundation will be measured as a unit for each sign, post and foundation (counted as one unit, inclusive of post and foundation) and will be paid for at the contract unit price per each, which price will be full compensation for the item, complete in place.

No additional payment will be made for hauling, removal, and disposal offsite of the signs, delineators, object markers, and milepost markers sign posts, foundations, hardware, backfill and compaction, the cost being considered incidental to this item.

ITEM NO. 32 REMOVE ASPHALTIC CONCRETE PAVEMENT

Description:

The work under these items will consist of furnishing all materials, labor, and equipment for the removal and disposal of existing asphaltic concrete pavement at locations as specified in the Project Plans.

Construction Requirements:

The work under these items will comply with MAG Standard Specifications Section 350 in its entirety.

Measurement and Payment:

Remove Asphaltic Concrete Pavement will be measured per square yard and will be paid for at the contract unit price per square yard, which price will be full compensation for the work, complete in place.

ITEM NO. 33 MISCELLANEOUS REMOVALS AND OTHER WORK

Description:

The work under this item will include furnishing all materials, personnel, and equipment necessary for the removal and disposal various existing improvements not included in other Section 350 items described in these technical specifications as directed by the Engineer and as shown on the project plans.

Existing improvements to be removed under this item shall include non-traffic signs, non-traffic sign posts, and non-traffic post foundations that are in conflict with proposed improvements.

Construction Requirements:

Construction will comply with MAG Standard Specifications Section 350 in its entirety with the addition of miscellaneous post removals.

Backfill and compaction of soil are required in areas as indicated on the Project Plans and will comply with MAG Standard Specifications Section 211.

Measurement and Payment:

Miscellaneous Removals and Other Work will be measured as a single complete unit of work and paid for at the contract lump sum price, which price will be full compensation for the work, complete in place.

ITEM NO. 34 REMOVE AND REINSTALL SIGN

Description:

The work under this item consists of furnishing all equipment, labor, and materials necessary to remove and reinstall existing signs at locations as specified in the Project Plans or directed by City Representatives.

Construction Requirements:

The Contractor will be responsible for removing, storing, and reinstalling the identified existing signs, and reinstalling sign to a different sign post or light pole with new hardware and appurtenances.

The work under this item will comply with MAG Standard Specifications Section 350 and City of Chandler Standard Detail C-613.

Prior to the removal of signs, the Contractor will make arrangements for the City Representative to inspect all signs all signs to be removed. Any signs deemed not salvageable, as determined by the City Representative, will be disposed of by the Contractor at his expense. Any signs damaged during removal or storage will be replaced

at no cost to the City.

Measurement and Payment:

Remove and Reinstall Sign will be measured as a unit for each and will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place.

No additional payment will be made for new hardware, appurtenances, sign post, foundation, backfill, compaction or disposal, the cost being considered incidental to this item.

ITEM NO. 35 TRAFFIC CONTROL

Description:

The work under this item will consist of furnishing all equipment, labor, and materials required to install, maintain, move and/or remove barricades, warning signs, lights, signals, cones, and other traffic control devices required to provide safe and efficient passage through and/or around the work and to protect workers in or adjacent to the work zone.

General Requirements:

Traffic control will be provided by the Contractor in accordance with the City of Chandler Traffic Barricade Design (Technical Design Manual #7), the requirements of Part 6 of the Manual on Uniform Traffic Control Devices (MUTCD) and MAG Section 401, as directed by the City, except as modified herein.

The Contractor will submit Traffic Control Plans (TCP) to the City for review and approval. No work will begin prior to the City's approval of the proposed TCP(s).

The Contractor's TCP submittal will be prepared by an individual meeting one of the following criteria:

- (a) Has successfully completed a recognized traffic control supervisor training and certification program. The traffic control supervisor training and certification provided by the American Traffic Safety Services Association (A.T.S.S.A.) or the International Municipal Signal Association (IMSA) will be acceptable. Training and certification through other programs must be approved in advance by the City Representative. The individual's training and certification will be current and must be valid throughout the duration of the project. In order to remain current with the Department, training and certification will be completed or renewed at least once every four years.
- (b) Be a licensed professional engineer registered in the State of Arizona and have completed an approved traffic control supervisor training program, as specified in Subsection 108.03. The training will be current and must be

valid throughout the duration of the project. In order for the training to remain current with the Department, it will be completed or renewed every four years.

The Contractor will submit proof of the proposed individual's credentials at the preconstruction conference. The Contractor bears all responsibility for any such contractor-submitted traffic control plan, whether prepared by its direct employee or other individual.

The Contractor's TCP submittal will be submitted early enough to allow at least two weeks for review and approval before use of the proposed traffic control plan.

Materials:

Temporary Impact Attenuators:

Temporary impact attenuation devices will also meet evaluation criteria for Test Level 3 per NCHRP (National Cooperative Highway Research Program) Report 350, or for Test Level 3 per MASH (AASHTO Manual for Assessing Safety Hardware). The Contractor will provide, at the preconstruction conference, a certificate of compliance, certifying that any temporary impact attenuation devices to be used on the project will meet the above requirement. The Contractor will include the project number on the submittal.

At the pre-construction conference, the Contractor will provide the City with the name of the Contractor's employee who is responsible for implementing, monitoring, and altering, as necessary, the traffic control plan. The Contractor's designee will be available at any time to respond to calls involving damage or displacement to barricades, lights, signs and other devices resulting from vandalism, traffic accident or other causes.

Truck Mounted Attenuators:

The Contractor will provide trucks and truck-mounted attenuator at the locations shown on the Project Plans and/or as directed by the City.

Attenuators will meet either NCHRP Report 350, Test Level 3 criteria, or MASH (Manual for Assessing Safety Hardware), Test Level 3 criteria, passing both mandatory and optional tests. The truck and attenuator combination will only be used in the configuration tested. Either the truck or attenuator will have a sequential arrow display panel or changeable message board.

Attenuators will have rear-mounted, retroreflective chevron stripes and a standard trailer lighting system, including brake lights, turn signals, ICC-bar lights, and two yellow rotating beacons, strobe lights, or LED lights mounted on opposite rear corners of the truck or attenuator approximately 4-1/2 feet above the bottom of the tires. A Type C arrow panel or changeable message board will be provided and will be installed in accordance with the NCHRP 350/ MASH Crashworthiness Certification or FHWA Letter of Acceptance. There will be a minimum of seven feet from the roadway to the bottom of the panel or board. Frame work will be an integral part of the truck and be permanently mounted in such a way as to prevent the unit from separating from the truck in the case of a collision.

For each proposed truck-mounted attenuator, the Contractor will provide a Certificate of

Compliance, to the City for approval prior to use. The certificate will include the certified weigh bill for the truck and will state that the attenuator meets the specified criteria, and will clearly state the roll-ahead distance. A copy of this documentation will be kept in the truck cab or host vehicle, available for immediate inspection when requested by City Representatives.

When in use for attenuation, trucks will be used exclusively for attenuators. When in use for attenuation, such trucks will not be used to carry or store equipment or devices, secured or unsecured. No modification in configuration or use will be allowed without a resubmitted certified weigh bill for the City's approval.

Truck-mounted attenuators used as shadow vehicles per the MUTCD will be positioned at a distance greater than the roll-ahead distance in advance of the workers or equipment being protected so that there will be sufficient distance, but not so much that errant vehicles will travel around the shadow vehicle and strike the protected workers and/or equipment.

The Contractor will cease operations when a truck-mounted attenuator is damaged. The Contractor will not resume operations until the attenuator has been repaired or replaced, unless authorized by the City.

Changeable Message Boards:

Changeable message boards will be furnished and maintained by the contractor at the locations shown on the plans and as specified by the City. The operations and messages programmed into the board controller will be as directed by the City. The changeable message board will be a complete and operational portable unit which will consist of a wheeled trailer with an adjustable, changeable message board, board message controller and self-contained power supply.

The power supply for the changeable message board will be a fully independent self-contained trailer-mounted system. The changeable message board power supply will be battery operated and rechargeable from a solar panel mounted above the changeable message board.

The message characters will be delineated by either electromagnetically actuated reflective dots or optically enhanced light emitting diode pixels (LED) operating under the control of a digital computer.

The Contractor will submit, at the pre-construction conference, a Certificate of Compliance that the changeable message board to be used on this project will be as described herein.

The character formation system and components will conform to the following requirements:

- (1) The changeable message board will be programmable, and will be capable of displaying a minimum of three lines of message copy, with a minimum of eight characters per line, in various alphanumeric combinations.
- (2) The changeable message board matrix configuration will be 35 dots or pixels

- per character in a five horizontal by seven vertical arrangement of the dots or pixels.
- (3) The dot or pixel size will be a 2.5-inch high by 1.625-inch wide rectangle (minimum), or equivalent area.
 - (4) Each character will be 18 inches in height and 12 inches in width (minimum).
 - (5) The horizontal character separation will be three inches or more.
 - (6) Dot color will be fluorescent yellow upon activation and flat black when not activated. The LED pixels will emit amber light upon activation and be dark when not activated.
 - (7) The line separation will be five to 12 inches.
 - (8) Changeable message boards will be protected with a clear lexan-type or equivalent shield that will not interfere with or diminish the visibility of the sign message.
 - (9) The programmable message board will be capable of displaying moving arrow patterns as one of the operator-selected programs.
 - (10) The message board will also be capable of displaying up to two messages in sequence, with variable timing in a minimum of quarter-second increments.
 - (11) The message board will be clearly visible and legible from a distance of 800 feet under both day and night conditions. The dot-matrix board will have an internal illumination system that will automatically activate under low light conditions to achieve the visibility requirements. The LED-pixel matrix board will adjust light output (pulse width modulation) to achieve the visibility requirements.
 - (12) The power supply achieved from the battery and solar panel recharging system will have sufficient capacity to operate the changeable message board for a minimum of 20 days without direct sunshine. The solar panel array will be capable of recharging the batteries such that 2.5 to 3.5 hours of direct sunshine will provide for a minimum of one 24-hour period of usage. Additionally, the battery recharging controller will have an ambient temperature sensing device which will automatically adjust the voltage supplied from the solar panels to the batteries. The sensing device will ensure that the batteries are properly charged in hot or cold weather and will provide the sign with sufficient power to operate the sign as specified.

When in operation, the changeable message board trailer will be offset a minimum of eight feet from the nearest edge of pavement. If the trailer is located behind temporary concrete barrier, a minimum offset of six feet will be required. Should the specified shoulder width not be available, a minimum two-foot offset from the nearest edge of pavement or temporary concrete barrier will be required. When positioned on the highway, the changeable message board trailer will be delineated with a minimum of 10 Type II barricades or vertical panels with Type C steady burn lights at a spacing of 10 to

20 feet, or as shown on the approved traffic control plan.

When not in operation, the changeable message board will be moved away from the edge of pavement.

The changeable message board trailer will be placed on a level surface and be secured as recommended by the manufacturer and as directed by the City. The Contractor will provide any necessary incidental grading and clearing work required to provide a level surface and clear area for the sign.

Flagging Services:

Flagging services will consist of civilian flaggers only for this item. Local enforcement officers and their vehicles will conform to the requirements in their perspective bid item.

The Contractor will be responsible to procure civilian flaggers.

The Contractor will furnish verification to the City Representative that all civilian flaggers have completed a recognized training and certification program. Flaggers certified by the American Traffic Safety Services Association (A.T.S.S.A.) or by the National Safety Council will be acceptable. Certification through other programs offering flagger training must be approved by the City Representative. Flagger certification must be current. Training and certification will be required at least once every four years.

Construction Requirements:

Signs mounted on posts set in the ground will be removed at the completion of the project, the post holes filled and compacted, and the immediate area restored to match the surrounding area.

All Type II Barricades, Type III Barricades, and vertical panels will be equipped with steady burning lights. All orange construction signs will use high reflectivity sheeting. All signs to be used on the job during periods of darkness will be reflectorized.

Construction Schedule:

The Contractor will provide separate construction progress schedules for each individual construction activity and the required traffic control for those activities. The schedule will specify the limits of the work activities and related traffic control plan by station or milepost, by day, and by time of day.

The schedule and the related traffic control will be developed in such ways that access or alternative access is maintained at all times to all adjacent residences and businesses. The schedule should be developed in such a manner that it can be released to the public.

The schedule will be updated as necessary.

Access Requirements for Pedestrians:

Contractor will ensure that all sidewalks on this project remain in compliance with the Americans with Disabilities Act (ADA) Standards. All open pedestrian walkway areas, paved or unpaved, will be maintained and safely useable at all times. Such measures as backfilling or ramping to existing sidewalks, or providing alternate sidewalk areas adjacent

to existing sidewalks may be used. Contractor will ensure one driveway remains open at all times per parcel of land.

Guidelines for ADA access requirements will be in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 edition, and Arizona Supplement to the 2009 edition, dated January 2012, Public Rights-of-Way Accessibility Guidelines (PROWAG), Pedestrians Checklist and Considerations for Temporary Traffic Control Zones (https://www.fhwa.dot.gov/indiv/docs/atssa_pedestrian_checklist.pdf) and Guidance Sheet – Temporary Traffic Control Zone Pedestrian Access Considerations (<http://www.atssa.com/galleries/default-file/WZ%20Guidance%20Sheet%20FINAL%20LAYOUT%20TO%20FHWA.pdf>).

Measurement and Payment:

Traffic Control will be measured as a single complete unit of work and paid for at the contract lump sum price, which price will be full compensation for the work complete in place as described herein and required to provide temporary traffic control.

Twenty five percent of the unit price bid will be paid upon the conclusion of the pre-construction conference, substantial mobilization to the project and satisfactory initial installation of temporary traffic control devices. The remaining seventy five percent will be paid in monthly increments based on the approved lump sum schedule.

No payment in excess of 100% of the contract lump sum price will be made, unless authorized by the Engineer as a result of extra work authorized in accordance with City of Chandler General Conditions Section 9.

The cost of all work described in the Traffic Control section above is not directly measured nor paid, the costs are considered as included in the cost of the contract bid items.

ITEM NO. 36 LANDSCAPE ESTABLISHMENT

Description:

The Construction Phase of the contract will consist of the items under this contract other than items covered under the Landscape Establishment item. When the work is completed under the Construction Phase of the contract and approved by City Representatives, the six (6) month Landscape Establishment of the contract will begin. No work or contract time under the Landscape Establishment phase of the project will begin until the work under the Construction Phase is considered complete by City Representatives.

The water used during Landscape Establishment to properly maintain the plant material will be furnished by the City of Chandler, at designated sources from within the project limits, at no charge to the Contractor. The Contractor will be responsible for the equipment, materials and labor necessary to load, transport and unload water for watering purposes.

During the second half of the Landscaping Establishment period, the Contractor will provide, where required, plant replacements as follows:

<u>Original Size</u>	<u>Replacement Size</u>
1 gallon	5 gallon
5 gallon	15 gallon
15 gallon	24-inch box
36-inch box	48-inch box

During the second half of the Landscape Establishment period, the Contractor will provide plant material replacements for existing plants that die as follows:

<u>Existing Plant Material Sizes</u>	<u>Replacement Size</u>
Trees:	
2-inch Caliper	24-inch box
4-inch Caliper	36-inch box
6-inch Caliper and greater	54-inch box

Shrubs:

All Existing Shrubs	15 Gallon
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The plant material replacement will be considered as included in the work for Landscape Establishment, and will be made at no charge to the City of Chandler.

General:

The Prime Contractor will be in direct control of work performed under Landscape Establishment. If work is subcontracted, due to labor shortage, a representative of the Prime Contractor will be present at the site of the work for the hours that the subcontractor works. Subcontracting of Landscape Establishment work will be permitted for weed eradication with herbicides, because of special licensing. A licensed temporary service may be used to supply labor to the prime if the prime has received approval from City Representatives. The Prime Contractor will submit the required subcontract documentation.

Planted Stock Establishment:

Materials and labor required for tree guying will be considered as included in the cost paid for under for the Landscape Establishment item.

All trees will stand erect on their own without stakes when brought to this site. If the tree cannot stand on its own when nursery stakes are removed, the tree will be removed and replaced.

The Contractor will provide three applications of an approved pre-emergent herbicide on the unpaved areas of the project, as directed by City Representatives, to control weed

growth in the areas of the project. The number of applications may be increased as directed by the City Representative, and at no additional cost to the City, if the City Representative deems additional applications are required to control weed growth.

Application sequence will be approved in advance by the City of Chandler. The first application of pre-emergent will be completed prior to the application of Decomposed Granite and will be included with the cost of the Decomposed Granite as specified and part of the Construction Phase portion of work. The second application of pre-emergent will be completed half-way through the Landscape Establishment period. The third and final application of pre-emergent will be applied 15 days prior to completion of the Landscape Establishment portion of the project. The second and third pre-emergent applications will be included with the cost of Landscape Establishment. Watering will be completed in accordance with the manufacturer's recommendations, as included and as related to each application.

The pre-emergent herbicide will be applied in accordance with the requirements of these Technical Specifications and the recommendations of the pre-emergent herbicide manufacturer, as approved by City Representatives.

The control of weeds will be accomplished by the use of herbicides. Manual removal of weeds will be required, after herbicides have taken affect.

Contractor is responsible for the removal and disposal of the trash and debris during the Landscape Establishment period. Contractor will keep the project in a neat and orderly manner during the duration of the Landscape Establishment period.

The Contractor will supply City of Chandler with a minimum of 250 white colored marking flags for the purpose of conducting the monthly Landscape Establishment inspections per the acceptance of City Representatives.

Measurement and Payment:

Landscape Establishment will be measured as a single complete unit of work and paid for at the contract unit lump sum price, which price will be full compensation for the work, complete in place.

Partial payments may be made for Landscape Establishment. Payment will be based upon the length of the landscaping establishment period as specified in these technical specifications, and the contract lump sum price for this item.

ITEM NO. 37 TREE – 24 IN BOX, 1.5 IN CAL MIN
ITEM NO. 38 PLANT – 5 GAL

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary to plant trees and plants of the size and type indicated, at all locations as specified in the Project Plans.

Control stationing, application of rodent repellent by mechanical or chemical means, removal of excess material(s), and general plant care and maintenance will also be completed in accordance with the requirements of Section 430 of MAG Standard Specifications, these Technical Specifications, and as required and approved by City Representatives.

Materials:

Within 60 calendar days of the Notice of Award, the Contractor will furnish a complete Plant Availability List of all the plantings needed for this project. The list will include the confirmed nursery source for the planting stock, assuring the availability of each plant material and the size specified herein.

The list will include the species name (botanical, common, and varietal), size and quantity of the plant material, the confirmed source for the plant material as evidenced by an invoice or contract with the confirmed source and the approximate date the plant material will be delivered to the jobsite. This Plant Availability List will be submitted in triplicate to City Representatives.

Approval of the Plant Availability List by City Representatives does not relieve the Contractor of the responsibility for providing plantings that will pass the inspection required elsewhere in the ADOT Standard Specifications or these Technical Specifications.

Prior to planting, the selection of trees will be approved by the City Representatives. The Contractor will meet with the project Landscape Architect at up to three (3) local nurseries or wholesale plant providers to select and tag trees for use in the project. Local nurseries will be defined as those located within the Phoenix Metro Area. Nursery visits will occur a minimum of three (3) months prior to planting. The selected trees may be purchased and stored at the nursery, under continued care of the nursery, until time of planting. No planting will occur during the months of June through September.

To properly plant maintain and care for the plant material, water used during landscape construction will be furnished by the City of Chandler at the designated water meter sources from within the project limits, at no cost to the City.

Trees will be maintained in a straight vertical position during both the Construction Phase and the Landscape Establishment Phase of the project.

The Contractor will be responsible for the care of the trees and damage caused by improper support of the trees or due to construction activities. If necessary, or if required by City Representatives, all staking and bracing of trees will be completed as detailed on the Project Plans.

Construction Requirements:

Immediately after planting, all plants will be irrigated with the irrigation system until the backfill soil around and below the roots and the root ball itself is brought to 100 percent water holding capacity.

Plant pits and root balls will not be allowed to be flooded and totally saturated. Water will not be used to accomplish soil compaction around the root ball.

The soil for back-filling the planting pits will confirm to Section 430 of MAG Standard Specifications.

All trees will be staked per City of Chandler standard details and are considered incidental to the tree planting.

The Contractor will layout the planting pits in accordance with the Project Plans and control stationing along the curb edge using a starting location, methods, and markings approved by City Representatives. The planting layout will be according to the Project Plans. Triangular spacing shown are minimums only; actual spacing may vary.

The flagging will remain in the center of the planting pit until planting starts.

The Contractor will pay special attention to the infestation of weeds and grasses. If either of these items are found in the planting pits, it could result in immediate removal and disposal of the plant. The planting pit will be excavated and inspected to assure complete eradication of roots or rhizomes which may have grown into the area. This work and associated materials will be the responsibility of the Contractor, and will be completed at no additional cost to the City.

All water used during the planting operation phase of the project will be the responsibility of the Contractor, and will be provided at no additional cost to the City.

Measurement and Payment:

Trees and plants will be measured as a unit for each item planted and will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place.

No payment will be made for trees and plants selected for inspection and not planted or for the care and protection of trees and plants prior to the beginning of the landscaping establishment period, the costs being considered as included in the prices paid for trees accepted and paid for under this bid item.

ITEM NO. 39 DECOMPOSED GRANITE (TO MATCH EXISTING)

Description:

The work under these items consists of the following:

- Eradicating existing grasses and weeds with an approved herbicide and by mechanical methods. Also included will be furnishing and applying herbicide mixed in water.
- Grading surfaces upon which decomposed granite will be placed to ensure proper drainage.

- Furnishing, placing, and compacting decomposed granite, which will include the excavation and back filling.
- Included in the granite work is maintaining these areas free of weeds and trash/debris during the construction and landscape establishment phases of the project.

All work under this section will be completed in accordance with the details shown on the Project Plans, MAG Standard Specifications Section 430 and 795, and the requirements of these Technical Specifications.

Materials:

Decomposed Granite to be placed at a minimum depth of 2 inches, except in planting pits. Decomposed granite within planting pits shall be placed at a depth of 1 inch at the specified in locations shown on the Project Plans. The color to be used on the project will have the same color range as those listed below, and will be approved by the City of Chandler representative for color and gradation prior to processing or placement.

Color Table

<u>COLOR</u>	<u>GRANITE NAME</u>	<u>SOURCE</u>
Gold	Desert Gold	AZ Rock Express
Brown	Saddleback Brown	Pioneer

Granite color will be no lighter in coloration than the lightness of the specified colors above.

Granite will have no more than 10 percent of the lighter color pigments (white and cream color pigmentations) in the granite mulch mix.

Criteria to be used for approval for project granite color will be based on the following:

- Similarity to the granite color sample designated as the desired granite control color of the project
- Conformance to the material samples maintained by the City of Chandler
- If referenced similar color granite mulch was used on previous Chandler projects
- The material's appearance after being wet and then dried

Each granite mulch color approved for construction will be acquired from a single source.

Contractor to submit a decomposed granite sample for approval prior to ordering and installation. Decomposed Granite may vary in size, gradation, and color by location. Each type, regardless of size, gradation, and color, will be included under this item, and each type will be submitted and approved prior to ordering and installation.

Gradation requirements for Decomposed Granite ½ Inch Screened, are as follows:

Decomposed Granite 1/2 Inch Screened	
<u>Sieve Size</u>	<u>Percent Passing</u>
3/4"	99
1/2"	67
3/8"	30
1/4"	5
#4	3
#8	2
#10	-
#16	-
#30	1
#40	-
#50	-
#100	-
#200	0.5

Except where granite material has been pulled back for reinstallation, the salvage and reuse of existing granite material from the project area will not be allowed. All decomposed granite will be new. Each decomposed granite material will come from a single source to ensure uniformity of color.

All samples of decomposed granite will be supplied by the Contractor for approval prior to ordering and installation. The Contractor will receive approval from the City of Chandler for alternate granite color and/or color changes for decomposed granite prior to installation.

Construction Requirements:

Decomposed Granite to be used on the project and the granite samples prior to placement on the job site must meet the following requirements:

- Copy of the environmental permit for each granite source pit.
- Written acknowledgement from each supplier that they can provide the quantity of Granite Material required to complete the project.
- Written acknowledgement that granite supplier material will be provided within the contract time frame.
- The cost for approved alternate decomposed granite color will be paid for at the contract bid price.
- The Contractor will provide a minimum 1-ton sample for each color required on the project and each proposed alternate color.
- All samples provided will be cleaned and washed and will be leveled and cover an area of about 10 feet by 10 feet, and will be identified at the jobsite with a sign measuring 1-foot x 1-1/2 feet, with double staking behind the sign, and placed securely into the ground adjacent to the granite mulch color(s) samples(s).
- Labeling of decomposed granite signs will first list the name of the product, and

on the second line will appear the name of the supplier. Text for labeling will be waterproof, clearly legible, printed, and 1-inch capitalized text.

- Contractor will utilize one of each of the pre-bid opening colors at the same contract bid price if an alternate color is not approved.
- Alternate granite proposed after bidding acceptance shall require a submittal for review to be clean and washed, leveled covering an approximate spread area of 10 feet x 20 feet, and signed identifying the product and source.
- Alternate granite samples will have been cleared by City Representatives prior to color(s) submittal and on-site placement for review and approval.
- Alternate granite samples submitted after award of contract will be submitted a minimum of 30 days prior to granite installation for review and approval.

The granite color review and approval process will be coordinated by the Contractor with City Representatives and requires a 1-week minimum advance notice by the Contractor through the City Representatives. All granite colors and color alternates are as approved by City of Chandler. Granite colors are evaluated by comparison to approved color samples and existing decomposed granite.

The Contractor will remove the non-planted vegetation from the areas designated to receive decomposed granite (by chemical or mechanical means) and maintain the designated areas "vegetation-free" for a minimum period of 40 working days prior to placement of the granite mulch and decomposed granite, or as specified by the City Representative.

Prior to placement of the decomposed granite, designated areas to receive granite mulch and decomposed granite will be completely free of grass, weeds, or other miscellaneous vegetation growth.

When using herbicides, a pre-emergent herbicide (Gallery, Surflan, Barricade or equivalent) will be applied to the granite material areas in the manner recommended by the manufacturer to prevent germination of noxious weeds. The Contractor will comply with the applicable portions of Subsection 803-3.02 of the ADOT Standard Specifications.

The subgrade upon which the decomposed granite is placed, will be graded and compacted to promote proper drainage, as approved by the City Representative.

The subgrade will be compacted to between 85 to 90 percent of the maximum proctor density, as determined in accordance with the requirements of Arizona Test Methods 230 or 235, depending on the test method used to determine the compaction density (Sand Cone or Nuclear Method).

All vehicles used for spreading, grading and raking the decomposed granite will have one set of wheels with floatation tires having a minimum width of 18 inches to allow equal compaction of the granite mulch decomposed granite will be placed to a depth as indicated on the Project Plans and details. After rough spreading and rough grading of the granite mulch within the designated areas, the granite mulch and decomposed granite will be raked evenly and thoroughly to blend the different gradation sizes.

The use of conveyor belt type of equipment for placing granite mulch and decomposed

granite will not relieve the Contractor from the requirements of compacting the granite mulch and decomposed granite with equipment as described herein.

After placement, the granite mulch and decomposed granite will be saturated with water to an optimum moisture level as recommended by the supplier. The City Representatives will approve the amount of water necessary to aid in the compaction of the granite mulch, prior to application.

During the final spreading and final grading operations, the surfaces within the granite mulch and decomposed granite areas will be passed over by the spreading and grading equipment a minimum of two-times.

Equipment operations for spreading, grading, raking, chemical application, water settling, and other operations will be done in a manner that uniformly maximizes the vehicle's wheel compaction over the surface area.

The pre-emergent herbicide will be applied in the manner recommended by the manufacturer to prevent germination of noxious weeds.

Pre-emergent herbicide will be applied to the designated granite mulch and decomposed granite areas as specified in the ADOT Standard Specifications: The City of Chandler requires three (3) applications of pre-emergent.

After placing, spreading and grading the granite mulch and decomposed granite, the Contractor will water settle the total thickness of the granite mulch and decomposed granite, to remove the fine material from the surface. The water settling operation, noted above, will be completed by applying water at minimum depth of 1/2 inch over the decomposed granite placed or as approved by the City Representative.

Measurement and Payment:

Decomposed Granite, 1/2-Inch Screened will be measured by the square yard and will be paid for at the contract unit price per square yard, which price will be full compensation for the item, complete in place. Payment will include the required or requested samples, grading, compaction, pre-emergent herbicide, erosion repair work and other related activities as described and specified herein, and as specified in the Project Plans or as required by City Representatives.

No additional payment will be made for the erosion repair work or compaction of soil, as specified herein, the cost being considered incidental to this item.

Contractor will be responsible for erosion repairs on project site that may occur during decomposed granite mulch color review and approval process at no additional payment to the Contractor.

ITEM NO. 40 DECOMPOSED GRANITE, REMOVE AND REINSTALL

Description:

The work under this item will consist of furnishing the labor and equipment necessary to rake away existing decomposed granite to clear the area for construction and re-spread the material back to the new concrete as indicated, at the locations as specified in the Project Plans.

Measurement and Payment:

Decomposed Granite, Remove and Reinstall will be measured as a single complete unit of work and paid for at the contract unit lump sum price, which price will be full compensation for the work, complete in place.

ITEM NO. 41 LANDSCAPE AND IRRIGATION RESTORATION

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to restore the existing landscape and irrigation in areas that are disturbed by construction. Work includes the relocation and installation of lateral pipe and drip emitters, trenching, and backfill for a fully functional irrigation system to ensure effective and efficient watering of the landscape areas. The decomposed granite installation for these areas is included in this bid item. Contractor will renew and replace the existing decomposed granite to match replaced decomposed granite within these restoration areas.

This work will be as defined in sections 440 of the MAG Standard Specifications as modified below.

Materials:

Any disturbed existing irrigation system will require that the Contractor re-construct the irrigation system using the emitters, valves, piping, fittings, controllers, wiring, and other components, of sizes and types to match existing equipment and as called for in the contract documents.

All replacement or repair materials will match the existing materials that have been damaged. Irrigation materials and components will be from the same manufacturer as originally installed. Emitters will have the same volume output as original. PVC pipe may be from a different manufacturer but the grade will be as originally installed. All mainline fittings will be Schedule 80, all lateral fittings will be Schedule 40.

Landscape materials and decomposed granite will be replaced to match existing conditions. Contractor will walk site with City Representatives to inspect Landscape and Irrigation Restoration areas prior to construction activities.

Construction Requirements:

Contractor will verify exact limits of disturbance with City Representatives in areas specified in on the Project Plans as Landscape and Irrigation Restoration Areas. All work will be in accordance with these Technical Specifications and MAG Standard Specifications.

Contractor will identify and coordinate limits of disturbance areas where appropriate with City Representatives prior to beginning of construction activities. Contractor will contact City Representatives for review and approval of all Landscape and Irrigation Restoration materials prior to installation.

The work will also consist of reconstructing, rerouting, modifying, or repairing the existing irrigation system in areas specified in on the Project Plans. The Contractor will be required to repair and/or replace all disturbed or damaged irrigation components, returning their operation to 100 percent within 24 hours following initial disturbance of the irrigation components. The existing irrigation that will be impacted includes the drip irrigation system for the trees, shrubs and ground covers. The work will include furnishing and installing the various irrigation sleeves, piping, drip emitters, gate valves, electric control valves, wiring, and valve boxes, including required excavation and backfill at the specified in locations shown on the Project Plans or as directed by the City Representatives.

All work will be in accordance with the details shown on the Project Plans, or as directed by the City Representatives and the requirements of these Technical Specifications. The existing irrigation components will be protected and maintained in their current condition where feasible or repaired, replaced, extended and reconnected in areas including, but not limited to, those areas that are disturbed during the construction, areas shown on the Project Plans or as directed by City Representatives. The Contractor will be required to maintain water to all existing plant materials throughout the duration of the contract using repairs, reconnections, replacements or rerouting of the system as approved by City Representatives. The Contractor will ensure that the entire existing and new irrigation systems within the project limits are operational and functional and will test and receive approval from City Representatives prior to proceeding with other related work. The City Representatives will inspect and give approval prior to backfilling.

The system will be constructed to grades and conform to areas and locations as shown on the drawings.

Protection of Existing Vegetation: The work will include the protection of all existing plant material. Contractor will take great care to protect in place all existing plant material. Contractor will replace in like kind and size existing plant material removed, damaged, or destroyed at no cost to the City and to the satisfaction of City Representatives. The Contractor will identify and the City Representatives will review existing plant materials within the disturbance areas. Salvage and relocate or replace all plant material in conflict with the construction as designated in Landscape and Irrigation Restoration Areas in like kind and size per the direction of City Representatives.

Identify, protect, and maintain existing vegetation within the protected areas indicated on the Contract Drawings during the Contract from the Notice-To-Proceed to Final

Acceptance. Perform the Work of this Section in accordance with the standards of the Tree Care Industry Association (TCIA). Do not perform work within the protected areas unless approved by City Representatives. Do not store materials within the protected areas. Do not permit vehicle parking, foot traffic, or other activity not approved in writing by City Representatives within the protected areas. Provide labor and new and undamaged materials that constitute "Best Practice" to meet the letter and intent of this Contract. Follow the safety requirements of ANSI Z133.1.

Verification of Conditions: Prior to the start of construction, Contractor will conduct onsite inspections of plants and vegetation with the City of Chandler Representative, and identify and inventory the plants and vegetation that are to remain in place during this area tour. Field measure and stake Project improvements as needed for establishing the location and limits of disturbance.

Construction within Protected Areas:

Demolition and Construction Activities: Contractor will perform demolition and construction activities within protected areas in a manner that minimizes damage to tree roots and branches. Use hand tools where necessary. Make minimal use of construction equipment within the protected areas. Use such equipment within the protected area only when approved by City Representatives. Tree pruning will be performed by a Certified Arborist. Notify the City Representatives 72 hours prior to the use of the equipment within the protected areas.

Provide bridging materials, such as protective planking, in protected areas where construction equipment operates. When utilities must be installed within protected areas, bore under the protected areas whenever possible instead of digging open trenches through them.

Excavating around Trees and Shrubs: Contractor will excavate around trees and shrubs within protected areas only where indicated on the Project Plans. When work that may impact protected plants occurs, plan the work to assure minimal disturbance to the plants, follow good horticultural practices, and direct pruning and wound treatment in accordance with this Section.

Protecting Root Systems: Contractor will protect root systems from damage due to runoff or spillage of noxious materials in solution during storage or construction activities. Protect root systems from flooding or soil erosion. Provide a minimum of two layers of untreated burlap as a covering over exposed root face areas. Do not disturb or excavate protected root zone areas unless specifically authorized to do so by City Representatives. Where trenching for utilities is required within protected areas, excavate under or over roots by hand digging under the authority of City Representatives. If large roots are encountered, or if a condition potentially fatal to the plant is observed, notify City Representatives prior to continuing or commencing work. Do not cut main lateral roots or taproots, those 2-1/2 inches in diameter or greater; however, smaller roots that interfere with the installation of new work may be cut. Cut smaller roots with sharp pruning instruments, but do not break or chop roots. Excavate root systems by hand in areas where new construction is required within protected areas. Use a narrow-tine spading fork

to expose roots. Cut exposed roots back from the new construction. Do not permit exposed roots to dry out before permanent backfills is placed. Provide temporary earth cover, or pack the roots with peat moss, and wrap the roots with burlap. Water and maintain the roots in a moist condition, and temporarily support and protect them from damage until they are permanently relocated and covered with backfill. Provide imported topsoil backfill to cover exposed roots in soil cuts. Do not overload root zones by placing backfill above the existing grade.

Protecting, Restoring, or Modifying Irrigation System: The work under this item will consist of testing, reconstructing, or modifying the existing irrigation systems that are damaged by the construction or as specified in on the Project Plans for modification. Prior to construction activities, the Contractor will stake areas that are designated to be disturbed. The Contractor, along with City Representatives, will meet with the maintenance representative, owner, owner representative, for each area within the project that is designated to be disturbed to determine where the existing and functioning irrigation system is located and how it is operated. The Contractor will be required to repair and or replace all disturbed or damaged irrigation components to 100 percent operational. Contractor will ensure that all reconnections (water and power) have been tested and approved by City Representatives prior to back filling. Prior to final acceptance and during the maintenance period specified, the contractor and the City Representatives will meet again with the designated representative to engage each and every irrigation system that has been disturbed or that is adjacent to this project. The Contractor will ensure that each system has been returned to a fully operational and functional system and that all deficiencies have been corrected. All work will comply with these plans and Technical Specifications.

The underground location of the irrigation facilities is unknown. The Contractor will take care to minimize disturbance to these areas.

All construction will be coordinated to ensure that the existing irrigation system and its associated electrical controls are fully functional within 24 hours of modifications. Work activities that require more than 24 hours of outage will be coordinated with City Representatives for approval and alternate irrigation methods such as truck watering or temporary "rain or rent" systems will be required as directed by City Representatives. The cost of alternate irrigation methods necessary due to extended irrigation system outages will be at the Contractor's expense, at no cost to the Department.

All work will be in accordance with the details shown on the Project Plans, or as directed by City Representatives and the requirements of these Specifications. All work will be inspected and approved by City Representatives prior to backfilling and will comply with all the requirements of Section 808 Water Distribution as specified in the most recent edition of the ADOT Standard Specifications for Road and Bridge Construction.

Repair/Restoration: Contractor will restore all landscape areas and other surface improvements that were to remain in place, but that have been damaged by the Contractor's actions or omissions. Restore landscape areas as nearly as possible to the original condition.

Repairing Damaged Plants: Where damage to vegetation has occurred, Contractor will

prune plants in accordance with Tree Care Industry Association (TCIA) standards to remove branches from the work area, and where needed to maintain the health of the plant. Remove material in a manner that yields minimal impact and is approved by City Representatives.

Replacing Damaged Plants: Contractor will remove plants that were identified by City Representatives to remain in place, but that are damaged during the course of the work to an extent that they cannot be repaired; and replace the damaged plants with new plants of the same type and value. Remove and replace damaged plants as directed by the City Representatives. Base the value of plants that are to be replaced on the criteria found in the Council of Tree and Landscape Appraisers' "Guide for Plant Appraisal", as evaluated by City Representatives. Contractor will remove and replace damaged plants at no additional cost to the City. Plants will be replaced at the following sizes or as directed by City Representatives:

<u>Existing Plant Material Size</u>	<u>Replacement Size</u>
Trees:	
2" Caliper	24" Box
4" Caliper	36" Box
6" Caliper	54" Box
All Existing Shrubs	5 Gallon

Clean up the ground areas under plants remaining in place as directed by City Representatives. Wash off foliage that becomes soiled, or when directed to do so by City Representatives. Remove materials that fall or flow into protected areas. Provide protective barriers as needed or as directed by City Representatives to prevent materials from falling or flowing into protected areas.

Waste Management: Contractor will gather and dispose of spoils and vegetative waste, including dead and damaged plants and the trimmings accumulated from the operations to clear and remove existing vegetation. Dispose of spoils and vegetative waste off-site in conformance with the regulations imposed by the local authorities, and in an area approved for such disposal by the local authorities.

Maintenance of Vegetation: Contractor will care for and maintain existing vegetation within protected areas as indicated on the Project Plans. Provide water and labor as needed for plant health, growth, and for washing down soiled foliage. Provide fertilizer, deep root fertilization, pesticides, anti-desiccants, and other materials and labor as needed to maintain the existing plants in a healthy and growing condition. Provide plant maintenance for the duration of the Contract, until Final Acceptance.

Record Drawings: The Contractor will keep and maintain separate record drawings ("field redlined record drawings"), corrected shop drawings, or other drawings necessary for the Engineer to show the landscape and irrigation work as constructed. These field redlined record drawings will be kept on the worksite and they will be maintained clear,

accurate and current as changes occur that may differ with the bid set construction documents and addenda. All landscape and irrigation related elements buried or backfilled will be recorded in the "field redlined record drawings" prior to burial and backfilling occurs. The Contractor will submit the updated field redlined record drawings with monthly pay estimates to City Representatives. Complete field redlined record drawings that the Contractor maintains will be submitted to City Representatives in a format that will allow City Representatives to create the formal record drawings. The Contractor will submit the field redlined record drawings to City Representatives prior to the end of each construction phase. No extra measurement or direct payment will be made for this work; the cost being considered included in the price of the contract items.

Measurement and Payment:

Landscape and Irrigation Restoration Areas will be measured as a single complete unit of work and paid for at the contract lump sum price, which will be full compensation for the work, complete in place, including all costs, materials, equipment, labor, and operations necessary for the furnishing and full restoration of all plant materials, decomposed granite, turf grass, drip and sprinkler irrigation, and other miscellaneous items to the satisfaction of City Representatives. No additional payment will be made for site preparations, testing, warranty of work, assemblies and incidentals required to install a fully functioning irrigation system, the cost being considered included in the item.

ITEM NO. 42	REMOVE PAINT STRIPE
ITEM NO. 43	REMOVE PAINTED SYMBOL (BIKE LANE MARKING SET)
ITEM NO. 44	REMOVE THERMOPLASTIC ARROW
ITEM NO. 45	REMOVE RAISED PAVEMENT MARKER

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to remove existing striping and raised pavement markers at the locations as specified in the Project Plans.

Construction Requirements:

For obliteration elements, the Contractor will not be allowed to utilize portable grinders that destroy the surface of the pavement. The Contractor will use water blasting for stripe removal and will not damage the existing pavement. A sealant approved by the City of Chandler Street Division shall be applied by the contractor to all areas of pavement marking obliteration, per project plans.

Measurement and Payment:

Remove Paint Stripe will be measured per linear foot of 4-inch width equivalent per ADOT Specifications Section 708-4, and will be paid for at the contract unit price per linear foot, which price will be full compensation for the item, complete in place.

Remove Painted Symbol (Bike Lane Marking Set) and Remove Thermoplastic Arrow will be measured per each, and will be paid for at the contract unit price, which price will be full compensation for the item, complete in place.

Remove Raised Pavement Marker will be measured per each, and will be paid for at the contract unit, which price will be full compensation for the item, complete in place. No additional payment will be made for sealant, the cost being considered incidental to this item.

ITEM NO. 46 4 IN WHITE TRAFFIC PAINT STRIPE
ITEM NO. 47 4 IN YELLOW TRAFFIC PAINT STRIPE

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary to install traffic paint stripes at the locations as specified in the Project Plans.

Materials:

The work under these items will conform to the current editions of the City of Chandler Standard Details C-614, C-620 and C-623 and ADOT Standard Specifications Section 708.

Construction Requirements:

The work under these items will conform to the layouts in the Project Plans and COC Detail C-614, unless otherwise revised by the City Representative.

Measurement:

4 Inch White Traffic Paint Stripe and 4 Inch Yellow Traffic Paint Stripe will be measured per linear foot of 4-inch width equivalent per ADOT Specifications Section 708-4. No measurement will be made for the number of linear feet of gaps in dashed lines.

ITEM NO. 48 PAINT MEDIAN NOSE

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to paint median noses at the locations as specified in the Project Plans.

Materials:

The materials under this item will conform to COC Detail C-617.

Construction Requirements:

The work under this item will be completed per COC Detail C-617.

Measurement:

Paint Median Nose will be measured as a unit for each bull nose painted and will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place

ITEM NO. 49	4 IN WHITE THERMOPLASTIC PAVEMENT STRIPE
ITEM NO. 50	THERMOPLASTIC SYMBOL (LANE REDUCTION ARROW)
ITEM NO. 51	THERMOPLASTIC SYMBOL (LEFT TURN ARROW)
ITEM NO. 52	THERMOPLASTIC SYMBOL (RIGHT TURN ARROW)
ITEM NO. 53	THERMOPLASTIC SYMBOL (BIKE LANE MARKING SET)

Description:

The work under these items consists of furnishing all materials, labor, and equipment necessary for the installation of thermoplastic striping and preformed symbols at the locations as specified in the Project Plans.

Materials:

The work under these items will conform to the current editions of the COC Details C-614, C-620 and C-623, and ADOT Standard Specifications Section 704.

Construction Requirements:

The work under these items will conform to the layouts in the Project Plans and in accordance with COC Detail C-614, unless otherwise adjusted by the City Representative.

Measurement:

4 Inch White Thermoplastic Traffic Stripe will be measured per linear foot of 4-inch width equivalent per ADOT Specifications Section 708-4. No measurement will be made for the number of linear feet for gaps in dashed lines.

Thermoplastic Symbols will be measured as a unit for each pavement symbol installed.

Payment:

The accepted quantities of 4 Inch White Thermoplastic Traffic Stripe, measured as provided above, will be paid for at the contract unit price per linear foot, which price will be full compensation for the item, complete in place.

The accepted quantities of Thermoplastic Symbol, measured as provided above, will be paid for at the contract unit price per each, which price will be full compensation for the item, complete in place.

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|--------------------|---|
| ITEM NO. 54 | REFLECTORIZED RAISED PAVEMENT MARKER (TYPE D, YELLOW, 2-WAY) |
| ITEM NO. 55 | REFLECTORIZED RAISED PAVEMENT MARKER (TYPE G, CLEAR, 1-WAY) |

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary to install Type D and G reflectorized raised pavement markers at the locations as specified in the Project Plans.

Materials:

The reflectorized raised pavement markers and adhesives will conform to COC Detail C-622 and the project plans.

Construction Requirements:

The work under these items will conform to the COC Details C-614, C-620, C-622, C-623, the City of Chandler "Street Design and Access Control Technical Design Manual #4, and as specified in the Project Plans.

Measurement and Payment:

Reflectorized Raised Pavement Markers will be measured as a unit for each type of pavement marker installed and will be paid for at the contract unit price, which price will be full compensation for the item, complete in place. No additional payment will be made for adhesive, the cost being considered incidental to this item.

ITEM NO. 56 PERFORATED SIGN POST

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to install perforated sign posts at the locations as specified in the Project Plans.

Materials:

The Perforated Sign Post will conform to COC Detail C-613.

Construction Requirements:

The work under this item will conform to COC Detail C-613.

Measurement and Payment:

Perforated Sign Post will be measured per linear foot of sign post installed and will be paid for at the contract unit price per linear foot, which price will be full compensation for the item, complete in place.

ITEM NO. 57 PERFORATED SIGN POST FOUNDATION

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to install concrete perforated sign foundations, including anchor, sleeve, and associated hardware to attach post to foundation at the locations as specified in the Project Plans.

Materials:

All materials required to install concrete perforated sign foundations and attachment of post will conform to COC Detail C-613.

Construction Requirements:

The work under this item will conform to COC Detail C-613 and as specified in the Project Plans.

Measurement and Payment:

Perforated Sign Foundation will be measured as a unit for each foundation installed and will be paid for at the contract unit price per each, which price will be full compensation for the item, complete in place. No additional payment will be made for anchor, sign post sleeves, and associated hardware to attach post to foundation, the cost be considered incidental to this item.

ITEM NO. 58 FLAT SHEET ALUMINUM SIGN PANEL, HIGH INTENSITY GRADE

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary to install the sign panels at locations as specified in the Project Plans.

Materials:

Sign Panels will meet the requirements of the ADOT Specifications Section 608 and will conform to all applicable current editions of the COC Details.

Construction Requirements:

The Sign Panels will be installed per ADOT Standard Specifications Section 608 and will conform to all applicable current editions of the COC Details.

Measurement:

Flat Sheet Aluminum Sign Panel, High Intensity Grade will be measured per square foot for each panel furnished and installed.

Payment:

The accepted quantities of Flat Sheet Aluminum Sign Panel, High Intensity Grade, measured as provided above, will be paid for at the contract unit price per square foot, which price will be full compensation for the item, complete in place, including hardware and appurtenances require to install sign.

ITEM NO. 59 REMOVE AND SALVAGE TRAFFIC SIGNAL

Description:

The work under this item will consist of furnishing of all materials, labor, and equipment for removing and salvaging traffic signals, including all foundations, poles, luminaires, mast arms, meter pedestal, controller cabinet and all internal components, vehicular and pedestrian signal heads, down guys and anchors, span cables, conductors, mounting assemblies, video detection, and incidental traffic signal equipment.

Construction Requirements:

At least two weeks prior to removals, the Contractor and City Representative will inspect all equipment to determine which items are salvageable.

Prior to the delivery of any salvaged material or equipment, the Contractor will make arrangements for the City to inspect all items. Any material or equipment not salvageable, as determined by the City, will be disposed of by the Contractor at his expense. Any

items determined to be salvageable prior to removal and then damaged during the removal will be replaced at no cost to the City.

The Contractor will be responsible for removing all existing streetlight poles, luminaires, mast arms, bases, and foundations at locations as specified in the Project Plans. All salvaged poles will be returned to the City of Chandler storage yard at 1800 S. McQueen Road, Chandler, Arizona. All salvaged materials shall be delivered to the Operations Yard at 249 E. Chicago Street, Chandler, Arizona.

All foundations will be removed completely. The Contractor will backfill the excavated area per the City's requirements for backfilling and compaction.

Measurement and Payment:

Remove and Salvage Traffic Signals will be measured as a single complete unit of work and paid for at the contract lump sum price, which price will be full compensation for the work, complete in place, including delivery of salvaged materials and disposal of non-salvaged items.

ITEM NO. 60 MODIFY TRAFFIC SIGNAL

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to modify the existing traffic signal at South Dobson Road at Intel Driveway #1, as specified in the Project Plans.

Construction Requirements:

The work under this item shall not occur until the existing crosswalk between the NW and NE corners is removed and the crossing abandoned for use.

Removed equipment shall be salvaged, transported to the City of Chandler.

Measurement and Payment:

Modify Traffic Signal will be measured as a single complete unit of work and paid for at the contract lump sum price, which price will be full compensation for the work, complete in place, including delivery of salvaged materials.

ITEM NO. 61 REMOVE LIGHT POLE FOUNDATIONS AND SALVAGE STREETLIGHT POLES/EQUIPMENT

Description:

The work under this item will consist of furnishing all materials, labor, and equipment for removing light pole foundations and salvaging streetlight poles and equipment at locations as specified in the Project Plans

Construction Requirements:

The Contractor will coordinate all work associated with the streetlight systems (i.e. de-energizing the system, etc.) with SRP Power.

At least two weeks prior to removals, the Contractor and City Representative will inspect all streetlight poles and equipment to determine which items are salvageable.

The Contractor will be responsible for removing all existing streetlight poles, luminaires, mast arms, bases, and foundations at locations as specified in the Project Plans. All salvaged poles will be returned to the City of Chandler storage yard at 1800 S. McQueen Road, Chandler, Arizona. All remaining street lighting components, including but not limited to luminaires, pull boxes, and conductors, are to be salvaged and delivered to the Operations Yard at 249 E. Chicago Street, Chandler, Arizona.

Existing emptied conduit may be abandoned in place.

Direct-buried poles shall be removed and salvaged, as directed by the City Representative, and do not involve foundation removal.

Pole foundations for foundation-mounted poles will be removed completely. The Contractor will backfill the excavated area per the MAG 350 specification.

Prior to the delivery of any material or equipment, the Contractor will make arrangements for the City to inspect all items. Any material or equipment not salvageable, as determined by the City, will be disposed of by the Contractor at his expense. Any items determined to be salvageable prior to removal and then damaged during the removal will be replaced at no cost to the City.

Measurement and Payment:

Remove Light Pole Foundations and Salvage Streetlight Poles/Equipment will be measured as a unit each and will be paid for at the contract unit price each, which price will be full compensation for the item, complete in place. No additional payment will be made for the delivery of salvaged materials to the City of Chandler Storage yard or the cost of removing luminaires, mast arms, bases, pull boxes, and foundations, the cost being considered incidental to this item.

**ITEM NO. 62 SRP LIGHTING PULL BOX (CONTRACTOR SUPPLIED AND
INSTALLED)**

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary for the installation of SRP approved lighting pull boxes for the streetlight system in accordance with the details and requirements as specified in the Project Plans.

Materials:

SRP Lighting Pull Boxes are to be furnished by the Contractor. Material specifications will be per SRP standards and as shown in COC Details SL-14A and SL-14B. This item will include the ground rod required in each new streetlight pull box and associated conductor clamps.

Construction Requirements:

The Contractor will furnish and install the lighting pull boxes in accordance with City of Chandler Details SL-14A and SL-14B in the current Streetlight Design Manual at the approximate locations as specified in the Project Plans. All pull boxes will be placed within proximity of the streetlight pole as shown in Detail SL-14A and should be located in the public utility easement, where available. The pull boxes will be installed at finish grade.

Measurement:

SRP Lighting Pull Box (Contractor Supplied and Installed) will be measured as unit for each pull box installed, including pick up, and installation, materials, excavation, backfilling, conductor clamps, ground rod, fittings, elbows, caps, and solvent.

Payment:

Accepted quantities of SRP Lighting Pull Box (Contractor Supplied and Installed), measured as provided above, will be paid for at the contract unit price each, which price will be full compensation for the item, complete in place. No additional payment will be made for pick up, installation, materials, excavation, backfilling, conductor clamps, ground rod, fittings, elbows, caps, and solvent, the cost being considered incidental to this item.

**ITEM NO. 63 NO. 7 PULL BOX
ITEM NO. 64 NO. 7 PULL BOX WITH EXTENSION**

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary for the installation of new pull boxes and pull boxes with extensions, including,

excavation, backfill, compaction, and appurtenances at locations as specified in the Project Plans.

Materials:

All Pull Boxes, extensions and lids will be polymer concrete material and conform to the details in the Project Plans. If pull box details are not contained in the Project Plans, the Contractor will conform the applicable COC Details and ADOT Specifications Section 732. Contractor to coordinate with City Representatives for markings on pull box. Markings will be clearly defined and uniform in depth and will be placed parallel to the long side of the lid. Letters will be nominally one inch high.

Pull boxes lids will be rated for traffic loads in locations where subject to vehicular traffic. Each lid will be furnished with two lock-down bolts.

Concrete Pull Boxes and lids will not be used.

Construction Requirements:

All construction will be performed in accordance with the details in the Project Plans. and ADOT Specifications Section 732-3.

New Pull Boxes will be located out of sidewalks, but within the City of Chandler right of way, approximately as shown on the plans. Adjustments in pull box locations are allowed, but are subject to Inspector approval.

Pull Boxes will be installed at finished grade. The pull box will be backfilled with select excavated material and thoroughly compacted to within two inches of original grade. The compaction around the box will not cause the sides to deflect or any part of the box or lid to crack. The Contractor will replace any cracked, broken, chipped, or damaged pull boxes or lids at no additional cost to the City.

All pull boxes will be left in clean conditions, free of dirt and debris upon completion of work.

Measurement:

Pull Box and Pull Box with Extension will be measured as unit for each pull box installed including pick up, excavation, installation backfill, extension, lid, fittings, elbows, caps, solvent, and all applicable appurtenances.

Payment:

Accepted quantities of Pull Boxes and Pull Box with Extension, measured as provided above, will be paid for at the contract unit price each, which price will be full compensation for the item, complete in place, including pick up, excavation, installation backfill, extension, lid, fittings, elbows, caps, solvent, all applicable appurtenances, and disposing of surplus or unsuitable material.

ITEM NO. 65	SCH. 40 PVC ELECTRICAL CONDUIT, 1 IN
ITEM NO. 66	SCH. 40 PVC ELECTRICAL CONDUIT, 2 IN
ITEM NO. 67	SCH. 40 PVC ELECTRICAL CONDUIT, 2 ½ IN (STREETLIGHTING PER SRP PLANS)
ITEM NO. 68	SCH. 40 PVC ELECTRICAL CONDUIT, 3 IN
ITEM NO. 69	SCH. 40 PVC ELECTRICAL CONDUIT, 4 IN

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary for the installation of PVC conduit in accordance with the details shown on the utility company plans.

Materials:

All conduits will meet the requirements of Section 732-2 of the ADOT Standard Specifications for Schedule 40 PVC.

The materials for the Sch. 40 PVC Electrical Conduit, 2 1/2" (Street Lighting Per SRP Plans) item will include 2.5-inch diameter schedule 40 PVC, 2,500 lb. pull tape, trench, and all other materials incidental to this item of work, conforming to SRP requirements and specifications.

Construction Requirements:

All construction will be performed in accordance with the Project Plans. Where not included in these Technical Specifications or other referenced specifications, the work under this item will be installed per Section 732-3 of the ADOT Standard Specifications.

Conduit to be installed under paved streets and driveways shall be installed by directional bore, unless otherwise directed by the City Representative.

Measurement:

Electrical Conduit will be measured by the linear foot from center to center of pull boxes or from end to end of conduit when no pull boxes are used.

Payment:

The accepted quantities for Electrical Conduit, measured as provided above, will be paid for at the contract unit price per linear foot, which price will be full compensation for the work, complete in place, including any excavation, directional bore, slurry, fittings, mule tape, tracer wire, colored innerduct, and all backfill and compaction necessary to complete the work.

No additional payment will be made for conduit bends or rigid non-metallic conduit bends at pull boxes, expansion fittings coupling fittings, the cost being considered incidental to this item.

No additional payment will be made for saw cutting, directional boring, trenching, pavement removal, disposal and pavement replacement done as part of conduit installation, the cost being considered incidental to this item.

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|--------------------|--------------------------------|
| ITEM NO. 70 | POLE FOUNDATION, TYPE A |
| ITEM NO. 71 | POLE FOUNDATION, TYPE Q |
| ITEM NO. 72 | POLE FOUNDATION, TYPE R |

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary to install traffic signal pole foundations at the locations as specified in the Project Plans.

Materials:

The work under these items will conform to the current editions of the ADOT "Traffic Signals & Lighting" Standard Drawings and Section 731-2.02 of the ADOT Standard Specifications.

Construction Requirements:

The work under these items will conform to Section 731-3.01 of the ADOT Standard Specifications and City of Chandler "Traffic Signal Design Technical Design Manual #5."

Measurement:

The pole foundations will be measured as a unit for each foundation furnished and installed, including excavation and backfill.

Payment:

The accepted quantities of pole foundations, measured as provided above, will be paid for at the contract unit price each, for the type of foundation designated in the bidding schedule, which price will be full compensation for the work, complete in place.

No additional payment will be made for all hardware, anchor bolts, wire, excavation, backfill and incidentals, the cost being considered incidental to this item.

ITEM NO. 73 PEDESTRIAN PUSH BUTTON WITH SIGN

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary for installing pedestrian push buttons at the locations as specified in the Project Plans.

Materials:

The work under this item will conform to the current editions of the ADOT "Traffic Signals & Lighting" Standard Drawings and Section 735-2.02 of the ADOT Standard Specifications.

Construction Requirements:

The work under this item will conform to Section 735-2.02 of the ADOT Standard Specifications.

Measurement:

The Pedestrian Push Button will be measured as a unit for each pedestrian push button furnished and installed.

Payment:

The Pedestrian Push Button, measured as provided above, will be paid for at the contract unit price each, which price will be full compensation for the work complete in place, as specified herein and on the Project Plans.

ITEM NO. 74 VIDEO IMAGE DETECTION SYSTEM, 4 APPROACHES

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary for installing a camera video detection system at intersections as specified in the Project Plans.

Materials:

The video detection equipment will be one of the following or approved equivalent:

Manufacturer
FLIR TrafficSense2 Dual

Video detection equipment will include video detection sensors, interface panels, mini hubs, cable and any other miscellaneous items required for proper installation resulting in a fully functional video detection system compatible with the furnished traffic signal controller and cabinet.

Placement of detection zones will be by means of a notebook computer (PC) operating the software suite provided under this item. The VGA mode monitor, integral to the

notebook computer (computer screen), will be able to show the detection zones superimposed on images of traffic scenes.

The video detection system will optimally detect vehicle passage and presence when the MVP sensor is mounted 30 feet, or higher, above the roadway when the image sensor is adjacent to the desired coverage area, and when the distance to the farthest detection zone locations are not greater than 10 times the mounting height of the camera.

Ongoing software support by the supplier will include software updates of the camera sensor, modular cabinet interface unit and computer applications. These updates will be provided free of charge during this warranty period.

The supplier will maintain a program for technical support and software updates following expiration of the warranty period.

Video detection cables will run unspliced from the cameras to the existing controller cabinet and will be furnished and installed and terminated in the cabinet by the Contractor, under this item.

Construction Requirements:

A member of the City of Chandler Traffic Signal Group or their representative will supervise the installation and testing of the video detection system.

The video detection cable will run unspliced from traffic signal control cabinet to video detection camera.

Measurement:

The Video Image Detection System will be measured as a single complete unit of work for the complete system furnished and installed, for a 4-approach system.

Payment:

The accepted quantity of Video Image Detection System, measured as provided above, will be paid for at the contract lump sum price, which will be full compensation for the item complete in place, including sensors, cabling, mounting brackets, and interface panels as specified in the Project Plans and described herein.

ITEM NO. 75	TYPE A SIGNAL POLE 10 FT
ITEM NO. 76	TYPE Q SIGNAL POLE
ITEM NO. 77	TYPE R SIGNAL POLE

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary to install traffic signal poles at the locations as specified in the Project Plans.

Materials:

The work under these items will conform to the current editions of the ADOT "Traffic Signals & Lighting" Standard Drawings and Section 731-2.02 of the ADOT Standard Specifications.

Construction Requirements:

The work under these items will conform to Section 731-3.02 of the ADOT Standard Specifications and City of Chandler "Traffic Signal Design Technical Design Manual #5.

Measurement:

The traffic signal poles will be measured as a unit for each type of pole furnished and installed.

Payment:

The accepted quantities of traffic signal poles, measured as provided above, will be paid for at the contract unit price each, for the type of pole designated in the bidding schedule, which price will be full compensation for the work complete in place as described and specified herein and on the Project Plans, including all hardware, wire, and incidentals necessary to complete the work.

ITEM NO. 78	20 FT MAST ARM (TAPERED)
ITEM NO. 79	30 FT MAST ARM (TAPERED)
ITEM NO. 80	50 FT MAST ARM (TAPERED)
ITEM NO. 81	55 FT MAST ARM (TAPERED)

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary to install traffic signal mast arms at the locations as specified in the Project Plans.

Materials:

The work under these items will conform to the current editions of the ADOT "Traffic Signals & Lighting" Standard Drawings and Section 731-2.02 of the ADOT Standard Specifications.

Construction Requirements:

The work under these items will conform to Section 731-3.02 of the ADOT Standard Specifications and City of Chandler "Traffic Signal Design Technical Design Manual #5."

Measurement:

The traffic signal mast arms will be measured as a unit for each type of mast arm furnished and installed.

Payment:

The accepted quantities of traffic signal mast arms, measured as provided above, will be paid for at the contract unit price each, for the type of mast arm designated in the bidding schedule, which price will be full compensation for the work complete in place and as specified herein and on the Project Plans, including all hardware, wire, and incidentals necessary to complete the work.

ITEM NO. 82	POLE FOUNDATION FOR SL-1 POLE
ITEM NO. 83	STREETLIGHT POLE SL-1 WITH SINGLE DAVIT ARM

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary to install the street light pole, including signal davit arm, pole foundation, and appurtenances at the locations as specified in the Project Plans.

Materials:

The street light pole, foundation and single davit arm will conform to the current edition of the COC Street light Detail SL-1.

Construction Requirements:

The pole will be installed plumb and straight. The base of the pole will be oriented so that the hand hole is located away from the sidewalk and street.

The Contractor will furnish and install the (2) #12 AWG conductors and (1) #8 AWG Ground wire from the luminaire to the junction box. The Contractor will install fuse holders and fuses for all current carrying conductors within the handhole of pole.

The street light pole foundation will be installed as directed in the current edition of the COC Street light Detail SL-1 and requirements of the current "Streetlight Design", Technical Design Manual #6.

Measurement:

Pole Foundation, and SL-1 Pole will be measured as a unit for each foundation and pole installed.

Payment:

The accepted quantities of Pole Foundation, and SL-1 Pole, measured as provided

above, will be paid for at the contract unit price per each, which price will be full compensation for the item, complete in place.

No additional payment will be made for conductors to be installed from the junction box to the luminaire or fuses/fuse holders, the cost being considered incidental to this item.

ITEM NO. 84 METER PEDESTAL CABINET

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to install meter pedestal cabinet foundation, clearance pad, and electric meter pedestal at the location shown in the Project Plans.

Materials:

The meter pedestal cabinet will be from the ADOT Approved Products List and will conform to the current editions of the ADOT Traffic Signals & Lighting Standard Drawings and ADOT Standard Specifications Section 734.

The meter pedestal foundation will be 3,000 psi Class S concrete and will conform to the current editions of the ADOT Traffic Signals & Lighting Standard Drawings and ADOT Standard Specifications Section 734.

Construction Requirements:

The work under these items will conform to ADOT Standard Specifications Section 734-3.

Measurement:

The Meter Pedestal Cabinet will be measured as a unit for each cabinet furnished and installed.

Payment:

The accepted quantities Meter Pedestal Cabinet, measured as provided above, will be paid for at the contract unit price each, which price will be full compensation for the work complete in place as specified herein and on the Project Plans, including service terminal boxes, PEC, meter sockets, breaker panels, foundations, conduit, elbows, anchor bolts, clearance pad, and all other components necessary to provide a complete functional assembly.

ITEM NO. 85 CONTROLLER CABINET (TYPE IV)

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to install traffic signal control cabinet, controller, and foundation at the location as specified in the Project Plans.

Materials:

The control cabinet will be a TS2 Type IV cabinet and will conform to the current editions of the ADOT Traffic Signals & Lighting Standard Drawings and ADOT Standard Specifications Section 734, and shall include fully functional ARID travel time system and GPS time source compatible with the furnished controller and operating system.

The traffic signal controller will be a NEMA McCain ATC eX2 NEMA Controller, Type 1, with Linux operating system wired with "A connector" and systems I/O terminal facilities.

The control cabinet foundation will be 4,000 psi Class S concrete and will conform to the current editions of the ADOT "Traffic Signals & Lighting" Standard Drawings and Section 734 of the ADOT Standard Specifications.

Construction Requirements:

The work under these items will conform to Section 734-3 of the ADOT Standard Specifications.

Measurement:

Controller Cabinet (Type IV) will be measured as a unit for each cabinet assembly furnished and installed.

Payment:

The accepted quantities of Controller Cabinet (Type IV), measured as provided above, will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place, as specified herein and on the Project Plans, including controller, cabinet components, foundation, conduit, elbows, anchor bolts, clearance pad, ARID system and GPS time source and all other components necessary to provide a complete functional assembly for controlling the operation and timing of traffic control signals.

ITEM NO. 86 OPTICOM PRE-EMPTION UNIT

Description:

The work under this item will consist of furnishing all labor, materials, and equipment to install emergency vehicle sensors and phase selector cards as specified in the Project Plans.

Materials:

The pre-emption equipment will be:

Manufacturer
Opticom – GTT Model 700 Series Detectors

The emergency vehicle pre-emption system sensors and phase selectors will be fully compatible with the pre-emption system used citywide.

The emergency vehicle pre-emption system sensor devices will have two channels with two directions.

The phase selector will have four channels of detection.

Construction Requirements:

The emergency vehicle pre-emption system sensors will be mounted on the specified poles and for specified directions as indicated on the Project Plans. Sensors will be attached to the mast arm of the specified poles in a rigid and waterproof manner, with cables routed inside the mast arm and pole shaft.

Sensors will be aimed by the Contractor for maximum distance sensing.

The Contractor is responsible for installing all components, making all connections and adjusting sensors for the emergency pre-emption system.

Phase selectors will be placed in the appropriate input file slots in the traffic signal controller cabinet by the Contractor.

Preemption cables will run unspliced from the sensors to the existing controller cabinet and will be furnished and installed and terminated in the cabinet by the Contractor, under this item.

Preemption cables will be clearly tagged and marked in the controller cabinet and each pull box they pass through, designating the direction, phase or corner served. The Contractor is responsible for insuring the emergency pre-emption system is properly aimed and ready for activation prior to the date of turn-on. The Contractor will make any adjustments to sensor aiming or cabling, as requested by City Representatives, and provide any necessary traffic control and lift trucks, as needed, at the expense of the contractor.

The pre-emption system will be tested by the Contractor to insure proper operation.

Measurement:

Opticom Pre-Emption Unit will be measured as a unit for each pre-emption unit installed and tested complete in place, including pre-emption sensors for all approaches.

Payment:

Opticom Pre-Emption Unit, measured as above, will be paid for at the contract unit price per each, which will be in full compensation for the work, complete in place, including pre-emption sensors for all approaches, phase selector units, cabling and testing as specified herein and specified in Project Plans.

ITEM NO. 87	TRAFFIC SIGNAL FACE (TYPE F) (LED)
ITEM NO. 88	TRAFFIC SIGNAL FACE (PEDESTRIAN) (MAN/HAND) (LED)

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary to install traffic signal indications and pedestrian signal indications at the locations as specified in the Project Plans.

Materials:

The work under these items will conform to the current editions of the ADOT Traffic Signals & Lighting Standard Drawings and ADOT Standard Specifications Section 733.

All traffic signal indications will be Light Emitting Diode (LED) modules.

Vehicle type LED modules will fit in all standard, incandescent vehicle traffic signal housings. Each module will be complete, consisting of:

- A lens
- LED circuit board inclusive of all of the LEDs and required circuit components
- 36 inch 16 AWG wire leads with strain relief and quick connect terminals
- A rigid housing for protection in shipping, handling and installation
- A one-piece neoprene gasket.

Pedestrian Signal Module:

The pedestrian LED traffic signal module will fit the message of a 16 inch by 18 inch pedestrian signal housing built to the PTCSI Standard. The "HAND" and "MAN" symbol will be 12 inches in height, and conform to PTCSI Standards.

Pedestrian LED signal modules will be designed so, that when operated over the specified ambient temperature and voltage range, the signal will attract the attention of, and be readable to, a viewer (both night and day) at all distances from 9.8 feet to 196.9

feet (3 meters to 60 meters). The measured chromaticity coordinates of the LED pedestrian signal module will conform to the chromaticity requirements of Section 5.3 and Figure C of the PTCSI standard.

The LED pedestrian signal module will be man/hand overlay with fill-in figures for both the man and the hand. Outline and/or side-by-side modules will not be used.

The LED pedestrian signal module will conform to all other specifications in this document, where applicable.

The LED signal module will be rated for use in the ambient operating temperature range, measured at the exposed rear of the module, of -40°F to +165°F (-40°C to +74°C).

The LED signal module will be protected against dust and moisture intrusion per the requirements of NEMA Standard 250-1991, Section 4.7.2.1 and 4.7.3.2, for Type 4 enclosures to protect all internal LED, electronic, and electronic components.

The LED signal module lens will be UV stabilized and scratch resistant.

The external lens surface for all vehicle signals will be smooth, with no raised features, so as to minimize the collection of dirt, diesel smoke, and other particulate contaminants, and to facilitate periodic cleaning. External lens facets are not allowed. The LED signal module lens will be UV stabilized and scratch resistant.

The LEDs will be mounted and soldered to a printed circuit board. The LED signal module will be watertight when properly mounted in an installed traffic signal housing. The LED signal module will utilize the same mounting hardware used to secure the incandescent lens and gasket assembly and only require a screwdriver or standard installation tool to complete the mounting into an existing traffic signal housing built to the VTCSH Standard. Unit will connect to existing electrical wiring utilizing quick connect terminal.

The LED signal module will be a single, self-contained device, not requiring on-site assembly for installation into an existing traffic signal housing. The power supply for the LED signal module will be an integral part of the module. The LED signal module assembly will weigh less than 5 pounds.

The assembly and manufacturing process for the LED signal module will be designed to assure all internal LED and electronic components are adequately supported to withstand mechanical shock and vibration from high winds and other sources.

When necessary, modules will have a prominent and permanent vertical indexing indicator, i.e., UP ARROW or the word UP or TOP, for correct indexing and orientation inside signal housing.

Each individual LED signal module will be identified for Warranty purposes and clearly marked with:

- Manufacturer's name
- Date of manufacture.
- Unit serial number.

- Nominal operating voltage
- Power consumption in Watts

Environmental:

The LED signal module will operate over the temperature range of -40°F to +165°F (-40°C to +74°C). The LED signal module will be protected against dust and moisture intrusion per the requirements of NEMA Standard 250-1991, Section 4.7.2.1 and 4.7.3.2, for Type 4 enclosures to protect all internal LED, electronic, and electronic components.

Electrical – Input:

LED signal modules will operate from a 60 +/- 3 cycle AC line power over a voltage range from 80 VAC RMS to 135 VAC RMS. The control circuitry will prevent current flow through the LEDs in the off state to avoid any false indication as may be perceived by the human eye. The LED traffic signal module will be operationally compatible with NEMA TS - 1 and NEMA TS - 2 conflict monitoring parameters.

Green LED signals will not illuminate for input voltages below 35 VAC RMS and will illuminate for all input voltages higher than 45 VAC RMS (voltage will be regulated above 80 VAC RMS). This requirement is so that a green indication will not illuminate due to a “floating” or high-impedance neutral connection.

All wiring and terminal blocks will meet the requirements of Section 13.02 of the VTCSH standard. Two secured, color coded, 36 inch (914 mm) long 600 V, 20 AWG minimum, jacketed wires, conforming to the National Electrical Code, rated for service at +221°F (+105°C), are to be provided for electrical connection.

The signal module on-board circuitry will include voltage surge protection to withstand high-repetition noise transients and low-repetition high-energy transients as stated in Section 2.1.6, NEMA Standard TS-2, 1992.

The individual LED light sources will be wired so that a catastrophic failure of one LED light source will result in the loss of not more than 5 percent of the signal module light output. One LED failure in an LED Signal Module will not affect any other LEDs. In case of a failure of one LED, only one LED will be lost and not an entire string or module.

Power factor will be 90% or greater, at nominal rated voltage, at 77°F (25°C), after 60 minutes of operation.

Total harmonic distortion induced into an AC power line by an LED signal module, operated at nominal operating voltage, with a power consumption equal to or greater than 15 watts at 77°F (25°C) will not exceed 20 percent. Total harmonic distortion induced into an AC power line by an LED signal module, operated at nominal operating voltage, with a power consumption less than 15 watts at 77°F (25°C) will not exceed 40 percent.

The LED signal and associated on-board circuitry must meet Federal Communications Commission (FCC) Title 47, subpart B, Section 15 regulations concerning the emission of electronic noise.

Optical – Output:

The light intensity and distribution from LED signal modules will as a minimum, meet the current ITE and CAL TRANS standards and measurement criteria for vehicle traffic control, even after a 30 minute warm up of continuous operation.

Test data to verify the performance as meeting the ITE intensity requirements at +165°F (+74°C) will be supplied from either of the following (or another certified independent test lab):

Lighting Sciences
7630 East Evans Road
Scottsdale, AZ 85260

ETL Testing Laboratories
3933 US Route 11
Cortland, NY 13045-0950

The light output of all LED vehicle signal modules will also meet ITE specifications for chromaticity.

Fluctuations in line voltage over the range of 80 VAC to 135 VAC will not affect luminous intensity by more than +/- 10 percent.

LED traffic signals will be temperature compensated so as to maintain intensity at elevated temperatures. LED traffic signal will be tested and documented by CAL TRANS as being in compliance with CAL TRANS intensity standards at elevated temperatures.

The LEDs will not exhibit degradation of more than 30% of their initial light intensity following accelerated life testing (operating at +185°F (+85°C) and 85% humidity, for 1000 hours). AlGaAs technology is not acceptable.

Warranty:

All LED traffic signal modules supplied will be warranted for five years against manufacturing defects.

LED traffic signal modules will be performance warranted to be in compliance with ITE and CAL TRANS minimum intensity standards, at +165°F (+74°C), after a period of three years, measured at 117 volts AC.

Failures due to acts of God, abuse, and accidents are excluded from warranty coverage.

The manufacturer expressly warrants that all goods furnished will conform to all specifications and appropriate standards, will be new, and will be free from defects in material or workmanship. The manufacturer warrants that all such goods will conform to any statements made on the containers or labels or advertisements for such goods and that any goods will be adequately contained, packaged, marked and labeled. The manufacturer warrants that all goods furnished will be merchantable, and will be safe and

appropriate for the purpose for which goods of that kind are normally used. If the manufacturer knows or has reason to know the particular purpose for which the City intends to use the goods, the manufacturer warrants that such goods will be fit for such particular purpose. The manufacturer's warranty will run to the City, its successors, and assigns. The manufacturer agrees to replace or correct defects of any goods not conforming to the foregoing warranty promptly, without expense to the City, when notified of such nonconformity by the City, provided the City elects to provide the manufacturer with the opportunity to do so. In the event of failure of the manufacturer to correct defects in or replace nonconforming goods promptly, City, after reasonable notice to the manufacturer, may make such corrections or replace such goods and charge the manufacturer for the cost incurred by the City in doing so.

Construction Requirements:

The work under these items will conform to ADOT Standard Specifications Section 733.3.

Measurement:

The traffic signal indications and pedestrian signal indications will be measured as a unit for each type of signal face furnished and installed.

Payment:

The accepted quantities of traffic signal indications and pedestrian indications, measured as provided above, will be paid for at the contract unit price each, for the type of signal face designated in the bidding schedule, complete in place, which price will be full compensation for the work as specified herein and on the Project Plans, including visors, backplates, lamps and incidentals necessary to complete the work.

ITEM NO. 89	SIGNAL MOUNTING ASSEMBLY (TYPE II)
ITEM NO. 90	SIGNAL MOUNTING ASSEMBLY (TYPE IV)
ITEM NO. 91	SIGNAL MOUNTING ASSEMBLY (TYPE V)
ITEM NO. 92	SIGNAL MOUNTING ASSEMBLY (TYPE VII)

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary to install traffic signal mounting assemblies at the locations as specified in the Project Plans.

Materials:

The work under these items shall conform to the current editions of the ADOT "Traffic Signals & Lighting" Standard Drawings and Section 733 of the ADOT Standard Specifications.

Construction Requirements:

The work under these items shall conform to Section 733-3 of the ADOT Standard Specifications.

Measurement:

The traffic signal mounting assemblies will be measured as a unit for each type of mounting assembly furnished and installed.

Payment:

The accepted quantities of traffic signal mounting assemblies, measured as provided above, will be paid for at the contract unit price each, for the type of mounting assembly designated in the bidding schedule, which price shall be full compensation for the work, complete in place, as specified herein and on the Project Plans, including visors, backplates, and incidentals necessary to complete the work.

ITEM NO. 93 LED STREETLIGHT LUMINAIRE

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary for installing LED luminaires at locations as specified in the Project Plans, and in conformance with the current edition of the City of Chandler "Streetlight Design Manual, Technical Design Manual #6".

Materials:

Streetlight fixture will be as shown in the Project Plans.

Measurement:

LED Streetlight Luminaire will be measured as a unit for each installed in accordance with the Project Plans and these Technical Specifications.

Payment:

The Streetlight Luminaire, measured as provided above, will be paid for at the contract unit price each, which will be full compensation for the work, complete in place, including storing, transporting, and installing the LED Luminaire on a new pole lighting mast arm.

ITEM NO. 94 CONDUCTORS

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to install traffic signal and lighting conductors in conduits at the locations as specified in the Project Plans.

Materials:

The material under this item will conform to the current editions of the ADOT Traffic Signals & Lighting Standard Drawings and ADOT Standard Specification Section 732-2.01

Construction Requirements:

The work under this item will conform to Section 732-3 of the ADOT Standard Specifications.

Measurement:

Conductors will be measured as a single complete unit of work. This method of measurement will be used for signal and lighting conductors shown in the signal conductor schedule on the Project Plans.

Payment:

Conductors, measured as provided above, will be paid for at the contract lump sum price, which price will be full compensation for the work, complete in place.

ITEM NO. 95 CCTV FIELD EQUIPMENT

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary for installing and testing CCTV cameras and associated equipment, including but not limited to, cameras, camera housings, pan/tilt/zoom assemblies, mounting hardware, power/communications/video cabling and miscellaneous materials required to provide a complete and operational CCTV system.

Materials:

The CCTV cameras will be:

Manufacturer	Model Number
Axis Communications Camera: Power Supply: Pole Mount:	P5655-E T8134 60W Midspan PoE T91L61

All materials provided will be from new un-depreciated stock. Refurbished materials are not acceptable. All materials provided will be currently supported by the manufacturer and not scheduled for end-of-life.

The Contractor will furnish mounting arms and required mounting hardware to install the CCTV assembly on the poles as shown on the Project Plans. The Contractor will supply all grommets, connectors, cabling, nipples, and incidental hardware required to install the power and network cabling from the CCTV cabinet to the CCTV Assembly.

The Contractor will coordinate with the City to obtain IP addressing, and program IP and other communications parameters into the CCTV camera.

Construction Requirements:

The Contractor will mount the CCTV assembly which includes the camera mount, camera housing, camera, zoom lens, tilt/pan drive, and receiver/driver on traffic signal poles per the requirements of the CCTV camera supplier.

No wire, cables, or conductors will be exposed from the base of the tilt/pan drive to the ground. All conductors will be routed inside the support structure.

The surge suppression rack will be installed in the traffic signal cabinet and all surge suppressors connected per the supplier/manufacturer's instructions. All surge protector leads will be as straight and short as possible. The mounting bolts for the chassis and terminal strips will not protrude from the outside of the enclosure. All cabling, connectors, and hardware required to interconnect the various CCTV field and fiber optic communications equipment will be furnished and installed by the Contractor.

(A) Test Requirements

(1) General:

All CCTV components will be subject to testing and monitoring to determine conformance with all applicable specifications and to ensure proper operation of the equipment and system.

(2) Stand-Alone Tests:

The test will exercise all stand-alone (non-network) functional operations

of the CCTV. The tests will verify the following:

- Control of focus, zoom, digital zoom, white balance, iris, tilt/pan, and power on/off
- Response to automatic preset positioning commands
- Display of Camera ID information and directional indicators
- Video “blacked out” when in a privacy zone
- Presence and quality of video signal during bright sunlight and night conditions
- Retention of non-volatile RAM data (i.e., sector text, preset positions)

Measurement:

The CCTV Camera and Field Equipment will be measured as a unit for each item, furnished and installed, complete in place.

Payment:

The accepted quantity of CCTV Camera and Field Equipment, measured as provided above, will be paid for at the contract unit price each, complete in place and successfully tested.

ITEM NO. 96 WIRELESS ACCESS SYSTEM

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to implement a point to point radio interconnect system between the new traffic signal at Chaparral Way and Ocotillo Road as specified in the Project Plans.

Materials:

Radios shall be Encom 5.8 Ghz with PoEs and CAT5 cable, with mounting hardware suitable for mounting to a traffic signal mast arm pole.

Construction Requirements:

Radio cable shall be installed unspliced from radio to controller cabinet. Cable at Ocotillo Road shall be installed in an existing street crossing conduit between SW and SE corners, and routed to the existing controller cabinet on the SE corner.

Contractor shall install, set up and test the radio interconnect, resulting in a functional communications link between the Chaparral Way and Ocotillo Road signal.

Measurement and Payment:

Wireless Access System will be measured as unit for each and will be paid for at the contract lump sum each, which price will be full compensation for the work, complete in place, inclusive of setup and testing.

ITEM NO. 97 SIGN ASSEMBLY (IISNS)

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary for developing shop drawings and mounting details and installing the Internally Illuminated Street Name Signs (IISNS) as specified in the Project Plans.

Materials:

The work under this item will conform to the COC Details C-606, C-607 and C-608.

Construction Requirements:

The work under this item will conform to COC Details C-606, C-607, and C-608.

Cabling will run unspliced from the traffic signal control cabinet to the IISNS.

Measurement and Payment:

Sign Assembly (IISNS) will be measured as a unit for each IISNS and will be paid for at the contract unit price each, for the IISNS designated in the bidding schedule, which price will be full compensation for the work, complete in place described and specified herein and on the Project Plans, including IISNS cabling, mounting brackets, and incidentals necessary to complete the work.

ITEM NO. 98 CATCH BASIN, MAG DET 533-1, TYPE D, ONE 17 FT WING

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary for installing catch basins at locations as specified in the Project Plans and in conformance to MAG Detail 533-1.

Material:

All materials will conform to MAG Detail 533-1, in its entirety.

Construction Requirements:

The work under these items will conform to MAG Detail 533-1, in its entirety.

Each catch basin will include an inlet marker per COC Detail C-508.

Measurement and Payment:

All catch basins will be measured as a unit for each and will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place. No additional payment will be made for trash racks, removal of obstructions, excavation, bedding, backfilling, compacting, inlet markers and joint materials, the cost being considered incidental to this item.

ITEM NO. 99 24 IN RGRCP, CLASS IV

Description:

The work under these items will consist of furnishing all materials, labor, and equipment necessary for installing RGRCP as specified in the Project Plans.

Materials:

RGRCP and tees will be in conformance with MAG Uniform Standard Specifications Section 618.2 and 735.

Construction Requirements:

This work also includes the installation of prefabricated tees for the connection to existing irrigation systems. All storm drain and reinforced concrete pipe construction will be constructed in compliance with MAG Standard Specifications Section 618 in its entirety.

Measurement and Payment:

All RGRCP will be measured per linear foot of pipe and will be paid for at the contract unit price per linear foot, which price will be full compensation for the item, complete in place, including the pipe, connections to existing facilities/pipelines, removal of obstructions, excavation, bedding, backfilling, compacting, testing, temporary pavement and joint materials.

No additional payment will be made for slurry of pipe segments as determined by the City, the cost being considered incidental to this item.

ITEM NO. 100 STORM DRAIN MANHOLE, MAG DTL 520 & 522

Description:

The work under this item will consist of furnishing all materials, labor, and equipment necessary to construct storm drain manholes at locations as specified in the Project Plans.

Materials and Construction Requirements:

Storm Drain Manholes will comply with per MAG Details 520 and 522 in their entirety.

Measurement and Payment:

Storm Drain Manholes will be measured as unit for each and will be paid for at the contract unit price each, which price will be full compensation for the work, complete in place.

ITEM NO. 101 ALLOWANCE: ROADWAY AND CONCRETE FLATWORK

Description:

The purpose of this allowance is to provide a funding source for any additional roadway and concrete flatwork work as approved by City Representatives. The Contractor will be reimbursed for the associated costs of additional roadway work and concrete flatwork.

Any costs, fees, or charges necessary to open asphalt batch plant during off hours (i.e. weekend or week night) will be reimbursed from this allowance.

Contract reimbursement from this allowance (in whole or in part) is not ensured. Contractor will not anticipate, nor plan, for the amount from this allowance to be included in the total contract amount as part of this project.

Construction Requirements:

Additional roadway and concrete flatwork work will be completed as approved and directed by City Representatives.

Measurement and Payment:

Payment for Allowance: Roadway and Concrete Flatwork will be made on an incremental basis in accordance with the requirements of City of Chandler General Conditions Section 9.

No payment in excess of 100% of the contract lump sum price will be made, unless authorized by City Representatives as a result of extra work authorized in accordance with City of Chandler General Conditions Section 9.

ITEM NO. 102 ALLOWANCE: LANDSCAPING

Description:

The purpose of the allowance is to create a funding source for any additional landscaping work as approved by City Representatives. The Contractor will be reimbursed for the associated costs of additional landscaping work.

Contract reimbursement from this allowance (in whole or in part) is not ensured.

Contractor will not anticipate, nor plan, for the amount from this allowance to be included in the total contract amount as part of this project.

Construction Requirements:

Additional landscaping work will be completed as approved and directed by City Representatives.

Measurement and Payment:

Payment for Allowance: Landscaping will be made on an incremental basis in accordance with the requirements of City of Chandler General Conditions Section 9.

No payment in excess of 100% of the contract lump sum price will be made, unless authorized by City Representatives as a result of extra work authorized in accordance with City of Chandler General Conditions Section 9.

ITEM NO. 103 ALLOWANCE: TRAFFIC SIGNAL AND COMMUNICATIONS FACILITIES

Description:

The purpose of this allowance is to provide a funding source for any additional traffic signal and communication facilities work as approved by City Representatives. The Contractor will be reimbursed for the associated costs of additional traffic signal and communications facilities work.

Contract reimbursement from this allowance (in whole or in part) is not ensured. Contractor will not anticipate, nor plan, for the amount from this allowance to be included in the total contract amount as part of this project.

Construction Requirements:

Additional traffic signal and communications facilities work will be completed as approved and directed by City Representatives.

Measurement and Payment:

Payment for Allowance: Traffic Signal and Communications Facilities will be made on an incremental basis from allowance in accordance with the requirements of City of Chandler General Conditions Section 9.

No payment in excess of 100% of the contract lump sum price will be made, unless authorized by City Representatives as a result of extra work authorized in accordance with City of Chandler General Conditions Section 9.

ITEM NO. 104 ALLOWANCE: SRP ELECTRICAL

Description:

The purpose of this allowance is to provide a funding source for coordination and paying all necessary fees for permit and hook up to SRP to install a complete functioning electrical service to power the irrigation controllers and streetlighting. This item will include providing all permits, connection fees, foundations, junction boxes, conduit risers, conduit sweeps, coordination, and required protection when working near overhead lines required by SRP to provide the electrical connection from the SRP transformer to the proposed service meter pedestal.

Construction Requirements:

All work will conform to the requirements of SRP. The Contractor will contact the SRP to coordinate power service and construction requirements.

The Contractor will secure the necessary utility company permits, pay the related fee(s) for said permit including utility company connection fees, and coordinate the installation of the required power services.

The meter will be energized and have the account established in the name of the City of Chandler.

Measurement and Payment:

Payment for Allowance: SRP Electrical will be made on an incremental basis in accordance with the requirements of City of Chandler General Conditions Section 9.

No payment in excess of 100% of the contract lump sum price will be made, unless authorized by City Representatives as a result of extra work authorized in accordance with City of Chandler General Conditions Section 9.

ITEM NO. 105 ALLOWANCE: FURNISH AND INSTALL TEMPORARY FENCING

Description:

The purpose of this allowance is to provide a funding source for furnishing and installing any temporary fencing and gates as approved by City Representatives. The Contractor will be reimbursed for the associated costs of furnishing and installing temporary fencing and gates.

Contract reimbursement from this allowance (in whole or in part) is not ensured. Contractor will not anticipate, nor plan, for the amount from this allowance to be included in the total contract amount as part of this project.

Construction Requirements:

See items Fence (Replace In Kind), Remove and Reconstruct Fence, Chain Link Fence Gate, 24' Double Swing, MAG DET 160, and Fence Gate (Size Per Plans) of these technical specifications and comply with MAG Uniform Standard Specifications Section 420 in its entirety, including all City of Chandler supplements except as modified herein, for construction requirements.

Measurement and Payment:

Payment for Allowance: Furnish and Install Temporary Fencing will be made on an incremental basis from allowance in accordance with the requirements of City of Chandler General Conditions Section 9.

No payment in excess of 100% of the contract lump sum price will be made, unless authorized by City Representatives as a result of extra work authorized in accordance with City of Chandler General Conditions Section 9.

ITEM NO. 106 ALLOWANCE: WET UTILITIES

Description:

The purpose of the allowance is to create a funding source for any additional wet utility (water, sanitary sewer, reclaimed water) work as approved by City Representatives. The Contractor will be reimbursed for the associated costs of additional wet utility work.

Contract reimbursement from this allowance (in whole or in part) is not ensured.

Contractor will not anticipate, nor plan, for the amount from this allowance to be included in the total contract amount as part of this project.

Construction Requirements:

Additional wet utility work will be completed as approved and directed by City Representatives.

Measurement and Payment:

Payment for Allowance: Wet Utilities will be made on an incremental basis from allowance in accordance with the requirements of City of Chandler General Conditions Section 9.

No payment in excess of 100% of the contract lump sum price will be made, unless authorized by City Representatives as a result of extra work authorized in accordance with City of Chandler General Conditions Section 9.

ITEM NO. 107 ALLOWANCE: DRY UTILITIES

Description:

The purpose of the allowance is to create a funding source for any additional dry utility work as approved by City Representatives. The Contractor will be reimbursed for the associated costs of additional dry utility work.

Contract reimbursement from this allowance (in whole or in part) is not ensured.

Contractor will not anticipate, nor plan, for the amount from this allowance to be included in the total contract amount as part of this project.

Construction Requirements:

Additional dry utility work will be completed as approved and directed by City Representatives.

Measurement and Payment:

Payment for Allowance: Dry Utilities will be made on an incremental basis from allowance in accordance with the requirements of City of Chandler General Conditions Section 9.

No payment in excess of 100% of the contract lump sum price will be made, unless authorized by City Representatives as a result of extra work authorized in accordance with City of Chandler General Conditions Section 9.

ITEM NO. 108 ALLOWANCE: STORM DRAIN

Description:

The purpose of the allowance is to create a funding source for any additional storm drain work as approved by City Representatives. The Contractor will be reimbursed for the associated costs of additional storm drain work.

Contract reimbursement from this allowance (in whole or in part) is not ensured.

Contractor will not anticipate, nor plan, for the amount from this allowance to be included in the total contract amount as part of this project.

Construction Requirements:

Additional storm drain work will be completed as approved and directed by City Representatives.

Measurement and Payment:

Payment for Allowance: Storm Drain will be made on an incremental basis from allowance in accordance with the requirements of City of Chandler General Conditions Section 9.

No payment in excess of 100% of the contract lump sum price will be made, unless authorized by City Representatives as a result of extra work authorized in accordance with City of Chandler General Conditions Section 9.

ITEM NO. 109 ALLOWANCE: REMOVALS

Description:

The purpose of the allowance is to create a funding source for any additional removal work as approved by City Representatives. The Contractor will be reimbursed for the associated costs of additional roadway work.

Contract reimbursement from this allowance (in whole or in part) is not ensured.

Contractor will not anticipate, nor plan, for the amount from this allowance to be included in the total contract amount as part of this project.

Construction Requirements:

Additional removal work will be completed as approved and directed by City Representatives.

Measurement and Payment:

Payment for Allowance: Removals will be made on an incremental basis from allowance in accordance with the requirements of City of Chandler General Conditions Section 9.

No payment in excess of 100% of the contract lump sum price will be made, unless authorized by City Representatives as a result of extra work authorized in accordance with City of Chandler General Conditions Section 9.

SOILS INFORMATION

The material boring logs shown in the Geotechnical Report are provided in Appendix A. It is not intended to imply that the character of materials shown in the logs is representative throughout the project. The soil borings are indicative of the soil characteristics only at the locations and to the depths of each of the borings.

Even if not specifically shown on the boring logs, the Contractor may encounter large cobbles, boulders, caliche, conglomerate, hard rock, sand, perched groundwater, historic or prehistoric cultural resources, or other differing site conditions on this project. There will be no additional compensation made for any differing site condition that may be encountered. It is the Contractor's responsibility to include the cost of any additional work items, such as trench boxes, laying back trenches, soil pumping mitigation, etc., associated with unforeseen soil conditions in all contract bid items requiring earthwork and will be considered incidental.

PERMITS

The Contractor will comply with the requirements of MAG Standard Specifications Sections 107.2 except as modified herein.

The Contractor will obtain all permit(s) required to construct the project, including but not limited to:

City Water Meter Permit

The Contractor will obtain City permit(s) required for fire hydrant water trucks (Contractor submits and pays for this permit, no separate payment will be made for this permit; the cost being considered as included in the price of other contract items) and new landscape water meters (City pays for the permit but Contractor must sign and pick up the permit).

City Encroachment, Civil and Building Permits

The Contractor will obtain City permit(s) required for encroachment, civil and structures. The City pays for the permits but Contractor must sign and pick up the permit.

City Administrative Use Permits

The Contractor will pay and obtain City permit(s) required for construction trailer and temporary facilities. No separate payment will be made for this permit, the cost being considered as included in the price of other contract items.

Maricopa County Permits

The Contractor will pay and obtain Maricopa County permit(s) required for traffic control within their jurisdiction. No separate payment will be made for this permit, the cost being considered as included in the price of other contract items.

Air Quality Permit

The Contractor will obtain a Maricopa County Air Quality Permit for this project. The Contractor will be required to prepare a comprehensive fugitive dust control plan, in accordance with the guidelines established in Rule 310 of Maricopa County Regulation III, Control of Air Contaminants. The Contractor will complete and submit the control plan with the permit application and obtain approval from the County prior to any activities which may produce dust pollutants.

No separate payment will be made for the preparation, implementation of the fugitive dust control plan, or permit fees, the costs being considered as included in the price of contract items.

Erosion Control Permit

The Contractor will submit the Arizona Pollutant Discharge Elimination System Notice of Intent (NOI) and the Notice of Termination (NOT) to the Arizona Department of Environmental Quality. The Contractor and the City Representatives will jointly review the Stormwater Pollution Prevention Plan (SWPPP) prior to submission of the NOI and prior to the start of work. The SWPPP will be maintained throughout the duration of the project in accordance with the APDES requirements and a current version will be available at all times at the project site.

No separate payment will be made for the preparation, implementation of the SWPPP, or permit fees, the costs being considered as included in the price of contract items.

Salt River Project (SRP) Construction License

This project requires the Contractor to remove existing SRP facilities in some locations and install new SRP facilities in other locations. As such, SRP requires the Contractor obtain a Construction License for a nominal fee. No separate payment will be made for the preparation of the construction license or license fees, the costs being considered as included in the price of contract items.

COOPERATION WITH UTILITIES

Coordination with the pertinent utility companies has been a part of the development of this project. Construction activities will be coordinated and scheduled to incorporate the following applicable utility construction activities:

- Air Products

- AT&T
- CenturyLink
- Cox Communications
- MCI
- Ocotillo Community Association
- SRP Electric
- SRP Irrigation
- Southwest Gas
- Zayo Group

The following telephone numbers should put the Contractor in contact with the proper personnel for coordination:

UTILITY COMPANY	CONTACT	PHONE
Air Products & Chemicals (N2 Gas)		
AT&T (Communications)		
CenturyLink (Telephone, Fiber Optic)		
City of Chandler (Water, Sewer, Reclaim Water)		
City of Chandler (Electric, Traffic)		
City of Chandler (Fiber Optic)		
COX (Cable, Fiber Optic)		
MCI (Communications)		
Ocotillo Community Association (Unknown)		
Salt River Project (Electric)		
Salt River Project (Irrigation)		
Southwest Gas (Natural Gas)		
Zayo Group (Communications)		

Regardless of the means and methods utilized during the construction of the work, the Contractor will protect all existing utilities during construction. Any damages to the existing utilities resulting from the scope of work, will be the repaired and paid for by the Contractor. The Contractor will follow all AZ811 and state laws regarding the protection of utilities during construction.

It will be the Contractor's responsibility to determine the exact location of the utilities prior to any construction operations and to notify the above-mentioned utility companies at least two working days prior to commencing any work on the project.

The following utility companies have facilities needing adjustment prior to construction:

- CenturyLink (Telephone, Fiber Optic)
- City of Chandler (Water, Sewer, Reclaim Water)
- City of Chandler (Electric, Traffic)
- City of Chandler (Fiber Optic)
- COX (Cable, Fiber Optic)
- Salt River Project (Electric)
- Zayo Group (Communications)

The following utility companies have facilities in the area, but are not anticipated to be in conflict:

- Air Products & Chemicals (N2 Gas)
- AT&T (Communications)
- MCI (Communications)
- Ocotillo Community Association (Unknown)
- Salt River Project (Irrigation)
- Southwest Gas (Natural Gas)

The following utility companies do not have facilities within the project limits:

- To be completed after 60% utility conflict review.

COOPERATION BETWEEN CONTRACTORS AND OTHER AGENCY PROJECTS

Contractor will conform to the requirements of MAG Section 105.7 except as modified herein.

The Contractor is advised that there will be construction activity by others adjacent to the project site. The Contractor will coordinate the work to accommodate the construction activities.

The Contractor will contact the City of Chandler, Intel, SRP, and adjacent private development contractors to verify other nearby projects in the vicinity of this project.

The Contractor is advised to schedule and coordinate all work activities and regional transit so as not to adversely conflict with this work. The Contractor will be expected to attend any monthly coordination meetings set up by other agencies or other prime contractors working on adjacent projects to discuss coordination.

NOTIFICATION TO PROPERTY OWNERS

This project is adjacent to the Intel Ocotillo Campus, the Chandler Public Safety Training Center, and residential neighborhoods. Contractor, after coordination with City

Representatives, will provide advance notice to these property owners at least 7 days prior to the beginning of construction.

No separate payment will be made for providing advance notice, the costs being considered as included in the price of other contract items. Any claims resulting due to delay in providing sufficient notice by the Contractor will not be approved.

TRAFFIC CONTROL

Access Requirements for Pedestrians:

The Contractor will maintain ADA accessible passable walkway along Dobson Road and Chaparral Way at all times during construction.

Traffic-Related Work Restrictions:

No lane restrictions or intersection closures will be allowed during special events or holiday times as determined by the City.

No trenches will be left open overnight in areas that are not fenced in to prohibit access to vehicles and pedestrians. All trenches within the roadway will be plated or backfilled and paved prior to allowing vehicles to travel on the section of roadway.

Traffic Signal Requirements:

The existing traffic signal at the intersection of Driveway #1 and Driveway #4 will remain operational until the new traffic signal infrastructure has been constructed and ready for switch over. The traffic signal switch over does not have to be completed at one time and can be completed in phases as the new traffic signal construction is completed.

Portable temporary signal equipment will not be used under any circumstances.

APPENDIX A – GEOTECHNICAL / SOILS REPORT

GEOTECHNICAL EVALUATION REPORT

Dobson Road Improvements – Intel Driveways #1 and #4

Prepared for:



Chandler • Arizona
Where Values Make The Difference

City of Chandler
Transportation & Development
215 East Buffalo Street
Chandler, Arizona 85225

Prepared by:



6437 W. Chandler Boulevard, Suite 1
Chandler, Arizona 85226
Tel: 480-829-6000

City Project No. ST2009.201
Olsson Premier Project # 021-02916

May 31, 2021

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APPENDICES

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1.0 INTRODUCTION

Premier Engineering Corporation, a wholly owned subsidiary of Olsson (Olsson Premier), has completed a geotechnical evaluation and prepared this geotechnical evaluation report for the proposed Dobson Road Improvements at Intel Driveway #1 and #4 located at Chaparral Way and north of Ocotillo Road within the City of Chandler (City), Arizona. The location of the project site is illustrated in the site location map in Appendix A. The purpose of this geotechnical investigation was to provide information on surface and subsurface conditions and geotechnical engineering recommendations with regards to the design and construction of the roadway improvements.

2.0 PROJECT DESCRIPTION

The Dobson Road Improvement project includes the preliminary and final engineering design for improvements along Dobson Road at two driveway locations serving the Intel Ocotillo Campus. Olsson Premier is the prime consultant to the City and DCS Contracting will perform the construction.

Driveway #1 is the northernmost Intel campus driveway on Dobson Road and it is located approximately 0.6 mile north of Ocotillo Road. Driveway #1 improvements include evaluating options for adding a second right turn lane southbound on Dobson Road and the extent of the improvements depend on the results of a preliminary design analysis. Two options for the proposed improvements at Driveway #1 were analyzed, both of which would fulfill the ultimate design. Option 1 was to add two new dedicated right-turn lanes on southbound Dobson Road, narrow the existing raised median, move the west curb south of the intersection, and relocate the existing pedestrian ramps as needed. Option 2 was to include many of the same features as Option 1, but keep the existing raised median in place, shift the west curb to add the southbound right-turn lanes, and relocate traffic signals as needed.

Driveway #4 is the southernmost Intel campus driveway on Dobson Road and it is located at the intersection of Chaparral Way. Driveway #4 improvements include new ADA ramps on all four corners, restriping the east leg to provide a left turn lane, ITS conduit and pull boxes for future signal, restriping crosswalks, and decomposed granite to tie into existing landscaping.

3.0 GEOTECHNICAL SCOPE OF SERVICES

The scope of our work for the geotechnical investigation included completion of a limited geotechnical exploration to support the proposed Dobson Road improvements. The geotechnical evaluation services included collection of subsurface information that will be utilized for the design and construction. In detail, the scope of geotechnical services consisted of a site reconnaissance, boring marking for below ground utility clearances and blue stake coordination, subsurface field exploration with soil borings, pavement thickness measurements, soil sampling, field and laboratory testing, engineering analysis, and the preparation of a geotechnical report with all collected geotechnical information and recommendations for design and construction.

The field subsurface exploration included five soil borings extending to 5 to 10 feet depths, subsurface logging, sample collection, and completion of Standard Penetration Tests (SPT) and or California Modified

Ring samples at five feet depth interval. Laboratory tests for the proposed improvements included gradation, Atterberg limits, Proctor compaction, moisture content and unit weight, pH, resistivity, sulfate content, and chloride content tests.

Olsson Premier has prepared this geotechnical evaluation report, as deliverable, with all collected geotechnical information and developed recommendations for design and construction.

4.0 SITE CONDITIONS

4.1 SURFACE CONDITIONS

Dobson Road is a Major Arterial Road. It is currently paved with asphalt concrete and it includes two through lanes in both directions (northbound and southbound). At Driveway #1, it includes bike lanes, a right turn lane and a left turn lane to Intel driveway. At Driveway #4, Dobson Road includes bike lanes, a left turn lane to Intel driveway and a left turn lane to Chaparral Way.

At both the driveway locations, properties east of Dobson Road are residential and properties west of Dobson Road are commercial or light industrial. Other features that are present at these driveway intersections are traffic control structures, light poles, concrete sidewalks, curb, gutters, raised islands, landscaped areas, and some drainage features.

4.2 GEOLOGIC CONDITIONS AND NATURAL HAZARDS

The project site is located within the Sonoran Desert Section of the Basin and Range Physiographic Province of the Western United States. The general Phoenix Metro Area is a home for broad alluvial valleys separated by steep, linear, discontinuous, sub-parallel mountain ranges alternating with wide desert plains. The Basin and Range Physiographic Province was created 15 to 17 million years ago by a tectonic process which caused a series of high angle normal faults within this area. The up-thrown parts of the faults were mountains and the downthrown parts became valleys. Since its creation, the valleys have received massive amounts of sediment from erosion. The long-term sedimentation process and climatic changes continued contribution to the weathering of rocks. The regional stream systems also introduced sediment from distant areas. Therefore, the landforms within the general area consist of mountains and hills, river deposits, and river valleys.

A brief study of the seismicity and neo-tectonic faults in Arizona was performed to evaluate the seismic conditions of the current site. There are approximately 400 neo-tectonic faults present in the state of Arizona. These 400 faults are distributed in 12 zones located within northwestern, southwestern, and southeastern portions of the state and along the Transition Physiographic Province of Arizona.

The project site is not located near any major river. It is located 12 miles south of the Salt River and at approximately the same distance northeast of the Gila River. According to the small-scale Geologic map of Arizona, the materials at the site include Holocene Surficial Deposits. The surface and subsurface materials in this area generally include unconsolidated deposits associated with modern fluvial systems. This unit consists primarily of fine-grained well-sorted sediment on alluvial plains, but it also includes gravelly channel, terrace, and alluvial-fan deposits on middle and upper piedmonts.

This site is located in a relatively stable tectonic region called the Sonoran Zone; located in southwestern Arizona, southeastern California, southern Nevada, and northern Mexico. It has sparse seismicity and few Quaternary faults. There are no known active faults underlying the subject site or adjacent areas. The closest known Quaternary faults to the site is the Carefree Fault zone and the Sugarloaf Fault zone, located approximately 40 miles to the north and northeast, respectively, of the site and the slip-rate of these faults is less than 0.2 millimeters per year. Due to the presence of relatively dense subsurface materials, the lack of near-surface water, and the low ground motion hazard, the likelihood of liquefaction is considered to be negligible.

Subsidence is a basin wide phenomenon that would result in differential elevation changes over long distances. Fissure gullies form over subsurface irregularities such as bedrock highs, which cause tensional stresses and differential subsidence. Where such anomalies are not present, subsidence tends to be uniform over a wide area. No evidence of earth fissures was observed on the site. The closest known earth fissures are located in the Chandler Heights area, a few miles from this site. The site is located outside known areas that have undergone considerable subsidence due to groundwater removal. Areas of subsidence are known to produce earth fissure, which has affected areas within several miles south of the site. Based on local experience, subsidence and earth fissures historically have not been a problem in this area. However, if any cracks, crevasses, or fissures are noted during site excavation, Olsson Premier should be notified immediately. Olsson Premier representative will then visit the site, assess the feature and make recommendations regarding restorative measures.

The site is not a candidate for major geologic and other natural hazards including flooding, ground settlement, liquefaction, ground fissures and subsidence.

According to the United States Department of Agriculture and Natural Resources Conservation Service Web Soil Survey, the subsurface materials at the project sites include two soil groups including Estrella Loam (CL) and Trix Clay Loam (CL). Liquid limits of these materials generally vary from 29 to 50 and plasticity index vary from non-plastic to 12 to 25. Percent fraction passing No. 200 sieve varies from 42 to 90 percent.

4.3 GROUNDWATER

According to Arizona Department of Water Resources (ADWR) online well data, the depth of the regional groundwater table has been historically measured to be at more than 78 feet below the ground surface. The groundwater level may not fluctuate much with the seasonal variations in precipitation due to its long distance from stream flows.

4.4 SUBSURFACE EXPLORATIONS

Subsurface information was gathered by drilling five test borings within the project site, extending to 5 to 10 feet depths at the Dobson Road and project driveway intersections. The drilling was completed utilizing a truck mounted CME 55 drill rig equipped with eight-inch outside diameter continuous flight hollow-stem augers. The drilling was monitored and documented by Olsson Premier.

Standard penetration tests (SPT) in conformance with ASTM D 1586 were completed at different depths. Subsurface materials were classified according to the Unified Soil Classification System (USCS). For information regarding soil classification, refer to Appendix B. Bulk, split spoon, and relatively undisturbed ring samples were collected for laboratory tests. Bulk samples were collected at five-foot interval or at change in material strata. Ring samples were collected at the approximate subgrade level, and the SPT samples were taken at every five feet. For all boring locations on the existing pavements, the thicknesses of pavement layers were measured and recorded. At each location, the borehole was backfilled with drill cuttings and patched with cold-mix asphalt (as needed) at the conclusion of drilling operation for each location. The locations of all the test borings and detailed descriptions of the subsurface materials encountered at each boring location are provided in Appendix C.

Neither a groundwater table nor a saturated condition was encountered during the soil exploration at any boring location.

4.5 LABORATORY TEST RESULTS

Laboratory tests were performed to complement information on the types of subsurface materials determined at the site. The laboratory tests included gradation, plasticity index, Proctor compaction, moisture content and unit weight, pH, resistivity, sulfate content, and chloride content tests. Gradation and Atterberg limits tests were completed to determine classification of the soils and indicate other physical properties such as strength, compressibility, and potential to change in volume due to exposure to excess water. pH, resistivity, sulfate content, and chloride content tests were completed to determine chemical and electrical properties of the soil that can be used to determine corrosion potential for buried utilities/structures. Laboratory test results are contained in Appendix D.

Olsson Premier completed five particle size distributions (gradation) and five Atterberg limits tests. The test results are summarized in the following table:

Boring Number	Sample Depth (feet)	Fines Content (% Passing #200 Sieve)	Liquid Limit (%)	Plasticity Index (%)	Soil Classification (USCS)	
					Symbol	Name
B-1	0 – 5	38.9	25	7	SC-SM	Silty Clayey SAND with Gravel
B-2	0 – 5	35.8	25	11	SC	Clayey Sand with Gravel
B-3	0 – 5	23.3	21	6	SC-SM	Silty Clayey Sand with Gravel
B-4	0 – 5	15.8	20	4	SC-SM	Silty Clayey Sand with Gravel
B-5	0 – 5	18.7	22	6	SC-SM	Silty Clayey Sand with Gravel

The above test results indicate that the soils at the site are mostly a mixture of sand, silt, clay, and gravel (SC, SC-SM). The percent fines (passing #200 sieve) vary from 15.8 to 38.9, liquid limit values vary from 20 to 25 and plasticity index values vary from 4 to 11.

Two standard Proctor compaction tests were completed and the test results are summarized in the table below.

Boring Number	Sample Depth (feet)	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
B-1 + B-2	0 – 5	122.5	9.1
B-3 + B-4 + & B-5	0 – 5	130.9	7.2

Two sets of chemical and electrical property tests were completed on samples collected from the upper 10 feet. The tests included pH, minimum resistivity, chloride content, and sulfate content tests. The test results are summarized in the table below.

Boring Number	Sample Depth (feet)	pH	Resistivity (Ohm-cm)	Sulfate (ppm)	Chloride (ppm)
B-1	0 – 10	8.4	1,635	33	27
B-4	0 – 10	8.3	2,526	31	14

The tests values are not indicative of any significant corrosion or chemical attacks.

4.6 SUBSURFACE CONDITIONS

Detailed information regarding the subsurface conditions encountered at each boring location is provided in the boring logs contained in Appendix C. In a summary, the subsurface materials within the soil borings for this project mostly consist of loose to medium dense silty clayey sand (SC, SC-SM) with gravel within the upper ten feet depth. The materials are of low to medium plasticity (PI varies from 4 to 11) with percent fines ranging from 15.8 to 38.9.

5.0 DESIGN RECOMMENDATIONS

5.1 GENERAL

The recommendations in this report are based on the assumption that the subsurface conditions along the Dobson Road at/near the two driveway locations are generally similar to those encountered at boring locations and depths. If variations are noted during construction or changes in the design or materials are made, Olsson Premier should be notified so that our recommendations can be revised and supplemented, as necessary. The site conditions and the laboratory test results indicate that the soils at the site will support the design and construction of the proposed improvements.

The design of pavements for this project was completed utilizing the City of Chandler Plans and Specifications, Arizona Department of Transportation (ADOT) and American Association of State Highway and Transportation Officials (AASHTO) Guidelines for Design of Pavement Structures.

5.2 DESIGN R-VALUE AND SUBGRADE SUPPORTS

ADOT guidelines in Pavement Design Manual (PDM) were utilized to determine an equivalent mean R-value for the subgrade. According to this model, the mean R-value was calculated based on correlated R-values. The correlated R-values were estimated based on plasticity index and percent passing no. 200 sieve. The following table shows correlated R-values at different exploration locations.

Boring Location	Depth (feet)	Fines Content (% Passing #200 Sieve)	Plasticity Index	Correlated R-Value
B-1	0 – 5	38.9	7	44
B-2	0 – 5	35.8	11	40
B-3	0 – 5	23.3	6	57
B-4	0 – 5	15.8	4	68
B-5	0 – 5	18.7	6	61

Based on the above correlated R values and their variations, Olsson Premier considered a conservative R-value of 42 to be used for the flexible pavement design.

5.3 RESILIENT MODULUS

The selected design R-value was utilized to calculate resilient modulus of the subgrade. The procedure used the AASHTO formula to calculate modulus of resilience M_R .

$$M_R = \frac{1815 + 225 R_{mean} + 2.40 R_{mean}^2}{0.6 (SVF)^{0.6}}$$

Based on the design R-value of 42 and a seasonal variation factor of 1.0 (PDM Table 2-4), a resilient modulus M_R value of 25,831 pounds per square inch (psi) was calculated using the above equation. This design M_R value is less than ADOT recommended maximum allowable value of 26,000 psi for roadway subgrade and therefore, 25,831 psi was utilized for the design.

5.4 DESIGN TRAFFIC

Dobson Road is a Major Arterial roadway. Detailed traffic data for Dobson Road was not available. However, traffic data for Dobson Road was gathered from 2019 Segment and Intersection Traffic Volumes available online in City's website for Arterial segments and intersections. Based on the available data, average weekday traffic for Dobson Road is 19,700 in 2019. Olsson Premier assumed a 20 percent truck traffic considering the ongoing and potential future construction activities at the Intel site. Considering a 20-year design period, 50 percent directional distribution, 90 percent lane distribution, 0.21 truck factor (Arterial street), 20 percent truck traffic, and 4.0 percent annual growth in traffic, a reasonably conservative design equivalent single axle load (ESAL) was calculated to be 4.55 million.

5.5 DRAINAGE COEFFICIENT

Based on the expected quality of drainage as 'fair' and a seasonal variation factor of 1.0, a drainage coefficient of 1.0 was obtained from Table 2-7 in the PDM.

5.6 SERVICEABILITY

An initial serviceability of 4.2 and a terminal serviceability of 2.8 were used for the design of the pavement section on Dobson Road (PDM Table 2-2). Therefore, the resulting total serviceability index loss (PSI) is considered to be 1.4.

5.7 STANDARD DEVIATION AND RELIABILITY

In accordance with ADOT policy, an overall standard deviation of 0.35 was utilized. For a roadway with a design ADT over 10,000, a reliability of 95 percent was selected from Table 2-1. A standard normal deviation (Z_R) of -1.645 was selected from the same table.

5.8 STRUCTURAL NUMBER

Based on the procedure for flexible pavement design according to AASHTO Guidelines and using the design parameters mentioned above, Olsson Premier calculated a structural number of 2.84.

5.9 MINIMUM PAVEMENT LAYER THICKNESSES

According to the City of Chandler Standard Details and Specifications Detail No. C-203, the minimum required thickness for Asphalt Concrete is 5 inches. Detail No. C-239 was used to calculate the minimum thickness for aggregate base course (depends on plasticity index and passing #200 sieve) and it was determined to be 8 inches.

With layer coefficient of 0.44 for asphalt concrete and 0.14 for the aggregate base course, Olsson Premier calculated a minimum asphalt concrete layer thickness of 4 inches over 8-inch thick aggregate base course. Based on the above estimates utilizing the City of Chandler, ADOT and AASHTO guidelines, Olsson Premier recommends the following pavement layer thicknesses for Dobson Road section:

Roadway	Asphalt Concrete (inches)	Aggregate Base Course (inches)
Dobson Road at Driveways #1 & #4	5.0	8.0

With a similar analysis, it was determined that the Intel Driveway #1 and #4 should include (as minimum) a 3-inch asphalt concrete layer over 7-inch aggregate base layer.

Roadway	Asphalt Concrete (inches)	Aggregate Base Course (inches)
Intel Driveway #1	3.0	7.0
Intel Driveway #4	3.0	7.0

5.10 ASPHALT CONCRETE MIXES

The following mixes are recommended for Miller Road as per Figure 5.10-1 of DSPM.

Roadway	Minimum Depth of Asphalt Concrete	Asphalt Base	Asphalt Surface
Dobson Road	5-inch	3" A19 or A25 EVAC	2" A12.5 EVAC
Intel Driveways #1 & #4	3-inch	-	3" R-12.5 EVAC

5.11 DRAINAGE

Moisture that infiltrates into roadway subgrade could adversely affect pavement performance. The roadway design should divert water away from where it could infiltrate into the subgrade. However, the use of granular base and controlled compaction of subgrade will reduce the potential for adversely affecting the pavement layers.

It is recommended that positive drainage be provided in the final design by providing adequate slope for a distance of 5 feet or more away from the pavements. Surface water should not be allowed to pond on pavement surface. The maintenance of storm water and subsurface drainage systems should be performed during the entire life of the pavements. Planters and landscaping areas should be placed at sufficient distance or with appropriate barriers to protect the subgrades from moisture intrusions. Since the root system of large mature trees can grow under pavements and concrete slabs and cause associated seepage, it is important to plant any large tree at adequate distances from the roadway. Infiltration of ground water into excavations is not considered an issue at the site.

5.12 CORROSION AND SULFATE ATTACK

Corrosion is defined as the degradation of a material or its properties due to a reaction with the environment. It exists in virtually all materials, but is most often associated with metals. Corrosion is a common physical-biochemical phenomenon that occurs when unprotected materials come in contact with soils. With some other factors in environment, different metal-soil combinations may cause different amount of corrosion. Major soil factors that influence corrosion include soil type, moisture content, water table, pH, resistivity, soluble ions content, oxidation-reduction potential, and the presence of microbes in soil.

The corrosion evaluation is commonly conducted based on the resistance of soil to the flow of electrical current (resistivity), total acidity, soil drainage, soil texture, and some other properties of soils such as sulfate/sulfide content, redox potential, chloride content, etc. Soil pH generally varies from 3.5 to 10.0 which controls the environment for the development of ions, oxygen-reduction potential, and microbial activities in soils. Soil resistivity indicates the resistance to the flow of electrical current in soil. For unprotected steel exposed in soil, a soil is generally categorized as corrosive if the soil has a resistivity lower than 2,000 Ohm-cm. However, according to California Department of Transportation (Caltrans) 2018 corrosion criteria, a project site is classified as corrosive if one or more of the following conditions exist for the representative soil samples retrieved from the site:

- Soluble chloride concentration of 500 ppm or greater
- Soluble sulfate concentration of 1,500 ppm or greater
- Electrical resistivity of 1,100 ohm-centimeters or less
- pH of 5.5 or less.

To evaluate the corrosion potential of the site soils for underground metal structures, Olsson Premier completed a few chemical and electrical tests, including pH, minimum resistivity, moisture content, soluble sulfate, and soluble chloride tests. Based on the test results, the site soil has low potential for corrosion in unprotected corrosive metals. Olsson Premier also utilized the Caltrans suggested method to evaluate the rate of corrosion of metal pipes utilizing the combination of pH and minimum resistivity. This determination indicates that unprotected ductile iron pipes within the project locations will undergo insignificant loss of materials. However, although the determined values indicate low corrosion potential, high chemical concentration in some areas as well as other corrosion factors may cause higher than anticipated amount of corrosion. Granular pipe zone materials can significantly reduce potential corrosion effects. Type I or II Portland cement can be used for subsurface concrete structures.

The results of the soluble sulfate content tests indicate low values (<1,000ppm or <0.1%) and therefore, the materials fall in the exposure category S₀ according to American Concrete Institute (ACI) 318-14 Table 19.3.1.1. Consequently, injurious sulfate attack is generally not a concern at the site.

6.0 EARTHWORK RECOMMENDATIONS

6.1 GENERAL

All disturbed areas created during construction should be proof-rolled to delineate any soft or uncompacted spots. All backfilling and disturbed areas should be compacted as per compaction and moisture requirements specified in this report.

The earthwork at the improvement site should be evaluated by a geotechnical engineer or a qualified representative. The evaluation should include observation and/or testing of site grading, excavation, subgrade preparation, fill placement and compaction, and other geotechnical conditions exposed during construction. The prepared fill, subgrades, and utility trenches should not be kept exposed to the environment for more than 24 hours as this can change the moisture and density conditions.

6.2 SUITABILITY OF FILL MATERIALS AND IMPORTS

On-site native soils removed from excavation and grading or imported non-swelling soils may be utilized within the subgrades for pavements. Materials to be used as fill shall be clean and free of deleterious matters including large pieces (larger than three inches).

If import is needed for the construction, the materials should be evaluated by an on-site Olsson Premier geotechnical representative before the material is brought to the site. The maximum swell potential of the compacted (95 percent of ASTM D698 maximum dry density) import soil should be 1.5 percent as per

ASTM D4546 with 100 pounds per square foot (psf) surcharge pressure. The import fill under pavement layers should be compacted to 95 percent relative compaction at a moisture content within three percent of optimum moisture content.

6.3 SUBGRADE PREPARATION

The pavement design provided in this report assumes that the upper six (6) inches of sub-base soil (pavement subgrade) is scarified, moisture conditioned, and recompacted to proper compaction. The asphalt concrete layers should be constructed of dense-graded mix. Base course and asphalt concrete materials should conform to MAG or the City of Chandler requirements.

Some preventive maintenance measures should be taken to enhance the short- and long-term performance of the pavement structures. Base course or pavement materials should not be placed when the underlying surface is wet. Surface drainage should be provided to keep the storm water away from the pavement areas and minimize water intrusion into the pavement subgrade. Aggregate base course layers should not be allowed to extend to planter areas.

Pavement subgrade should be free of organics, debris, oversize materials, and any other deleterious matters. Subgrade should be firm and clean. If pavement subgrade is found to be disturbed or fill materials are to be utilized under pavements, the subgrade native soils should be scarified to a minimum eight inches depth or depth of disturbance, whichever is greater, and then moisture treated and recompacted to 95 percent relative compaction at a moisture content within three percent of the optimum moisture content.

After a rough grade has been achieved for the pavement subgrades and prior to the placement of fill materials, the exposed subgrade should be checked for the presence of unsuitable materials (debris, organic matter, oversize particles, etc.). Unsuitable materials should be removed from the subgrades. The disturbed subgrade should be backfilled and compacted with engineered fill. Engineered fill should be placed in horizontal lifts with a loose thickness not exceeding eight inches. The upper three feet of fill under roadway areas should consist of materials free of any pieces of rock or soil particles larger than three inches.

6.4 EARTHWORK FACTORS AND GROUND COMPACTION

Shrinkage factor is defined as the ratio of fill density to excavation (cut) density. A factor lower than unity (one) indicates that compaction or placement density is higher than which exists on the borrow site, which might result in importing additional materials, if the cut volume is equal to or less than the fill volume. Onsite soil excavated from the upper five feet of subsurface is anticipated to have a shrinkage factor of up to 0.90 (10 percent shrinkage).

The ground compaction factor should be taken into consideration when constructing embankment fill sections outside the existing roadway prism. Olsson Premier recommends a ground compaction factor of up to 0.20 feet be used for this project site.

The earthwork factors represent an average of the materials observed with varying consistencies. Potential bidders should consider this fact in the preparation of estimates and should review the available data to make their own conclusions regarding excavation conditions.

6.5 UTILITY BACKFILLS

Underground conduits may be installed in this project. Pipe backfill materials can consist of soils obtained from pipe trench excavations containing no pieces larger than eight inches; alternatively, off-site granular import materials can be utilized. The compaction of bedding and backfill should be at least 95 percent of its maximum dry density. However, pipes should not be stressed during compaction of materials over or around the pipes. Handheld devices such as power tampers should be used to provide careful compaction of the materials, especially within 12 inches above the pipe. Hard materials larger than three inches in maximum dimensions should not be placed within six inches of the pipes.

Trench should be excavated to sufficient width and depth to provide working space at both sides of the trench and around the installed pipes as needed for placing, joining, backfilling and compacting. The trench bottom should be inspected for loose or deleterious materials. Unstable materials should be removed and replaced with compacted materials.

6.6 EXCAVATION AND TRENCHING

Based on the subsurface conditions and our understanding of the project construction, Olsson Premier believes that the construction of the proposed improvements will include grading and excavation/trenching for the construction of the roadway section and driveways.

Commonly used traditional excavation and trenching equipment can be utilized for the site constructions. All shallow and temporary excavation slopes in undisturbed soils at the site can be maintained as steep as 1:1 (H:V). A flatter slope such as 1.5:1 may be necessary in disturbed soil and deeper slopes. If the excavation is expected to stay open for a long time (a few days), it is recommended that the cut slopes be stabilized with a shotcrete, gunite, or other polymer based spray. Also, if the slope of a deep excavation is required to be steeper than the recommended slopes, a shoring system should be utilized. All confined excavations deeper than four (4) feet should conform to the Occupational Safety and Health Administration (OSHA) regulations.

6.7 PLACEMENT AND COMPACTION

Native and import fill materials should be placed and compacted in horizontal lifts using equipment and procedures that will produce recommended moisture content and densities.

Recommended compaction and moisture content criteria for engineered fill or recompaction of onsite materials are as follows.

Material and Location (On-site or import materials)	Standard Proctor Compaction (ASTM D 698)	
	Relative Compaction (%)	Moisture Content Relative to Optimum Moisture (%)
Pavement subgrades (native)	95	-3 to +3
Pavement subgrades (import)	95	-3 to +3
Concrete Slabs subgrade	95	-3 to +3
Aggregate base course	100	-3 to +3

The fill surface should be adequately maintained during construction in order to achieve an acceptable compaction and interlift bonding. The surface should be sloped properly to prevent ponding and provide drainage of runoff water. If precipitation is anticipated, it is recommended that the fill surface be made smooth by rolling with a smooth drum roller.

6.8 QUALITY CONTROL AND QUALITY ASSURANCE TESTING

Subgrade preparation, backfill placement, and re-compaction should be observed, tested, and documented by a qualified representative of the Olsson Premier geotechnical engineer. This representative should, at least, observe and document the following:

- Subgrade is compacted, firm, and without deleterious objects.
- Compaction and moisture content of backfill soils meet the specifications.
- If import soils are used, the import soils shall have low swell potential. Import soils should be tested for remolded swell test per batch or one at every 1,000 cubic yard placed, whichever is higher.
- Field density testing should be performed for engineered fill or aggregate base course materials at a rate of one test every 500 feet per lane for the roadway.
- A quality control test report should be prepared documenting all on-site activities, test results, and conclusions.

7.0 DISCLOSURE

This report has been prepared as an aid to the designers for the current project only. The comments, statements, and recommendations set forth reflect the opinions of the author. The opinions are based upon conditions at the location of the specific observations, as well as tests and data developed to satisfy the scope of services. However, due to the inherent natural variations of the soil strata and the nature of geotechnical exploration, it is always possible that the soil conditions between two borings may be different from those encountered at the boring locations. Also, changes at the site by human activities or changes in code or standards due to legislative action may affect the conclusions and recommendations. If variations

in materials are encountered or human changes are made, a geotechnical engineer should be contacted to reevaluate the recommendations provided in this report.

Structural features built on soil and supporting subgrade are subject to risks that cannot be entirely eliminated. Common detrimental hazards include settlement, localized concentrated drainage, hydro-compaction, and soil expansion or collapse due to unidentified geologic or man-made conditions. A geotechnical evaluation with limited boreholes, depths, and laboratory tests may not delineate all the possible hazards. Therefore, the roles of design professionals and contractors, and maintenance of the site play a critical role.

This report has been prepared in accordance with generally accepted geotechnical engineering principles and practices. No warranties are intended or made. It is intended for the exclusive use of our client for specific application to the current project and is valid for the proposed development at the issuance date of this report. It should not be used as a bidding document. The contractors must draw their own conclusions regarding site conditions and specific construction techniques to be used.

8.0 REFERENCES

1. City of Chandler Standard Details and Specifications, July 2015.
2. City of Chandler Street Design and Access Control (TDM#4), January 2014.
3. United States Geological Survey Maps.
4. Pavement Design Manual, Arizona Department of Transportation, September 2017.
5. AASHTO Guide for Design of Pavement Structures, 1993.
6. <https://www.chandleraz.gov/residents/transportation/traffic-management/traffic-volumes-and-calming-measures>.

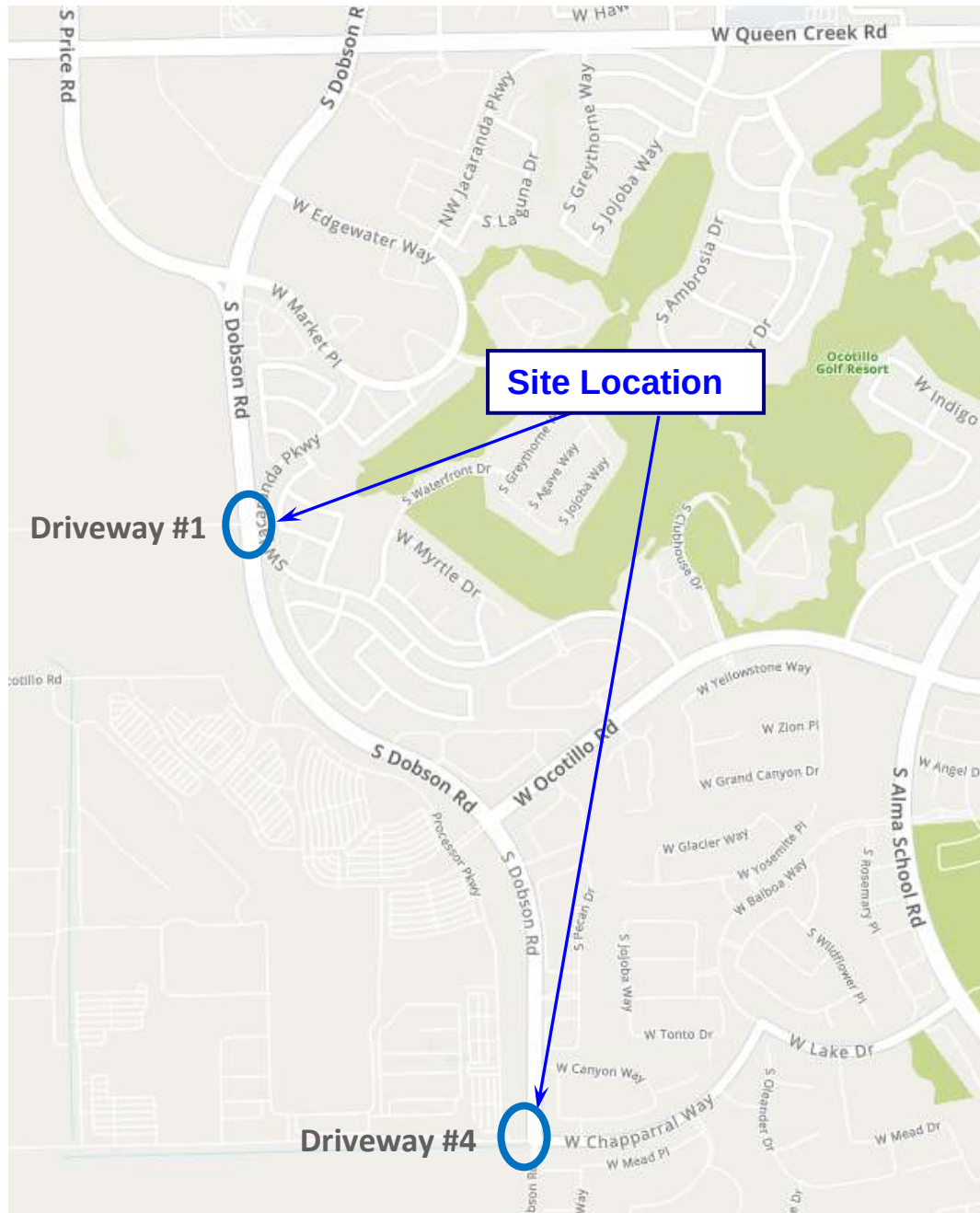


Appendices:

- Appendix A: Site Location Map
 - Appendix B: Soil Classification Methods
 - Appendix C: Boring Locations Plan and Boring Logs
 - Appendix D: Laboratory Test Results
 - Appendix E: Site Photos
- 

Appendix A

Site Location Map



SITE LOCATION MAP

Dobson Road Improvements Intel Driveways #1 and #4

Dobson Road at Chaparral Way and North of Ocotillo Road
Chandler, Arizona
Olsson Premier Project # 021-02916



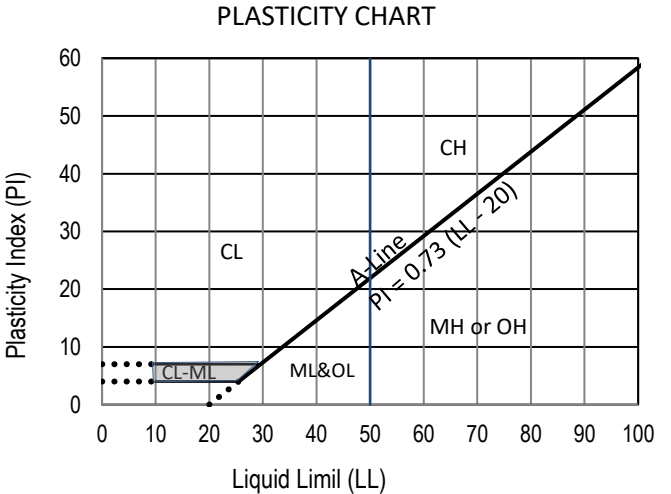
6437 W. Chandler Boulevard, Suite 1
Chandler, AZ 85226
Ph. (480) 829-6000

Appendix B

Soil Classification Methods

SOIL CLASSIFICATION, CONSISTENCY, AND PLASTICITY

Unified Soil Classification System

COARSE GRAINED SOILS (more than 50% larger than No. 200 sieve size)					
GRAVELS more than 50% larger than NO. 4 sieve size	Clean Gravels (less than 5% fines)				
	GW	Well graded gravels, gravel sand mixtures, little or no fines	GW	$C_u = D_{60}/D_{10} > 4$ and $C_c = D_{30} / (D_{10} \times D_{60})$ between 1 and 3	
	GP	Poorly graded gravels, gravel sand mixtures, little or no fines	GP	Not meeting all gradation requirements for GW	
	Gravels with fines (between 5% and 12%)		GW-GM, GW-GC, GP-GM, or GP-GC		
	Gravels with fines (more than 12% fines)				
	GM	Silty gravels, gravel sand silt mixtures	GM	Atterbert limits below "A" Line or $PI < 4$	
SANDS 50% or more smaller than NO. 4 sieve size	GC	Clayey gravels, gravel sand clay mixtures	GC	Atterbert limits above "A" Line with $PI > 7$	
	Clean Sands (less than 5% fines)				
	SW	Well graded sands, gravelly sands, little or no fines	SW	$C_u = D_{60}/D_{10} > 4$ and $C_c = D_{30} / (D_{10} \times D_{60})$ between 1 and 3	
	SP	Poorly graded sands, gravelly sands, little or no fines	SP	Not meeting all gradation requirements for SW	
	Gravels with fines (between 5% and 12%)		SW-SM, SW-SC, SP-SM, or SP-SC		
	Sands with fines (more than 12% fines)				
	SM	Silty sands, sand silt mixtures	SM	Atterbert limits below "A" Line or $PI < 4$	
	SC	Clayey sands, sand clay mixtures	SC	Atterbert limits above "A" Line with $PI > 7$	
			GC-GM	Atterberg limits above "A" Line with PI between 4 and 7	
			SC-SM	Atterberg limits above "A" Line with PI between 4 and 7	
FINE GRAINED SOILS (50% or more passing No. 200 sieve)					
SILTS AND CLAYS Liquid limit less than 50%	ML	Inorganic silt and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity			
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
	OL	Organic silts and organic silty clays of low plasticity			
SILTS AND CLAYS Liquid limit 50% or more	MH	Inorganic silts, micaceous/diatomaceous fine sandy or silty soils, elastic silts			
	CH	Inorganic clays of high plasticity, fat clays			
	OH	Organic clays of medium to high plasticity, organic silts			
HIGHLY ORGANIC SOILS	PT	Peat and other highly organic soils			

Relative Density, Relative Consistency, and Relative Firmness

Cohesionless Uncemented Sand/Gravel		Fine Grained Soils			Partially Saturated and/or Cemented Soils	
Std Penetration Resistance, N	Relative Density	Std Penetration Resistance, N	Unconfined Compressive Strength, q_u (tsf)	Consistency	Std Penetration Resistance, N	Relative Firmness
0 - 4	Very loose	< 2	< 0.25	Very soft	0 - 4	Very soft
5 - 10	Loose	3 - 4	0.25 - 0.5	Soft	5 - 8	Soft
11 - 30	Medium dense	5 - 8	0.50 - 1.00	Medium stiff	9 - 15	Moderately firm
31 - 50	Dense	9 - 15	1.00 - 2.00	Stiff	16 - 30	Firm
> 50	Very dense	16 - 30	2.00 - 4.00	Very stiff	31 - 50	Very firm
		> 30	> 4.00	Hard	> 50	Hard

Appendix C

Boring Locations Plan and Boring Logs



 B-1: Boring Location 1 (Typical)

BORING LOCATIONS PLAN

Dobson Road Improvements Intel Driveways #1 and #4

Dobson Road at Chaparral Way and north of Ocotillo Road
Chandler, Arizona
Olsson Premier Project # 021-02916



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Chandler, AZ 85226
Ph. (480) 829-6000



 B-1: Boring Location 1 (Typical)

BORING LOCATIONS PLAN

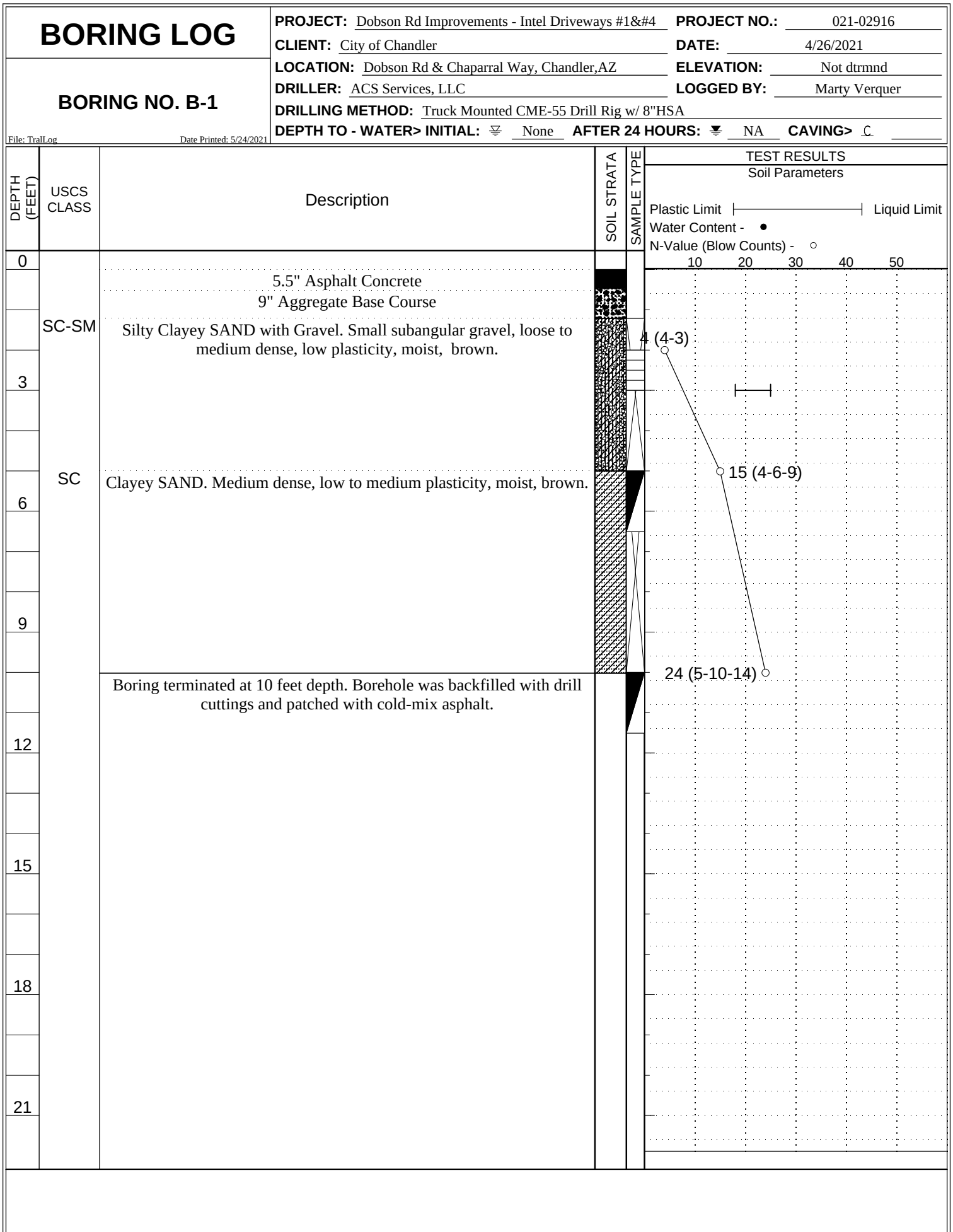
Dobson Road Improvements Intel Driveways #1 and #4

Dobson Road at Chaparral Way and north of Ocotillo Road
Chandler, Arizona
Olsson Premier Project # 021-02916



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Chandler, AZ 85226
Ph. (480) 829-6000

This information pertains only to this boring and should not be interpreted as being indicative of the site.



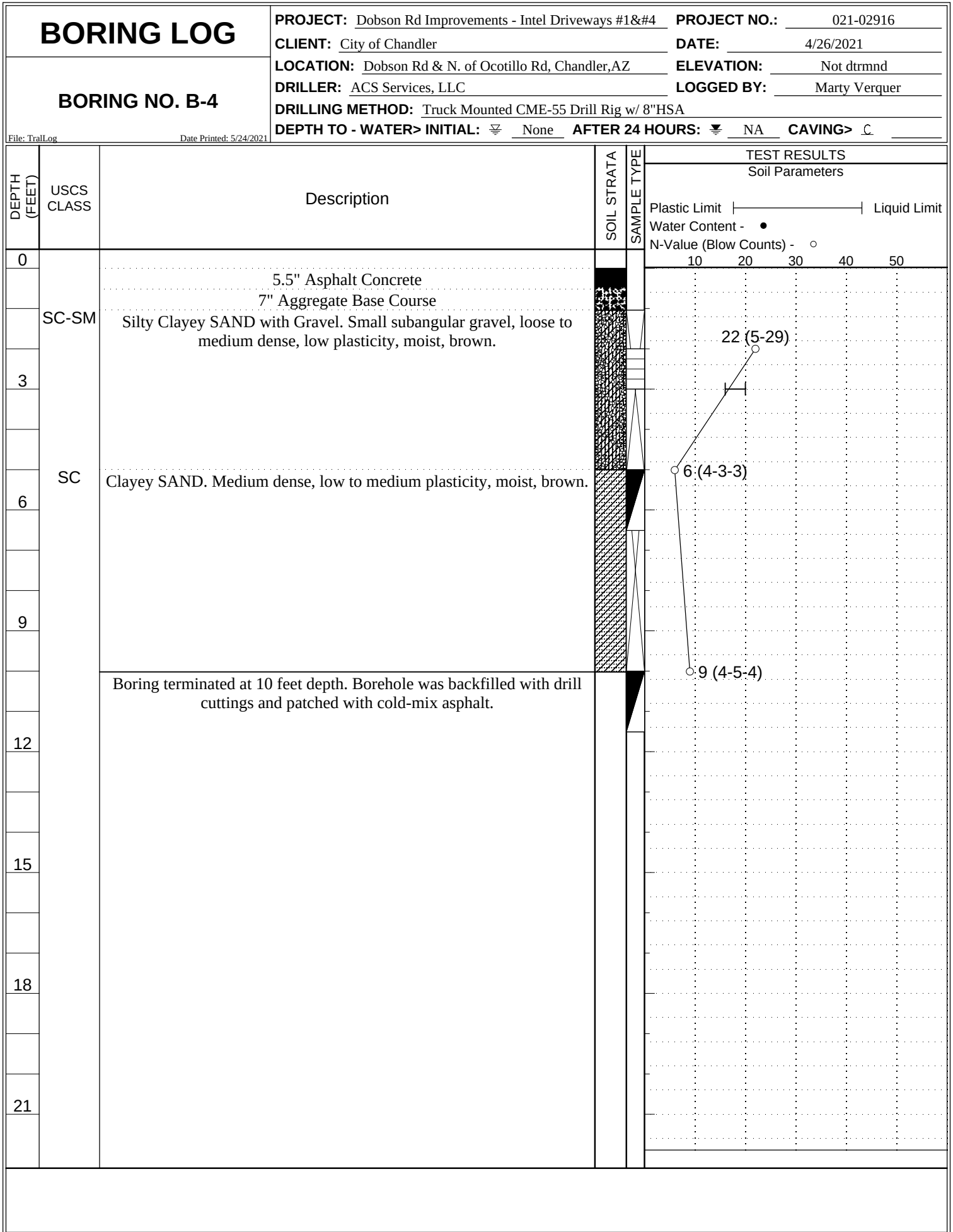
This information pertains only to this boring and should not be interpreted as being indicative of the site.

BORING LOG		PROJECT: Dobson Rd Improvements - Intel Driveways #1		PROJECT NO.: 021-02916	
BORING NO. B-2		CLIENT: City of Chandler		DATE: 4/26/2021	
		LOCATION: Dobson Rd & Chaparral Way, Chandler,AZ		ELEVATION: Not dtrmnd	
		DRILLER: ACS Services, LLC		LOGGED BY: Marty Verquer	
		DRILLING METHOD: Truck Mounted CME-55 Drill Rig w/ 8"HSA			
		DEPTH TO - WATER> INITIAL: ☒ None AFTER 24 HOURS: ☒ NA CAVING> ☒ C			
File: TralLog	Date Printed: 5/24/2021				
DEPTH (FEET)	USCS CLASS	Description	SOIL STRATA	SAMPLE TYPE	TEST RESULTS Soil Parameters
0	SC	5.5" Asphalt Concrete			Plastic Limit ----- Liquid Limit
		7" Aggregate Base Course			Water Content - •
		Clayey SAND with Gravel. Small subangular gravel, loose to medium dense, low to medium plasticity, moist, brown.			N-Value (Blow Counts) - ○
3					10 20 30 40 50
6		Boring terminated at 5 feet depth. Borehole was backfilled with drill cuttings and patched with cold-mix asphalt.			11 (4-5-6)
9					
12					
15					
18					
21					

This information pertains only to this boring and should not be interpreted as being indicative of the site.

BORING LOG		PROJECT: Dobson Rd Improvements - Intel Driveways #1		PROJECT NO.: 021-02916	
BORING NO. B-3		CLIENT: City of Chandler		DATE: 4/26/2021	
		LOCATION: Dobson Rd & N. of Ocotillo Rd, Chandler, AZ		ELEVATION: Not dtrmnd	
		DRILLER: ACS Services, LLC		LOGGED BY: Marty Verquer	
		DRILLING METHOD: Truck Mounted CME-55 Drill Rig w/ 8"HSA			
		DEPTH TO - WATER> INITIAL: ☒ None AFTER 24 HOURS: ☒ NA CAVING> ☒ C			
DEPTH (FEET)	USCS CLASS	Description	SOIL STRATA	SAMPLE TYPE	TEST RESULTS Soil Parameters
0	SC-SM	5.5" Asphalt Concrete			Plastic Limit _____ Liquid Limit _____
		7" Aggregate Base Course			Water Content - •
		Silty Clayey SAND with Gravel. Small subangular gravel, loose to medium dense, low plasticity, moist, brown.			N-Value (Blow Counts) - ○
3					10 20 30 40 50
6	Boring terminated at 5 feet depth. Borehole was backfilled with drill cuttings and patched with cold-mix asphalt.				18 (9-6-12)
9					
12					
15					
18					
21					

This information pertains only to this boring and should not be interpreted as being indicative of the site.



This information pertains only to this boring and should not be interpreted as being indicative of the site.

BORING LOG		PROJECT: <u>Dobson Rd Improvements - Intel Driveways #1&#4</u>		PROJECT NO.: <u>021-02916</u>	
BORING NO. B-5		CLIENT: <u>City of Chandler</u>		DATE: <u>4/26/2021</u>	
		LOCATION: <u>Dobson Rd & N. of Ocotillo Rd, Chandler, AZ</u>		ELEVATION: <u>Not dtrmnd</u>	
		DRILLER: <u>ACS Services, LLC</u>		LOGGED BY: <u>Marty Verquer</u>	
		DRILLING METHOD: <u>Truck Mounted CME-55 Drill Rig w/ 8"HSA</u>			
File: <u>TralLog</u>		Date Printed: <u>5/24/2021</u>		DEPTH TO - WATER> INITIAL: <u>None</u> AFTER 24 HOURS: <u>NA</u> CAVING> <u>C</u>	
DEPTH (FEET)	USCS CLASS	Description	SOIL STRATA	SAMPLE TYPE	TEST RESULTS Soil Parameters
0	SC-SM	5.5" Asphalt Concrete			Plastic Limit _____ Liquid Limit _____
		6" Aggregate Base Course			Water Content - • _____
		Silty Clayey SAND with Gravel. Small subangular gravel, loose to medium dense, low plasticity, moist, brown.			N-Value (Blow Counts) - ○ _____
3					10 20 30 40 50
6		Boring terminated at 5 feet depth. Borehole was backfilled with drill cuttings and patched with cold-mix asphalt.			18 (9-9-9)
9					
12					
15					
18					
21					

Appendix D

Laboratory Test Results



Quality Testing, LLC
175 S. Hamilton Place, Bldg 6, Suite 114
Gilbert, AZ 85233
Telephone: 480-486-2000
Fax: 480-496-2001

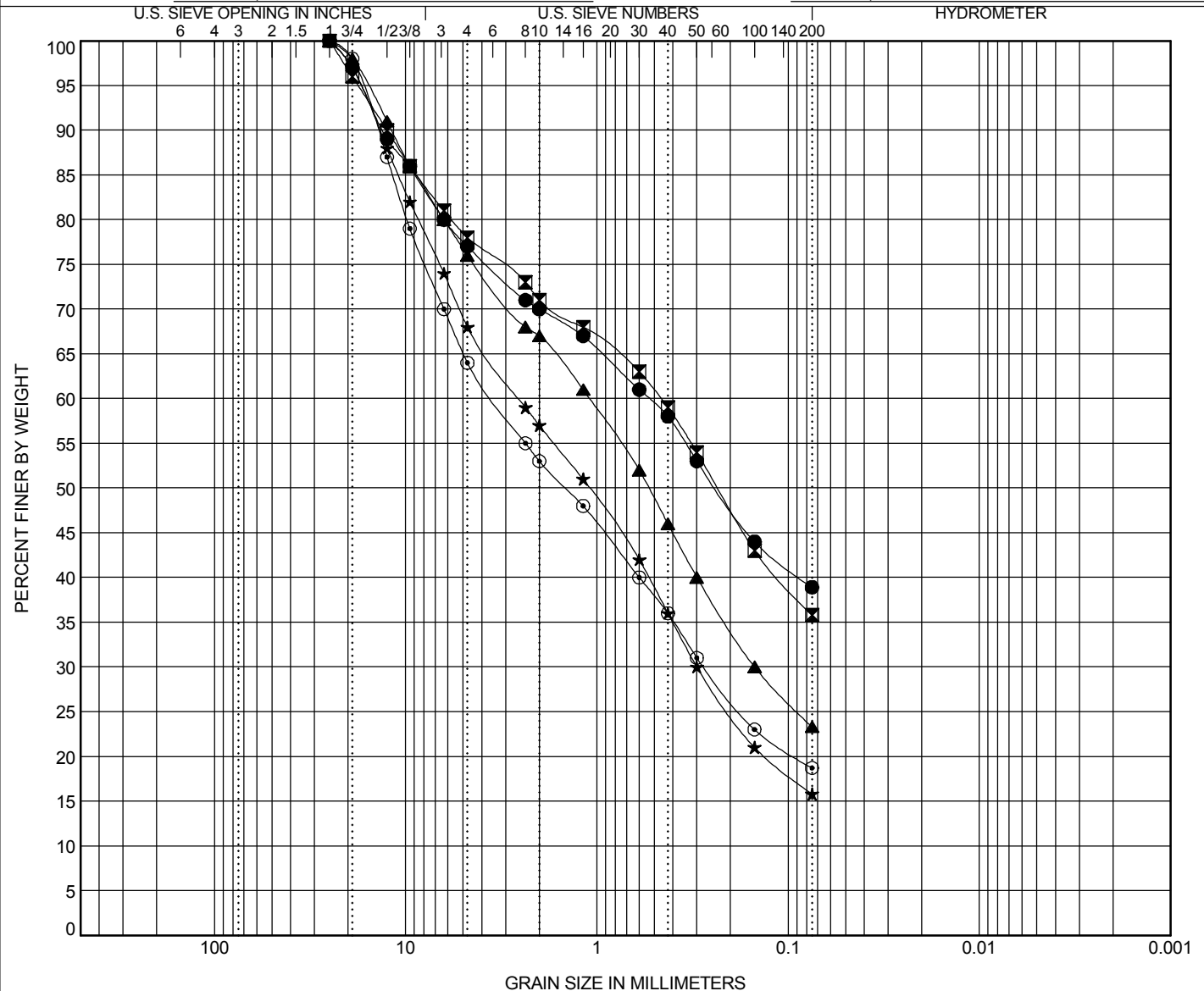
GRAIN SIZE DISTRIBUTION

CLIENT Premier Engineering Corporation

PROJECT NAME Dobson Rd Improvements - Intel Driveway No. 1 & 4

PROJECT NUMBER 20065.00, Premier No. 2020026

PROJECT LOCATION Chandler, AZ



GRAIN SIZE - GINT STD US LAB.GDT - 21/5/5 09:17 - U:\GEO\GINT DATA\20065.00 DOBSON RD IMP INTEL DRIVEWAY NO. 1 & 4\GINT DATA.GPJ

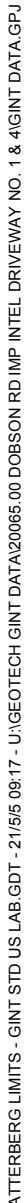


CLIENT Premier Engineering Corporation

PROJECT NAME Dobson Rd Improvements - Intel Driveway No. 1 & 4

PROJECT NUMBER 20065.00, Premier No. 2020026

PROJECT LOCATION Chandler, AZ

[illegible]



Quality Testing, LLC
175 S. Hamilton Place, Bldg 6, Suite 114
Gilbert, AZ 85233
Telephone: 480-486-2000
Fax: 480-496-2001

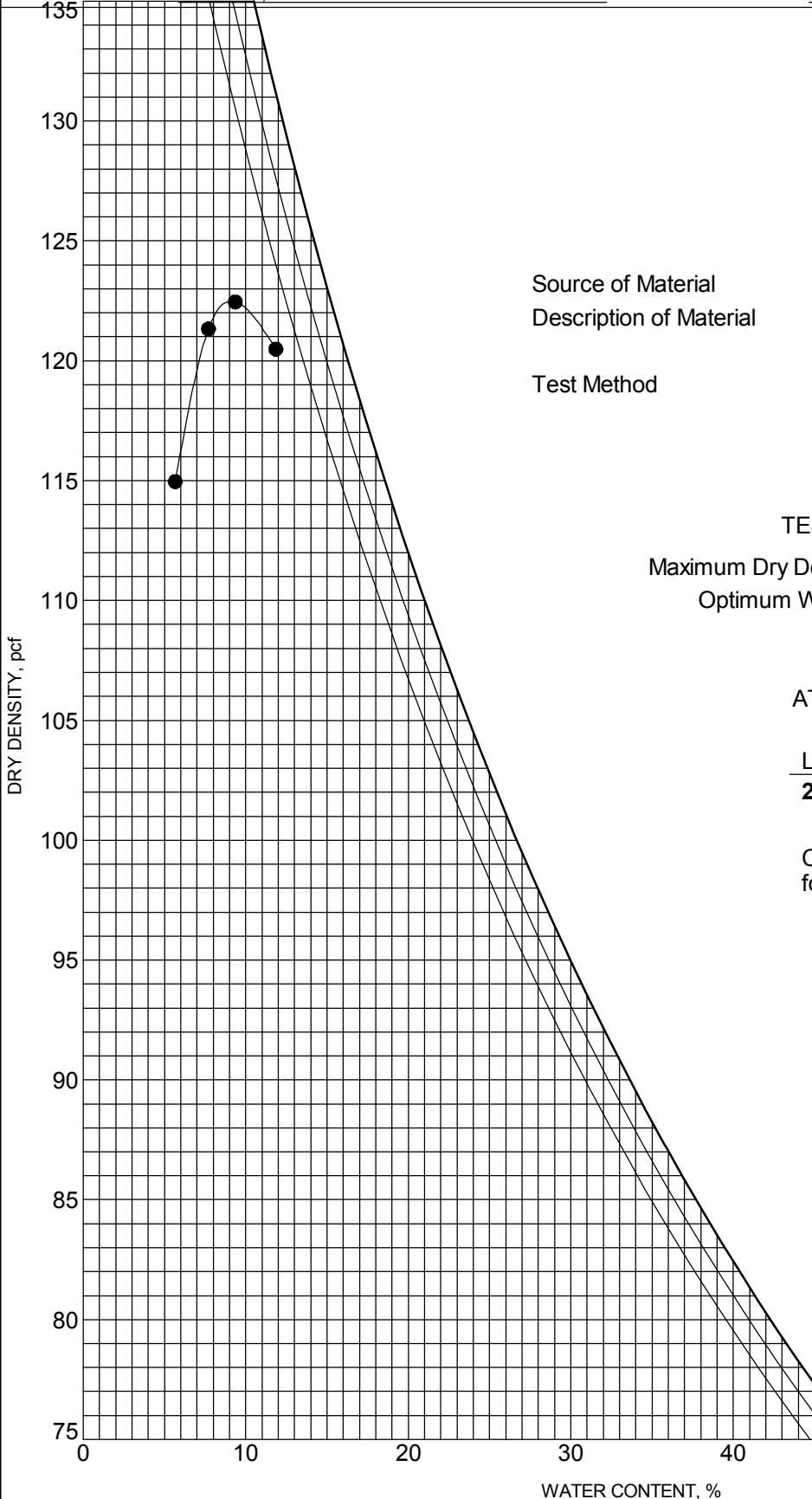
MOISTURE-DENSITY RELATIONSHIP

CLIENT Premier Engineering Corporation

PROJECT NAME Dobson Rd Improvements - Intel Driveway No. 1 & 4

PROJECT NUMBER 20065.00, Premier No. 2020026

PROJECT LOCATION Chandler, AZ



Source of Material

B-01 (0-5)+B-02 (0-5)

Description of Material

**SILTY, CLAYEY SAND with
GRAVEL(SC-SM)**

Test Method

ASTM D698 Method C

TEST RESULTS

Maximum Dry Density

122.5 PCF

Optimum Water Content

9.1 %

ATTERBERG LIMITS

LL	PL	PI
25	18	7

Curves of 100% Saturation
for Specific Gravity Equal to:

2.80

2.70

2.60



Quality Testing, LLC
175 S. Hamilton Place, Bldg 6, Suite 114
Gilbert, AZ 85233
Telephone: 480-486-2000
Fax: 480-496-2001

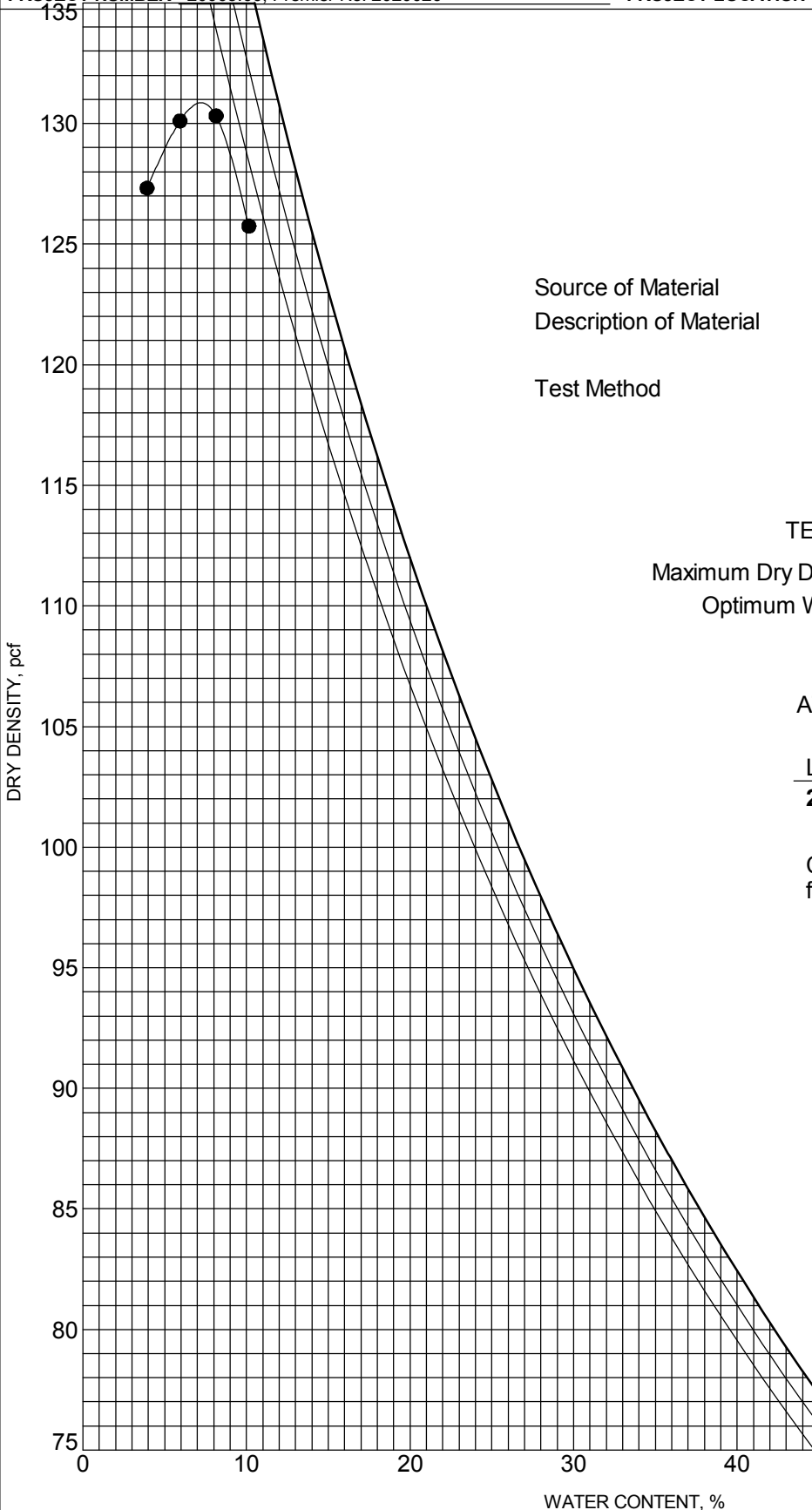
MOISTURE-DENSITY RELATIONSHIP

CLIENT Premier Engineering Corporation

PROJECT NAME Dobson Rd Improvements - Intel Driveway No. 1 & 4

PROJECT NUMBER 20065.00, Premier No. 2020026

PROJECT LOCATION Chandler, AZ



Source of Material

B-04 (0-5)+B-5 (0-5)+B-03 (0-5)

Description of Material

SILTY, CLAYEY SAND with

GRAVEL(SC-SM)

Test Method

ASTM D698 Method C

TEST RESULTS

Maximum Dry Density

130.9 PCF

Optimum Water Content

7.2 %

ATTERBERG LIMITS

LL
20

PL
16

PI
4

Curves of 100% Saturation
for Specific Gravity Equal to:

2.80

2.70

2.60



Quality Testing, LLC
175 S. Hamilton Place, Bldg 6, Suite 114
Gilbert, AZ 85233
Telephone: 480-486-2000
Fax: 480-496-2001

SUMMARY OF LABORATORY RESULTS

PAGE 1 OF 1

CLIENT Premier Engineering Corporation

PROJECT NAME Dobson Rd Improvements - Intel Driveway No. 1 & 4

PROJECT NUMBER 20065.00, Premier No. 2020026

PROJECT LOCATION Chandler, AZ

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	USCS	Water Content (%)	Dry Density (pcf)	pH	Resistivity (ohm-cm)
B-01	0-5	25	18	7	25	39	SC-SM			8.4	1635
B-01	2-3							26.2	91.2		
B-02	0-5	25	14	11	25	36	SC				
B-03	0-5	21	15	6	25	23	SC-SM				
B-04	0-5	20	16	4	25	16	SC-SM			8.3	2526
B-04	2-3							5.8	114.8		
B-05	0-5	22	16	6	25	19	SC-SM				

Note: B-01(0-5) & B-01(5-10) samples were combined to run pH & Resistivity tests.

B-04(0-5) & B-04(5-10) samples were combined to run pH & Resistivity tests.



Laboratory Analysis Report

Quality Testing
Marco Solano
175 S. Hamilton Place
Bldg 6, Ste 114
Gilbert, AZ 85233

Project: 20065
Date Received: 4/29/2021
Date Reported: 5/5/2021
PO Number: 531

Lab Number: 936611-1	B-01 (0-5)+B-01 (5-10), S-6899
-----------------------------	---------------------------------------

<i>Test Parameter</i>	Method	Result	Units	Levels
Sulfate	ARIZ 733b	33	ppm	
Chloride	ARIZ 736b	27	ppm	

Lab Number: 936611-2	B-04 (0-5)+B-04 (5-10), S-6900
-----------------------------	---------------------------------------

<i>Test Parameter</i>	Method	Result	Units	Levels
Sulfate	ARIZ 733b	31	ppm	
Chloride	ARIZ 736b	14	ppm	

Appendix E

Site Photos

SITE PHOTOS

Photo Date: April 26, 2021



Dobson Rd @ Chaparral Way, looking north.



Dobson Rd @ Chaparral Way, looking east.



Dobson Rd @ Chaparral Way, west.



SPT Sample from B-1 at 5 feet depth



Dobson Rd @ B-2, looking south.



SPT Sample from B-2 at 5 feet depth.



Dobson Rd @ B-3, looking south.



SPT Sample from B-3 at 5 feet depth.



Dobson Rd @ Driveway#1 (B-4), looking north.



Dobson Rd @ Driveway#1 (B-4), looking south.



SPT Sample from B-4 at 5 feet depth.



SPT Sample from B-5 at 5 feet depth.

APPENDIX B – GIS DATA DICTIONARY

DATA DICTIONARY
FOR
WATER, SEWER, RECLAIM & STORM

DATA DICTIONARY: WATER

FeatureClassName FITTING_PNT
DatasetType FeatureClass

FieldName	Type	Length	AliasName	DomainName	DefaultValue
FEATUREOWNER	String	20	FEATUREOWNER	WS_FEATUREOWNER	null
LIFECYCLESTATUS	String	20	LIFECYCLESTATUS	WS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	20	SPATIALSOURCE	WS_SPATIALSOURCE_STD	GPS
MATERIAL	String	20	MATERIAL	WS_MATERIAL	null
DIAMETER1	String	8	DIAMETER1	null	null
DIAMETER2	String	8	DIAMETER2	null	null
TYPE	String	30	TYPE	WS_FITTING_TYPE	null
BEND	String	20	BEND	WS_FITTING_BEND	null
GPS_COMMENT	String	30	GPS_COMMENT	null	null
GPS_DATE	Date	8	GPS_DATE	null	null

FeatureClassName SYSTEM_VALVE_PNT
DatasetType FeatureClass

FieldName	Type	Length	AliasName	DomainName	DefaultValue
FEATUREOWNER	String	20	FEATURE OWNER	WS_FEATUREOWNER	null
LIFECYCLESTATUS	String	20	LIFECYCLE STATUS	WS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	20	SPATIAL SOURCE	WS_SPATIALSOURCE	GPS
DIAMETER	String	8	Diameter	WS_SYSVAL_DIAM	null
TYPE	String	25	TYPE	WS_SYSVAL_TYPE	null
VALVETYPE	String	10	VALVE TYPE	WS_SYSVAL_VALVETYPE	null
FUNCTION	String	25	FUNCTION	WS_SYSVAL_FUNCTION	null
GROUNDTYPE	String	25	GROUNDTYPE	WS_SYSVAL_GROUNDTYPE	null
WO_CAT_CODE	String	10	WO CAT CODE	null	1310A06
WO_CAT	String	25	WO CAT	null	System Valves
WATERTYPE	String	25	WATERTYPE	null	POTABLE
GPS_DATE	Date	8	GPS DATE	null	null
GPS_COMMENT	String	30	GPS COMMENT	null	null

FeatureClassName HYDRANT_PNT
DatasetType FeatureClass

FieldName	Type	Length	AliasName	DomainName	DefaultValue
HYDRANT_ID	String	25	HYDRANT_ID	null	HYD-VERIFY
FEATUREOWNER	String	25	Feature Owner	WS.FEATUREOWNER	null
LIFECYCLESTATUS	String	25	Lifecycle Status	WS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	25	Spatial Source	WS_SPATIALSOURCE_STD	GPS
BARRELDIAMETER	Double	8	Barrel Diameter	null	6
LARGENOZZLEDIAMETER	Double	8	Large Nozzle Diameter	null	4.5
SMALLNOZZLEDIAMETER	Double	8	Small Nozzle Diameter	null	2.5
OUTLETCONFIGURATION	Double	8	Outlet Configuration	null	3
SEATDIAMETER	Double	8	Seat Diameter	null	6
MANUFACTURER	String	25	Manufacturer	WS_HYD_MANUFACTURER	null
YEARMANUFACTURED	String	25	Manufacture Year	null	null
COLOR	String	25	Color	WS_HYD_COLOR	null
GPS_DATE	Date	8	GPS_DATE	null	null
GPS_COMMENT	String	50	GPS_COMMENT	null	null

FeatureClassName WATER_MANHOLE_PNT
DatasetType FeatureClass

FieldName	Type	Length	AliasName	DomainName	DefaultValue
FEATUREOWNER	String	20	FEATUREOWNER	WS_FEATUREOWNER	null
LIFECYCLESTATUS	String	20	LIFECYCLESTATUS	WS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	20	SPATIALSOURCE	WS_SPATIALSOURCE_STD	GPS
SUBTYPE	String	25	SUBTYPE	WS_SUBTYPE	null
ACCESSDIAMETER	String	8	ACCESSDIAMETER	WS_ACCESSDIAMETER	32
GROUNDTYPE	String	20	GROUNDTYPE	WS_GROUNDTYPE	null
COVERMATERIAL	String	10	COVERMATERIAL	WS_COVERMATERIAL	null
COVERTYPE	String	8	COVERTYPE	WS_COVERTYPE	null
GPS_DATE	Date	8	GPS_DATE	null	null
GPS_COMMENT	String	30	GPS_COMMENT	null	null

FeatureClassName WATER_VAULT_PNT
DatasetType FeatureClass

FieldName	Type	Length	AliasName	DomainName	DefaultValue
SUBTYPE	String	20	SUBTYPE	null	null
FEATUREOWNER	String	20	FEATUREOWNER	WS_FEATUREOWNER	null
LIFECYCLESTATUS	String	20	LIFECYCLESTATUS	WS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	20	SPATIALSOURCE	WS_SPATIALSOURCE_STD	GPS
SUB_TYPE	String	20	SUB_TYPE	WS_VAULT_SUB_TYPE	null
ADDRESS	String	50	ADDRESS	null	null
GPS_DATE	Date	8	GPS_DATE	null	null
GPS_COMMENT	String	50	GPS_COMMENT	null	null

Domain:

WS_FEATUREOWNER

Description: TYPE OF SERVICE

Code	Name
COC	Chandler
GRIC	Gila River Indian Community
COG	Gilbert
GOULD	Gould
INTEL	Intel
COUNTY	Maricopa County
COM	Mesa
MICROCHIP	Microchip
MOTOROLA	Motorola
COP	Phoenix
PRIVATE	Private
SRP	SRP
SRVWUA	SRVWUA
COT	Tempe
UNKNOWN	UNKNOWN

Domain:

WS_SPATIALSOURCE_STD

Description: SPATIAL SOURCE

Code	Name
GPS	GPS

Domain:

WS_FITTING_TYPE

Description: FITTING TYPE

Code	Name
11B	11B
22B	22B
45B	45B
90B	90B
COUPLING	COUPLING

CROSS	CROSS
ENDCAP	ENDCAP
LINESTOP	LINESTOP
OTHER	OTHER
REDUCER	REDUCER
SADDLE	SADDLE
TAPPING SLEEVE	TAPPING SLEEVE
TEE	TEE
UNKNOWN	UNKNOWN
WYE	WYE

Domain:

WS_FITTING_BEND

Description: FITTING BEND

Code	Name
HORIZONTAL	HORIZONTAL
NONE	NONE
VERTICAL	VERTICAL

Domain:

WS_LIFECYCLESTATUS

Description: SYSTEM VALVE LIFECYCLE STATUS

Code	Name
ABANDONED	ABANDONED
ACTIVE	ACTIVE
FUTURE	FUTURE
INACTIVE	INACTIVE
REMOVED	REMOVED
UNKNOWN	UNKNOWN

Domain:

WS_SYSVAL_DIAM

Description: SYSTEM VALVE DIAMETER

Code	Name
2	2
3	3

4	4
6	6
8	8
10	10
12	12
16	16
20	20
24	24
30	30
36	36
42	42
48	48

Domain:

WS_SYSVAL_TYPE

Description: SYSTEM TYPE

Code	Name
ARV	ARV
BLOWOFF	BLOWOFF
STANDARD	STANDARD

Domain:

WS_SYSVAL_VALVETYPE

Description: SYSTEM VALVE TYPE

Code	Name
BALL	BALL
BUTTERFLY	BUTTERFLY
GATE	GATE
INSERTA	INSERTA
PIV	PIV
PLUG	PLUG
UNKNOWN	UNKNOWN

Domain:

WS_SYSVAL_FUNCTION

Description: SYSTEM VALVE FUNCTION

Code	Name
------	------

ARV	ARV
BACKFLOW	BACKFLOW
BYPASS	BYPASS
FDC	FDC
FIRELINE	FIRELINE
HYDRANT	HYDRANT
INLINE	INLINE
PUMPOUT	PUMPOUT
PUMPSTATION	PUMPSTATION
SERVICE	SERVICE
STUBOUT	STUBOUT
UNKNOWN	UNKNOWN
VAULT	VAULT
WPF	WPF
ZONE_SPLIT_VALVES	ZONE_SPLIT_VALVES

Domain:

WS_SYSVAL_GROUNDTYPE

Description: SYSTEM VALVE FUNCTION

Code	Name
ASPHALT	ASPHALT
CONCRETE	CONCRETE
LANDSCAPE	LANDSCAPE
UNKNOWN	UNKNOWN

Domain:

WS_HYD_MANUFACTURER

Description: HYDRANT MANUFACTURER

Code	Name
AMERICANDARLING	AMERICANDARLING
AVK	AVK
CLOW	CLOW
DRESSER	DRESSER
GREENBERG	GREENBERG
KENNEDY	KENNEDY
MUELLER	MUELLER
PACIFIC	PACIFIC
UNKNOWN	UNKNOWN

WATEROUS	WATEROUS
----------	----------

Domain:

WS_MATERIAL

Description: MATERIAL

Code	Name
ABS	ABS
ACP	ACP
BRASS	BRASS
CIP	CIP
DIP	DIP
PCPP	PCPP
PE	PE
PVC	PVC
RCP	RCP
RPM	RPM
RTR	RTR
STL	STL
TRUSS	TRUSS
VCP	VCP

Domain:

WS_YES_NO

Description: YES OR NO

Code	Name
YES	YES
NO	NO

Domain:

WS_HYD_COLOR

Description: COLOR OF HYDRANT

Code	Name
BLACK/ALUMINUM	BLACK/ALUMINUM
BLACK/YELLOW	BLACK/YELLOW

GREEN	GREEN
RED	RED
RED/YELLOW	RED/YELLOW
UNKNOWN	UNKNOWN
WHITE	WHITE
YELLOW	YELLOW

Domain:

WS_SUBTYPE

Description: SUBTYPE OF MANHOLE

Code	Name
PUMPOUT STATION	PUMPOUT STATION
UNKNOWN	UNKNOWN
VALVE ACCESS	VALVE ACCESS

Domain:

WS_ACCESSDIAMETER

Description: ACCESS DIAMTER

Code	Name
22	22
24	24
26	26
28	28
30	30
32	32
38	38

Domain:

WS_GROUNDTYPE

Description: GROUND TYPE

Code	Name
ASPHALT	ASPHALT
CONCRETE	CONCRETE

DIRT	DIRT
UNKNOWN	UNKNOWN

Domain:

WS_COVERMATERIAL

Description: COVERMATERIAL

Code	Name
ALUMINUM	ALUMINUM
CASTIRON	CASTIRON
UNKNOWN	UNKNOWN

Domain:

WS_COVERTYPE

Description: COVER TYPE

Code	Name
BOLTED	BOLTED
SEALED	SEALED
UNKNOWN	UNKNOWN
VENTED	VENTED

Domain:

WS_VAULT_SUB_TYPE

Description: SUBTYPE OF VAULT

Code	Name
FIRELINE	FIRELINE
METER	METER
UNKNOWN	UNKNOWN
VALVE	VALVE

DATA DICTIONARY: SEWER

FeatureClassName SEWER_MANHOLE_PNT
DatasetType FeatureClass

FieldName	Type	Length	AliasName	DomainName	DefaultValue
FEATUREOWNER	String	20	FEATUREOWNER	WW_FEATUREOWNER	null
LIFECYCLESTATUS	String	20	LIFECYCLESTATUS	WW_LIFECYCLESTATUS	null
SPATIALSOURCE	String	20	SPATIALSOURCE	WW_SPATIALSOURCE	GPS
LID	String	20	LID	WW_MANHOLE_LID	null
TYPE	String	20	TYPE	null	null
COVER_MATERIAL	String	20	COVER_MATERIAL	null	null
COVER_HOLE	String	20	COVER_HOLE	null	null
COVER_SIZE	String	20	COVER_SIZE	null	null
GPS_DATE	Date	8	GPS_DATE	null	null
GPS_COMMENT	String	30	GPS_COMMENT	null	null

FeatureClassName SEWER_CLEANOUT_PNT
DatasetType FeatureClass

FieldName	Type	Length	AliasName	DomainName	DefaultValue
FEATUREOWNER	String	20	FEATUREOWNER	WW_FEATUREOWNER	null
LIFECYCLESTATUS	String	20	LIFECYCLESTATUS	WW_LIFECYCLESTATUS	null
LOCATIONDESCRIPTION	String	100	LOCATIONDESCRIPTION	null	null
SPATIALSOURCE	String	20	SPATIALSOURCE	WW_SPATIALSOURCE	null
LID	String	20	LID	WW_SEWER_LID	null
GPS_DATE	Date	8	GPS_DATE	null	null
GPS_COMMENT	String	30	GPS_COMMENT	null	null

FeatureClassName SEWER_FITTING_PNT
DatasetType FeatureClass

FieldName	Type	Length	AliasName	DomainName	DefaultValue
FEATUREOWNER	String	20	FEATUREOWNER	WW_FEATUREOWNER	null
LIFECYCLESTATUS	String	20	LIFECYCLESTATUS	WW_LIFECYCLESTATUS	null
SPATIALSOURCE	String	20	SPATIALSOURCE	WW_SPATIALSOURCE	null
SIZE_	String	20	SIZE_	null	null
MATERIAL	String	20	MATERIAL	WW_MATERIAL	null
TYPE	String	30	TYPE	WW_FITTING_TYPE	null
BEND	String	20	BEND	WW_BEND	null
LOCATIONDESCRIPTION	String	100	LOCATIONDESCRIPTION	null	null
GPS_DATE	Date	8	GPS_DATE	null	null
GPS_COMMENT	String	30	GPS_COMMENT	null	null

FeatureClassName SEWER_CONTROL_VALVE_PNT
DatasetType FeatureClass

FieldName	Type	Length	AliasName	DomainName	DefaultValue
TYPE	String	25	TYPE	null	null
FEATUREOWNER	String	20	FEATUREOWNER	null	null
LIFECYCLESTATUS	String	20	LIFECYCLESTATUS	WW_LIFECYCLESTATUS	null
SPATIALSOURCE	String	20	SPATIALSOURCE	WW_SPATIALSOURCE	GPS
LOCATIONDESCRIPTION	String	100	LOCATIONDESCRIPTION	null	null
DIAMETER	String	8	DIAMETER	null	null
GPS_DATE	Date	8	GPS_DATE	null	null
GPS_COMMENT	String	30	GPS_COMMENT	null	null

FeatureClassName SEWER_MISC_STRUCT_PNT
DatasetType FeatureClass

FieldName	Type	Length	AliasName	DomainName	DefaultValue
TYPE	String	25	TYPE	WW_TYPE	null
FEATUREOWNER	String	20	FEATUREOWNER	WW_FEATUREOWNER	null
LIFECYCLESTATUS	String	20	LIFECYCLESTATUS	WW_LIFECYCLESTATUS	null
SPATIALSOURCE	String	20	SPATIALSOURCE	WW_SPATIALSOURCE	GPS
LOCATIONDESCRIPTION	String	100	LOCATIONDESCRIPTION	null	null
GPS_DATE	Date	8	GPS_DATE	null	null
GPS_COMMENT	String	30	GPS_COMMENT	null	null

Domain: WW_FEATUREOWNER

Description: WASTEWATER FEATURE OWNER

Code	Name
COC	COC
PRIVATE	PRIVATE
CONTRACTOR	CONTRACTOR
TOG	TOG
UNKNOWN	UNKNOWN

Domain: WW_LIFECYCLESTATUS

Description: WASTEWATER FEATURE LIFECYCLESTATUS

Code	Name
ACTIVE	ACTIVE
FUTURE	FUTURE
PULLED	PULLED
INACTIVE	INACTIVE
UNKNOWN	UNKNOWN
ABANDONED	ABANDONED

Domain: WW_SPATIALSOURCE

Description: WASTEWATER FEATURE SPATIAL SOURCE

Code	Name
GPS	GPS

Domain: WW_TYPE

Description: WASTEWATER TYPE

Code	Name
DIVERSION	DIVERSION
JUNCTION	JUNCTION

Domain: WW_SEWER_LID

Description: WASTEWATER LID

Code	Name
OLD	OLD
NEW	NEW

Domain: WW_BEND

Description: WASTEWATER BEND

Code	Name
HORIZONTAL	HORIZONTAL
VERTICAL	VERTICAL
NONE	NONE

Domain: WW_MATERIAL

Description: WASTEWATER MATERIAL

Code	Name
ACP	ACP
CONCRETE	CONCRETE
DIP	DIP
HDPE	HDPE
MJDIP	MJDIP
PVC	PVC
PVC LINED VCP	PVC LINED VCP
RCP ABS	RCP ABS
STEEL ENCASED VCP	STEEL ENCASED VCP
TLOCKLINE LINE RCP	TLOCKLINE LINE RCP
UNKNOWN	UNKNOWN
VCP	VCP

Domain: WW_FITTING_TYPE

Description: WASTEWATER FITTING_TYPE

Code	Name
ARV	ARV
FLOW METER	FLOW METER
NO_FLOW_POINT	NO_FLOW_POINT
OTHER	OTHER
OWNERSHIP_CHANGE	OWNERSHIP_CHANGE
PLUG	PLUG
REDUCER	REDUCER
UNKNOWN	UNKNOWN

DATA DICTIONARY: RECLAIM

FeatureClassName	REC_FITTING_PNT
DatasetType	FeatureClass
Description	REC_FITTING_PNT
FeatureDataset	null
Tags	null
ShapeType	Point
FeatureType	Simple
AliasName	REC_FITTING_PNT
HasM	false
HasZ	false
SubtypeFieldName	null
DefaultSubtype	null
DSID	39

Fields					
FieldName	Type	Length	AliasName	DomainName	DefaultValue
FEATUREOWNER	String	20	FEATUREOWNER	RWS_FEATUREOWNER	null
LIFECYCLESTATUS	String	20	LIFECYCLESTATUS	RWS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	20	SPATIALSOURCE	RWS_SPATIALSOURCE	null
MATERIAL	String	20	MATERIAL	WS_MATERIAL	null
DIAMETER1	String	8	DIAMETER1	RWS_FITTING_DIAMETER	null
DIAMETER2	String	8	DIAMETER2	RWS_FITTING_DIAMETER	null
TYPE	String	30	TYPE	RWS_FITTING_TYPE	null
BEND	String	20	BEND	WS_FITTING_BEND	null
GPS_COMMENT	String	30	GPS_COMMENT	null	null
GPS_DATE	Date	8	GPS_DATE	null	null

FeatureClassName	REC_SYSTEM_VALVE_PNT
DatasetType	FeatureClass
Description	REC_SYSTEM_VALVE_PNT
FeatureDataset	null
Tags	null
ShapeType	Point
FeatureType	Simple
AliasName	REC_SYSTEM_VALVE_PNT
HasM	false
HasZ	false
SubtypeFieldName	null
DefaultSubtype	null
DSID	13

Fields					
FieldName	Type	Length	AliasName	DomainName	DefaultValue
FEATUREOWNER	String	20	Feature Owner	WS_SYSVAL_FEATUREOWNER	null
LIFECYCLESTATUS	String	20	Lifecycle Status	WS_SYSVAL_LIFECYCLESTATUS	null
SPATIALSOURCE	String	20	Spatial Source	WS_SYSVAL_SPATIALSOURCE	null
TYPE	String	25	TYPE	WS_SYSVAL_TYPE	null
VALVETYPE	String	10	Valve Type	WS_SYSVAL_VALVETYPE	null
FUNCTION	String	25	FUNCTION	WS_SYSVAL_FUNCTION	null
DIAMETER	String	8	Diameter	WS_SYSVAL_DIAM	null
GROUNDTYPE	String	25	GROUNDTYPE	RWS_GROUNDTYPE	null
GPS_DATE	Date	8	GPS_DATE	null	null
GPS_COMMENT	String	30	GPS_COMMENT	null	null
WO_CAT_CODE	String	10	WO_CAT_CODE	null	6210A15
WO_CAT	String	25	WO_CAT	null	System Valves

FeatureClassName	REC_RECLAIM_MANHOLE_PNT
DatasetType	FeatureClass
Description	REC_RECLAIM_MANHOLE_PNT
FeatureDataset	null
Tags	null
ShapeType	Point

Fields					
FieldName	Type	Length	AliasName	DomainName	DefaultValue
FEATUREOWNER	String	20	FEATUREOWNER	RWS_FEATUREOWNER	null
LIFECYCLESTATUS	String	20	LIFECYCLESTATUS	RWS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	20	SPATIALSOURCE	RWS_SPATIALSOURCE	null
ACCESSDIAMETER	String	8	ACCESSDIAMETER	RWS_ACCESSDIAMETER	null
GROUNDTYPE	String	20	GROUNDTYPE	RWS_GROUNDTYPE	null
COVERMATERIAL	String	10	COVERMATERIAL	RWS_COVERMATERIAL	null
COVERTYPE	String	8	COVERTYPE	RWS_COVERTYPE	null
GPS_DATE	Date	8	GPS_DATE	null	null
GPS_COMMENT	String	30	GPS_COMMENT	null	null

Fields					
FieldName	Type	Length	AliasName	DomainName	DefaultValue
FEATUREOWNER	String	20	FEATUREOWNER	RWS_FEATUREOWNER	null
LIFECYCLESTATUS	String	20	LIFECYCLESTATUS	RWS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	20	SPATIALSOURCE	RWS_SPATIALSOURCE	null
SUBTYPE	String	20	SUBTYPE	RWS_FITTING_SUBTYPE	null
GPS_DATE	Date	8	GPS_DATE	null	null
GPS_COMMENT	String	50	GPS_COMMENT	null	null

RWS_FEATUREOWNER

Description: Feature owner

Coded Values

Code	Name
COC	COC
COM	COM
INTEL	INTEL
OMG	OMG
PRIVATE	PRIVATE
SRVWUA	SRVWUA
TOG	TOG
UNKNOWN	UNKNOWN

RWS_LIFECYCLESTATUS

Description: Status of feature

Code	Description
ABANDONED	ABANDONED
ACTIVE	ACTIVE
FUTURE	FUTURE
INACTIVE	INACTIVE
PULLED	PULLED
UNKNOWN	UNKNOWN

RWS_SPATIALSOURCE

Description: Spatial Source of feature

Code	Description
ASBUILT	ASBUILT
DESIGN	DESIGN
FIELD	FIELD
GPS	GPS
ORTHOPHOTO	ORTHOPHOTO
UNKNOWN	UNKNOWN

RWS_MAIN_OR_SERVICE_MATERIAL

Description: Material of feature

Code	Description
AC	AC
CC	CC
CI	CI
DI	DI
PVC	PVC
UNKNOWN	UNKNOWN

RWS_SERVICE_MATERIAL

Description: Material of feature

Code	Description
AC	AC
CI	CI
COPPER	COPPER
DI	DI
PVC	PVC
UNKNOWN	UNKNOWN

RWS_MAIN_TYPE

Description: TYPE OF MAIN

Code	Description
DISTRIBUTION	DISTRIBUTION
PURGE LINE	PURGE LINE
RECHARGE WELL	RECHARGE WELL
STUBOUT	STUBOUT
TRANSMISSION	TRANSMISSION
UNKNOWN	UNKNOWN

RWS_FITTING_TYPE

Description: TYPE OF FITTING

Code	Description
11B	11B
22B	22B
45B	45B
90B	90B
COUPLING	COUPLING
CROSS	CROSS
ENDCAP	ENDCAP
LINESTOP	LINESTOP
MECHANICAL JOINT	MECHANICAL JOINT
OTHER	OTHER
RECHARGE WELL	RECHARGE WELL
REDUCER	REDUCER
SADDLE	SADDLE
TAPPING SLEEVE	TAPPING SLEEVE
TEE	TEE
UNKNOWN	UNKNOWN
WYE	WYE

RWS_SERVICE_LATERAL_TYPE

Description: TYPE OF SERVICE

Code	Description
AIR RELEASE	AIR RELEASE
COMMERCIAL	COMMERCIAL
INDUSTRIAL	INDUSTRIAL
LANDSCAPE	LANDSCAPE
MULTIFAMILY	MULTIFAMILY
RESIDENTIAL	RESIDENTIAL

RWS_SERVICE_LATERAL_DIAMETER

Description: TYPE OF SERVICE

Code	Description
0.63	0.63
0.75	0.75
1.0	1.0
1.25	1.25
1.5	1.5
2.0	2.0
2.5	2.5
3.0	3.0
4.0	4.0
6.0	6.0
8.0	8.0
12.0	12.0
UNKNOWN	UNKNOWN

RWS_MAIN_DIAMETER

Description: DIAMETER OF MAIN

Code	Description
4	4
6	6
8	8
10	10
12	12
15	15
16	16
18	18
20	20
24	24
30	30
36	36
42	42
48	48

RWS_FITTING_DIAMETER

Description: DIAMETER OF FITTING

Code	Description
0.63	0.63
0.75	0.75
1	1
1.25	1.25
1.5	1.5
2	2
2.5	2.5
3	3
4	4
6	6
8	8
10	10
12	12
15	15
16	16
18	18
20	20
24	24
30	30
36	36
42	42
48	48

RWS_ACCESSDIAMETER

Description: ACCESS DIAMETER

Code	Description
22	22
24	24
26	26
28	28
30	30
30	30
28	28

RWS_GROUNDTYPE

Description: GROUND TYPE

Code	Description
ASPHALT	ASPHALT
CONCRETE	CONCRETE
DIRT	DIRT
UNKNOWN	UNKNOWN

RWS_COVERMATERIAL

Description: COVER MATERIAL

Code	Description
ALUMINUM	ALUMINUM
CASTIRON	CASTIRON
UNKNOWN	UNKNOWN

RWS_COVERTYPE

Description: COVER TYPE

Code	Description
BOLTED	BOLTED
SEALED	SEALED
UNKNOWN	UNKNOWN
VENTED	VENTED

RWS_COVERTYPE

Description: COVER TYPE

Code	Description
BOLTED	BOLTED
SEALED	SEALED
UNKNOWN	UNKNOWN
VENTED	VENTED

WS_SYSVAL_DIAM

Description: SYSTEM VALVE DIAMETER

Code	Name
2	2
3	3
4	4
6	6
8	8
10	10
12	12
16	16
20	20
24	24
30	30
36	36
42	42
48	48

WS_SYSVAL_VALVETYPE

Description: SYSTEM VALVE TYPE

Code	Name
BALL	BALL
BUTTERFLY	BUTTERFLY
GATE	GATE
INSERTA	INSERTA
PIV	PIV
PLUG	PLUG
UNKNOWN	UNKNOWN

WS_FITTING_BEND

Description: FITTING BEND

Code	Name
HORIZONTAL	HORIZONTAL
NONE	NONE
VERTICAL	VERTICAL

WS_MATERIAL

Description: MATERIAL

Code	Name
ABS	ABS
ACP	ACP
BRASS	BRASS
CIP	CIP
DIP	DIP
PCPP	PCPP
PE	PE
PVC	PVC
RCP	RCP
RPM	RPM
RTR	RTR
STL	STL
TRUSS	TRUSS
VCP	VCP

DATA DICTIONARY: STORM

FeatureClassName BUBBLERBOX_PNT
DatasetType FeatureClass

Fields

FieldName	Type	Length	AliasName	DomainName	DefaultValue
BUBBLERBOX_ID	String	20	BUBBLERBOX_ID	null	ST-BB-VERIFY
FEATUREOWNER	String	25	FEATUREOWNER	SWS_FEATUREOWNER	null
LIFECYCLESTATUS	String	25	LIFECYCLESTATUS	SWS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	25	SPATIALSOURCE	SWS_SPATIALSOURCE	null
GRATE_OPENINGS_NUM	SmallInteger	2	GRATE_OPENINGS_NUM	SWS_GRATE_OPENINGS	null
GRATE_LENGTH	Double	8	GRATE_LENGTH	SWS_GRATE_LENGTH	null
GRATE_WIDTH	Double	8	GRATE_WIDTH	SWS_GRATE_WIDTH	null
DRYWELL_ASSOC	String	5	DRYWELL_ASSOC	GIS_BOOLEAN_YES_NO	null
COMMENTS	String	255	COMMENTS	null	null
COLLECTED_DATE	Date	8	COLLECTED_DATE	null	null

FeatureClassName CATCHBASIN_PNT
DatasetType FeatureClass

Fields

FieldName	Type	Length	AliasName	DomainName	DefaultValue
CATCHBASIN_ID	String	20	CATCHBASIN_ID	null	ST-CB-VERIFY
FEATUREOWNER	String	25	FEATUREOWNER	SWS_FEATUREOWNER	null
LIFECYCLESTATUS	String	25	LIFECYCLESTATUS	SWS_LIFECYCLESTATUS	null
CATCHBASIN_TYPE	String	25	CATCHBASIN_TYPE	SWS_CB_TYPE	null
CITY_EMBLEM	String	5	CITY_EMBLEM	GIS_BOOLEAN_YES_NO	null
ACCESS_OPENING_TYPE	String	25	ACCESS_OPENING_TYPE	SWS_CB_ACCESS_OPENING_TYPE	null
GRATE_LENGTH	Double	8	GRATE_LENGTH	SWS_GRATE_LENGTH	null
GRATE_WIDTH	Double	8	GRATE_WIDTH	SWS_GRATE_WIDTH	null
LID	String	5	LID	GIS_BOOLEAN_YES_NO	null
LID_TYPE	String	25	LID_TYPE	SWS_CB_LID_TYPE	null
DRYWELL_CONN	String	5	DRYWELL_CONN	GIS_BOOLEAN_YES_NO	null
OUTLET_CONN	String	5	OUTLET_CONN	GIS_BOOLEAN_YES_NO	null
BUBBLERBOX_CONN	String	5	BUBBLERBOX_CONN	GIS_BOOLEAN_YES_NO	null
BUBBLERBOX_DRYWELL_ASSOC	String	5	BUBBLERBOX_DRYWELL_ASSOC	GIS_BOOLEAN_YES_NO	null
LAKE_DRAIN	String	5	LAKE_DRAIN	GIS_BOOLEAN_YES_NO	null
COMMENTS	String	255	COMMENTS	null	null
COLLECTED_DATE	Date	8	COLLECTED_DATE	null	null

FeatureClassName DRYWELL_PNT
DatasetType FeatureClass

Fields

FieldName	Type	Length	AliasName	DomainName	DefaultValue
DRYWELL_ID	String	20	DRYWELL_ID	null	ST-DW-VERIFY
FEATUREOWNER	String	25	FEATUREOWNER	SWS_FEATUREOWNER	null
LIFECYCLESTATUS	String	25	LIFECYCLESTATUS	SWS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	25	SPATIALSOURCE	SWS_SPATIALSOURCE	null
FIELD_LOC	String	100	FIELD_LOC	SWS_DW_LOCATION	null
INSTALLER	String	30	INSTALLER	SWS_DW_INSTALLER	null
CHAMBER_TYPE	String	30	CHAMBER_TYPE	SWS_DW_CHAMBER_TYPE	null
LID_SIZE	SmallInteger	2	LID_SIZE	SWS_DW_LID_SIZE	null
LID_TYPE	String	25	LID_TYPE	SWS_DW_LID_TYPE	null
NUISANCE_LINE_ASSOC	String	5	NUISANCE_LINE_ASSOC	GIS_BOOLEAN_YES_NO	null
CONCRETE_PAD	String	5	CONCRETE_PAD	GIS_BOOLEAN_YES_NO	null
COMMENTS	String	255	COMMENTS	null	null
COLLECTED_DATE	Date	8	COLLECTED_DATE	null	null

FeatureClassName INLET_PNT
DatasetType FeatureClass

Fields

FieldName	Type	Length	AliasName	DomainName	DefaultValue
INLET_ID	String	20	INLET_ID	null	ST-IN-VERIFY
CATCHBASIN_TYPE	String	25	CATCHBASIN_TYPE	SWS_CB_TYPE	null
FEATUREOWNER	String	25	FEATUREOWNER	SWS_FEATUREOWNER	null
LIFECYCLESTATUS	String	25	LIFECYCLESTATUS	SWS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	25	SPATIALSOURCE	SWS_SPATIALSOURCE	null
FIELD_LOC	String	100	FIELD_LOC	SWS_FIELD_LOC	null
GRATE_ASSOC	String	25	GRATE_ASSOC	GIS_BOOLEAN_YES_NO	null
GRATE_LENGTH	Double	8	GRATE_LENGTH	SWS_GRATE_LENGTH	null
GRATE_WIDTH	Double	8	GRATE_WIDTH	SWS_GRATE_WIDTH	null
INLET_PIPE_DIAM	SmallInteger	2	INLET_PIPE_DIAM	SWS_INLET_PIPE_DIAM	null
INLET_NUMBER	SmallInteger	2	INLET_NUMBER	null	null
TRASHRACK_ASSOC	String	5	TRASHRACK_ASSOC	GIS_BOOLEAN_YES_NO	null
TRASH_LENGTH	Double	8	TRASH_LENGTH	null	null
TRASH_WIDTH	Double	8	TRASH_WIDTH	null	null
NUISANCE_LINE_ASSOC	String	5	NUISANCE_LINE_ASSOC	GIS_BOOLEAN_YES_NO	null
BUBBLER_BOX_DRYWELL_ASSOC	String	5	BUBBLER_BOX_DRYWELL_ASSOC	GIS_BOOLEAN_YES_NO	null
HEADWALLASSOC	String	5	HEADWALLASSOC	GIS_BOOLEAN_YES_NO	null
COMMENTS	String	255	COMMENTS	null	null
COLLECTED_DATE	Date	8	COLLECTED_DATE	null	null

FeatureClassName OUTLET_PNT
DatasetType FeatureClass

Fields

FieldName	Type	Length	AliasName	DomainName	DefaultValue
OUTLET_ID	String	20	OUTLET_ID	null	ST-OUT-VERIFY
FEATUREOWNER	String	25	FEATUREOWNER	SWS_FEATUREOWNER	null
LIFECYCLESTATUS	String	25	LIFECYCLESTATUS	SWS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	25	SPATIALSOURCE	SWS_SPATIALSOURCE	null
GRATE_ASSOC	String	25	GRATE_ASSOC	GIS_BOOLEAN_YES_NO	null
GRATE_LENGTH	Double	8	GRATE_LENGTH	SWS_GRATE_LENGTH	null
GRATE_WIDTH	Double	8	GRATE_WIDTH	SWS_GRATE_WIDTH	null
INLET_PIPE_DIAM	SmallInteger	2	INLET_PIPE_DIAM	SWS_INLET_PIPE_DIAM	null
INLET_NUMBER	SmallInteger	2	INLET_NUMBER	SWS_INLET_NUMBER	null
TRASHRACK_ASSOC	String	5	TRASHRACK_ASSOC	GIS_BOOLEAN_YES_NO	null
TRASH_LENGTH	Double	8	TRASH_LENGTH	null	null
TRASH_WIDTH	Double	8	TRASH_WIDTH	null	null
NUISANCE_LINE_ASSOC	String	5	NUISANCE_LINE_ASSOC	GIS_BOOLEAN_YES_NO	null
BUBBLER_BOX_DRYWELL_ASSOC	String	5	BUBBLER_BOX_DRYWELL_ASSOC	GIS_BOOLEAN_YES_NO	null
HEADWALLASSOC	String	5	HEADWALLASSOC	GIS_BOOLEAN_YES_NO	null
ADOTOUTFLOW	String	5	ADOTOUTFLOW	GIS_BOOLEAN_YES_NO	NO
COMMENTS	String	255	COMMENTS	null	null
COLLECTED_DATE	Date	8	COLLECTED_DATE	null	null

FeatureClassName SCUPPER_PNT
DatasetType FeatureClass

Fields

FieldName	Type	Length	AliasName	DomainName	DefaultValue
SCUPPER_ID	String	20	SCUPPER_ID	null	ST-SCP-VERIFY
FEATUREOWNER	String	25	FEATUREOWNER	SWS_FEATUREOWNER	null
LIFECYCLESTATUS	String	25	LIFECYCLESTATUS	SWS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	25	SPATIALSOURCE	SWS_SPATIALSOURCE	null
CITY_EMBLEM	String	5	CITY_EMBLEM	GIS_BOOLEAN_YES_NO	null
NUMBER_OPENINGS	SmallInteger	2	NUMBER_OPENINGS	null	null
WIDTH	Double	8	WIDTH	null	null
SPILLWAY_ASSOC	String	25	SPILLWAY_ASSOC	GIS_BOOLEAN_YES_NO	null
HEADWALL_ASSOC	String	5	HEADWALL_ASSOC	GIS_BOOLEAN_YES_NO	null
NUISANCE_LINE_ASSOC	String	5	NUISANCE_LINE_ASSOC	GIS_BOOLEAN_YES_NO	null
BUBBLERBOX_ASSOC	String	5	BUBBLERBOX_ASSOC	GIS_BOOLEAN_YES_NO	null
BUBBLER_BOX_DRYWELL_ASSOC	String	5	BUBBLER_BOX_DRYWELL_ASSOC	GIS_BOOLEAN_YES_NO	null
LAKE_DRAIN	String	5	LAKE_DRAIN	GIS_BOOLEAN_YES_NO	null
RIPRAP	String	25	RIPRAP	GIS_BOOLEAN_YES_NO	null
COMMENTS	String	255	COMMENTS	null	null
COLLECTED_DATE	Date	8	COLLECTED_DATE	null	null

FeatureClassName STORM_DRAIN_MANHOLE_PNT
DatasetType FeatureClass

Fields

FieldName	Type	Length	AliasName	DomainName	DefaultValue
STORMDRAIN_ID	String	20	STORMDRAIN_ID	null	ST-MH-VERIFY
FEATUREOWNER	String	25	FEATUREOWNER	SWS_FEATUREOWNER	null
LIFECYCLESTATUS	String	25	LIFECYCLESTATUS	SWS_LIFECYCLESTATUS	null
SPATIALSOURCE	String	25	SPATIALSOURCE	SWS_SPATIALSOURCE	null
STRUCTURE_TYPE	SmallInteger	2	STRUCTURE_TYPE	SWS_STRUCTURE_TYPE	null
CHANDLER_NAME	String	5	CHANDLER_NAME	GIS_BOOLEAN_YES_NO	null
DIAMETER	SmallInteger	2	DIAMETER	SWS_SDMH_SIZE	null
VENT_HOLE	String	30	VENT_HOLE	GIS_BOOLEAN_YES_NO	null
ACCESS_OPENING_TYPE	String	25	ACCESS_OPENING_TYPE	SWS_SDMH_ACCESS_OPENING_TYPE	null
LID_TYPE	String	30	LID_TYPE	SWS_SDMH_TYPE	null
LID_TEXT	String	30	LID_TEXT	SWS_SDMH_LID_TEXT	null
COMMENTS	String	255	COMMENTS	null	null
COLLECTED_DATE	Date	8	COLLECTED_DATE	null	null

Domain Name

GIS_BOOLEAN_YES_NO
 GIS_COLLECTOR_ID
 SWS_DW_CHAMBER_TYPE
 SWS_DW_DEPT_RESP
 SWS_DW_INSTALLER
 SWS_DW_LID_SIZE
 SWS_DW_LID_TYPE
 SWS_DW_LOCATION
 SWS_EP_DIAM
 SWS_EP_MATERIAL
 SWS_FEATUREOWNER
 SWS_GRATE_LENGTH
 SWS_GRATE_WIDTH
 SWS_INLET_NUMBER
 SWS_INLET_PIPE_DIAM
 SWS_LIFECYCLESTATUS
 SWS_RB_MAINT_LIST
 SWS_RB_TYPE
 SWS_SDMH_ACCESS_OPENING_TYPE
 SWS_SDMH_LID_TEXT
 SWS_SDMH_SIZE
 SWS_SDMH_TYPE
 SWS_SEPARATOR_LID_TYPE
 SWS_SEPARATOR_TYPE
 SWS_SPATIALSOURCE
 SWS_SPL_WALL_MATERIAL
 SWS_STRUCTURE_TYPE

Current Description

GIS Boolean Yes or No
 GPS Crew Employee IDs
 Drywell chamber type
 Department responsible for DryWell Maint
 DryWell installers
 Standard size of Drywell lid
 Drywell lid type
 Drywell location
 Standard sizes of Equalizer Pipe diameters
 Equalizer Pipe material
 Storm feature ownership
 Denotes the length of a storm water grate
 Denotes the width of a storm water grate
 Number of Inlets
 Inlet pipe diameter
 Denotes the Lifecyclestatus for Storm features
 Retention Basin maintainer
 Retention Basin Type
 Storm Drain Manhole Access Opening type
 Storm Drain Manhole Lid Text
 Standard size of Storm Drain Manhole
 Storm Drain Manhole Type
 Denotes the type of separator lid
 Denotes the type of separator
 Denotes the Spatial Source of Storm features
 Denotes Spillway Wall Material
 Type of structure for GBA

EXHIBIT D

ACCEPTED GMP/PRICE PROPOSAL

CM@RISK 60% COST MODEL SUMMARY

Project Name: Dobson Rd Improv: DW 1 and 4
Project Location: Dobson Road
City of Chandler Project No.: ST2009.401

Date: 1/21/2022

	Percentage	Amount
A. Direct Costs		
A1 Direct Cost		\$183,941.71
TOTAL DIRECT COSTS:		\$183,941.71
B. General Conditions or Direct Costs only		
<i>SUBTOTAL 1 (Cost of the Work):</i>		\$183,941.71
C. CM@Risk's Fee on Cost of Work only	11%	\$20,233.59
<i>SUBTOTAL 2:</i>		\$204,175.30
D. Bonds and Insurance Allowances		
D1 Bonds	1.28%	\$2,613.44
D2 Insurance	1.05%	\$2,143.84
TOTAL BONDS & INSURANCE ALLOWANCE:		\$4,757.28
<i>SUBTOTAL 3:</i>		\$208,932.58
E. Sales Tax		
E1 Sales Tax (INSERT CURRENT TAX RATE IN CELL F30)	5.07%	\$10,592.88
E2 Tax Credits		
TOTAL SALES TAX:		\$10,592.88
G. Approved Allowance		
G1 Allowance: Owner's Allowance		\$20,000.00
TOTAL ALLOWANCE:		\$20,000.00
<i>TOTAL GMP:</i>		\$239,525.46

Establishment of Values:

- a. Direct Costs to be submitted with GMP Proposal.
- b. General Conditions Cost (B) to be established in Baseline Cost Model.
- c. CM@Risk Fee as set forth in Section 3.7.3 of this Contract
- g. Allowances will be calculated with additional costs as needed.

Formulas Used in Calculations

Subtotal 1 = A + B

CM@Risk Fee (C) = C Percentage x Subtotal 1

Subtotal 2 = C + Subtotal 1

Bond & Insurance Allowances - D Percentages x Subtotal 2

Subtotal 3 = D + Subtotal 2

Sales Tax (E1) = (65% of current Chandler Tax Rate) x Subtotal 3

Total GMP Proposal = Subtotal 3 + E + G

60% Cost Model Dobson Road Improvements: Intel Driveways #1 and #4**60% Cost Model Assumptions and Clarifications**

The Total 60% GMP Material Procurement is \$ 239,525.46 per the schedule of values.

- The *60% Cost Model* is based on the following:
 - o Dobson Road Improvements Intel Driveways #1 & #4 ST2009.201 Plans Dated 05/31/21 as prepared by Olson-Premier Engineering Corporation.
 - o Geotechnical Evaluation Dated 05/31/21 prepared by Olson-Premier.
 - o Technical Specifications Dated 05/21 prepared by Olson-Premier, EPG, & Lee Engineering.
- GMP for material procurement allows long lead items as listed in the schedule of values to be ordered upon approved submittals.

Allowance/Contingency items include the following.

- 800.00011 Allowance: Material Increases – This allowance is to provide a funding source for any materials market cost increases during the project. Any material increases from January 20, 2022 to date of material delivery will be included as a cost billed against this allowance.

Dobson Road Improvements: Intel Driveway #4

ST2009.401

1/21/2022

**BID SCHEDULE (60%)**

ITEM NO.	BID ITEM	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT
Construction Items					Total	\$183,941.71
1	473.73000	Pedestrian Push Button With Sign	EA	6	\$300.00	\$1,800.00
2	473.80400	Video Image Detection System, 4 Approaches	LS	1	\$42,000.00	\$42,000.00
3	474.60110	Type A Signal Pole 10 Ft	EA	2	\$896.09	\$1,792.18
4	474.60500	Type Q Signal Pole	EA	1	\$6,549.13	\$6,549.13
5	474.60730	Type R Signal Pole	EA	3	\$7,916.09	\$23,748.27
6	474.70200	20 Ft Mast Arm (Tapered)	EA	4	\$1,194.78	\$4,779.12
7	474.70300	30 Ft Mast Arm (Tapered)	EA	1	\$2,234.35	\$2,234.35
8	474.70500	50 Ft Mast Arm (Tapered)	EA	1	\$4,160.87	\$4,160.87
9	474.70550	55 Ft Mast Arm (Tapered)	EA	2	\$5,890.44	\$11,780.88
10	474.80001	Streetlight Pole SI-1 With Single Davit Arm	EA	1	\$2,508.26	\$2,508.26
11	475.61400	Meter Pedestal Cabinet	EA	1	\$2,277.60	\$2,277.60
12	475.62000	Controller Cabinet (Type IV)	EA	1	\$32,085.00	\$32,085.00
13	475.83010	Opticom Pre-Emption Unit	EA	1	\$7,800.00	\$7,800.00
14	476.02010	Traffic Signal Face (Type F) (LED)	EA	12	\$361.20	\$4,334.40
15	476.12000	Traffic Signal Face (Pedestrian) (Man/Hand) (LED)	EA	6	\$270.00	\$1,620.00
16	476.63000	Signal Mounting Assembly (Type II)	EA	8	\$93.60	\$748.80
17	476.63001	Signal Mounting Assembly (Type IV)	EA	2	\$402.00	\$804.00
18	476.63002	Signal Mounting Assembly (Type V)	EA	4	\$360.00	\$1,440.00
19	476.63003	Signal Mounting Assembly (Type VII)	EA	2	\$410.40	\$820.80
20	477.82000	LED Streetlight Luminaire	EA	5	\$358.17	\$1,790.85
21	483.00011	CCTV Camera And Field Equipment	EA	1	\$2,526.00	\$2,526.00
22	486.20000	Wireless Access System	LS	1	\$2,658.00	\$2,658.00
23	487.00000	Sign Assembly (IISNS)	EA	4	\$5,920.80	\$23,683.20
Allowance Items					Total	\$20,000.00
24	800.00011	Allowance: Material Increases	ALLOW	1	\$20,000.00	\$20,000.00

Total Traffic Signal Cost, Without Allowance Items \$183,941.71

Grand Total, Including Allowance Items \$203,941.71

REQUEST FOR QUOTATION

Job: 20319 60% Dobson Rd Improvements/Intel Driveways 1 & 4 CMAR

TO:

FROM:

Name: Brian Kimbrell
Company: Kimbrell Electric, Inc.
7593 N. 73rd Dr.
Glendale, AZ 85303

Phone: 602-265-2111
Mobile Phone:
Fax: 623-931-9963
Email: briank@kimbrellelectric.com

Name: Jose Ojeda
Company: DCS Contracting, Inc.
11525 E. Germann Rd.
Chandler, AZ 85286

Phone: 480-732-9238 x123
Mobile Phone: 602-653-5444
Fax: 480-732-9239
Email: Jose.Ojeda@DCSContracting.com

Job Information:

20319

60% Dobson Rd Improvements/Intel Driveways 1 & 4 CMAR

Owner:	
Job Type:	Public
Job Location:	Intel Ocotillo Campus
City:	Chandler
County:	Maricopa
State / Province:	Arizona
Country:	United States
Bid Location:	
Bid Date:	
Bid Time:	
Measurement System:	English

Request for Quote (RFQ) Information:

Publication Date: 12/08/2021 01:34:39 PM

Response Deadline Date: 12/22/2021 12:00:00 AM

Description: 3151 Electrical

RFQ Instructions: This is a CM@R Project.

Please provide a Quote by 12/22/2021 end of day for Street Lights and Traffic Signals 60% plans and specs scope.

Plans and Specs can be accessed via the share site link provided below.

<https://www.dropbox.com/sh/6u2gf4uycuiaIt0/AADZQ4WvHw6n0p34lVWpWnwKa/Bidding%20Projects/20319%20Dobson%20>

Buyer's Special Terms & Conditions:

Please provide resumes of the key team members, include Project Manager, Superintendents and Foreman.
As well as a written statement of manpower and crew availability for this project.

Subcontractors are required to provide material quotes for Traffic Signal & Street Light Equipment as backup incase of a material increase.
With any major lead times included.

All documents requested are to be included in the quote submittal in order for proposal to be considered.

Project will be built in two phases.

Phase 1 will consist of Driveway #1 reconstruction beginning in April 2022 and finishing June 2022.

Phase 2 will consist of Driveway #4 reconstruction beginning in September 2022 and completing in March 2023.

Notes: None Specified

Note to Seller:

RESPONSE TO REQUEST FOR QUOTATION

Job: 20319 60% Dobson Rd Improvements/Intel Driveways 1 & 4 CMAR

SUBMITTED TO:

SUBMITTED BY:

Name: Jose Ojeda
Company: DCS Contracting, Inc.
 11525 E. Germann Rd.
 Chandler, AZ 85286

Phone: 480-732-9238 x123
Mobile Phone: 602-653-5444
Fax: 480-732-9239
Email: Jose.Ojeda@DCSContracting.com

Name: Brian Kimbrell
Company: Kimbrell Electric, Inc.
 7593 N. 73rd Dr.
 Glendale, AZ 85303

Phone: 602-265-2111
Mobile Phone:
Fax: 623-931-9963
Email: brian.k@kimbrellelectric.com

Items: GMP Material Procurement Cost Only

Code	Description	Quantity	Unit of Measure	Unit Price	Total Price	Tax Rate	Grand Total	Will Split
109.09000	Sub Mobilization Electrical - (Intel Driveway #1)	1.00	EA					
470.00002	Modify Traffic Signal - (Intel Driveway #1)	1.00	LS					
109.09000	Sub Mobilization Electrical - (Intel Driveway #4)	1.00	EA					
470.00001	Remove And Salvage Traffic Signal - (Intel Driveway #4)	1.00	LS					
470.00080	Remove Light Pole Foundations And Salvage Streetlight Poles/Equipment - (Intel Driveway #4)	4.00	EA					
471.60041	SRP Lighting Pull Box (Contractor Supplied & Installed) - (Intel Driveway #4)	1.00	EA					
471.60047	No. 7 Pull Box - (Intel Driveway #4)	3.00	EA					
471.60057	No. 7 Pull Box With Extension - (Intel Driveway #4)	1.00	EA					
471.61001	Sch. 40 Pvc Electrical Conduit, 1 In - (Intel Driveway #4)	10.00	LF					
471.61210	Sch. 40 Pvc Electrical Conduit, 2 In - (Intel Driveway #4)	20.00	LF					
471.61211	Sch. 40 Pvc Electrical Conduit, 2 1/2 In (Streetlighting Per SRP Plans) - (Intel Driveway #4)	10.00	LF					
471.61312	Sch. 40 Pvc Electrical Conduit, 3 In - (Intel Driveway #4)	50.00	LF					
471.61412	Sch. 40 Pvc Electrical Conduit, 4 In - (Intel Driveway #4)	475.00	LF					
472.61100	Pole Foundation, Type A - (Intel Driveway #4)	2.00	EA					
472.61300	Pole Foundation, Type Q - (Intel Driveway #4)	1.00	EA					
472.61400	Pole Foundation, Type R - (Intel Driveway #4)	3.00	EA					
473.73000	Pedestrian Push Button With Sign - (Intel Driveway #4)	6.00	EA	300.00	1,800.00			

473.80400	Video Image Detection System, 4 Approaches - (Intel Driveway #4)	1.00	LS	42,000.00	42,000.00			
474.60110	Type A Signal Pole 10 Ft - (Intel Driveway #4)	2.00	EA	896.09	1,792.18			
474.60500	Type Q Signal Pole - (Intel Driveway #4)	1.00	EA	6,549.13	6,549.13			
474.60730	Type R Signal Pole - (Intel Driveway #4)	3.00	EA	7,916.09	23,748.27			
474.70200	20 Ft Mast Arm (Tapered) - (Intel Driveway #4)	4.00	EA	1,194.78	4,779.12			
474.70300	30 Ft Mast Arm (Tapered) - (Intel Driveway #4)	1.00	EA	2,234.35	2,234.35			
474.70500	50 Ft Mast Arm (Tapered) - (Intel Driveway #4)	1.00	EA	4,160.87	4,160.87			
474.70550	55 Ft Mast Arm (Tapered) - (Intel Driveway #4)	2.00	EA	5,890.44	11,780.88			
474.80000	Pole Foundation For SL-1 Pole - (Intel Driveway #4)	1.00	EA					
474.80001	Streetlight Pole SL-1 With Single Davit Arm - (Intel Driveway #4)	1.00	EA	2,508.26	2,508.26			
475.61400	Meter Pedestal Cabinet - (Intel Driveway #4)	1.00	EA	2,277.60	2,277.60			
475.62000	Controller Cabinet (Type IV) - (Intel Driveway #4)	1.00	EA	32,085.00	32,085.00			
475.83010	Opticom Pre-Emption Unit - (Intel Driveway #4)	1.00	EA	7,800.00	7,800.00			
476.02010	Traffic Signal Face (Type F) (LED) - (Intel Driveway #4)	12 ~~6.00~~	EA	361.20	~~2,167.20~~	\$4,334.40		
476.12000	Traffic Signal Face (Pedestrian) (Man/Hand) (LED) - (Intel Driveway #4)	6 ~~12.00~~	EA	270.00	~~3,240.00~~	\$1,620.00		
476.63000	Signal Mounting Assembly (Type II) - (Intel Driveway #4)	8.00	EA	93.60	748.80			
476.63001	Signal Mounting Assembly (Type IV) - (Intel Driveway #4)	2.00	EA	402.00	804.00			
476.63002	Signal Mounting Assembly (Type V) - (Intel Driveway #4)	4.00	EA	360.00	1,440.00			
476.63003	Signal Mounting Assembly (Type VII) - (Intel Driveway #4)	2.00	EA	410.40	820.80			
477.82000	LED Streetlight Luminaire - (Intel Driveway #4)	5.00	EA	358.17	1,790.85			
478.01000	Conductors - (Intel Driveway #4)	1.00	LS					
483.00011	CCTV Camera And Field Equipment - (Intel Driveway #4)	1.00	EA	2,526.00	2,526.00			
486.20000	Wireless Access System - (Intel Driveway #4)	1.00	LS	2,658.00	2,658.00			
487.00000	Sign Assembly (IISNS) - (Intel Driveway #4)	4 ~~2.00~~	EA	~~11,841.60~~	23,683.20			

\$5,920.80

Notes:

Material Procurement GMP #1

Quoted Prices Submitted By:

Title:

Date:

Time:

EXHIBIT E



DOBSON ROAD IMPROVEMENTS AT INTEL DRIVEWAYS #1 AND #4 Project No. ST2009.401

SUBCONTRACTOR'S LIST FORM

If CM@Risk intends to subcontract any portion of this contract, the CM@Risk must submit the name, address, and contractor's license number (if applicable) of each subcontractor, including the work component of such subcontracting. Include the form with the bid submittal documents. CM@Risk may make multiple copies of this form as needed.

Company Name:	
Contact Name:	
Contact Email:	
Contact Phone:	
Work Component:	
Percentage of Total Work Performed:	

Company Name:	
Contact Name:	
Contact Email:	
Contact Phone:	
Work Component:	
Percentage of Total Work Performed:	

Company Name:	
Contact Name:	
Contact Email:	
Contact Phone:	
Work Component:	
Percentage of Total Work Performed:	

Company Name:	
Contact Name:	
Contact Email:	
Contact Phone:	
Work Component:	
Percentage of Total Work Performed:	

Company Name:	
Contact Name:	
Contact Email:	
Contact Phone:	
Work Component:	
Percentage of Total Work Performed:	

Company Name:	
Contact Name:	
Contact Email:	
Contact Phone:	
Work Component:	
Percentage of Total Work Performed:	

EXHIBIT F
GIS / GPS DATA DELIVERY REQUIREMENTS

N/A