

EXHIBIT A

CITY OF FLAGSTAFF WATER SERVICES DEPARTMENT

WILDCAT HILL WATER RECLAMATION PLANT (WHWRP) DIGESTER COMPLEX

DESIGN AND BID PHASE SERVICES

CITY PROJECT NO. 03-21005 FINAL SCOPE OF SERVICES

AUGUST 22, 2022

The following Scope of Services describes the professional services to be performed by Carollo Engineers, Inc. (hereinafter referred to as the “DESIGN CONSULTANT”) associated with the City of Flagstaff Wildcat Hill Water Reclamation Plant (WHWRP) Digester Complex Design Services Project (hereinafter referred to as the “Project”), as approved and executed by the City of Flagstaff (hereinafter referred to as the “CITY”).

This Scope of Services is specific to the Preliminary Design, Detailed Design, and Bid Phase Services associated with the Project.

PURPOSE

The purpose of this **EXHIBIT A** is to define the Project Understanding, Project Assumptions, Scope of Services, Time of Performance, and Payment terms for the Project.

PROJECT UNDERSTANDING

The existing WHWRP digestion system lacks both redundancy and adequate capacity to stabilize the CITY’s projected sludge production. Both existing digesters need to be in service to meet minimum hydraulic retention time (HRT) of 15 days for Class B biosolids stabilization, which is required for disposal at the WHWRP dedicated land disposal site (DLD). The result is limited to no operational flexibility with downtime for digester cleaning or proactive O&M efforts.

The Project will be designed and constructed in parallel with the Rio de Flag Water Reclamation Plant (RDFWRP) Digester Project (by Others) and is anticipated to include planning, design, bidding and construction of one (1) new conventional mesophilic anaerobic digester (CMAD), a new central Digester Control Building, and supporting facilities and appurtenances (for pumping, heating, and mixing) to address the CITY’s needs for additional solids treatment and stabilization capacity. Provisions for connections to the existing thickening process (thickened sludge pumps) and grease systems will be included. Provisions for PONDUS thermal hydrolysis process (THP) will be evaluated and may be included.

The Project will also include select rehabilitation and replacement of assets associated with the existing digestion system at WHWRP.

This Project will be the initial phase for implementing the recommended biosolids management strategies from the approved Wastewater Biosolids Management Plan (BMP) (Carollo, 2019), including an ultimate digester complex configuration along with provisions for alignment with future mechanical dewatering and solar drying facilities.

PROJECT ASSUMPTIONS

1. This project is for the Preliminary Design, Detailed Design, and Bid Phase Services associated with one (1) new digester for the new Digester Complex at the WHWRP and the rehabilitation design for the existing WHWRP digesters (*see Project Assumptions No. 4 below*). The first phase of the Digester Complex design also includes necessary appurtenances for a complete and functional operating facility.
2. Per the concepts defined in the 2019 Wastewater Biosolids Master Plan (BMP), the following “boundary conditions” are carried forward:
 - The new digester will be conventional mesophilic anaerobic digestion (CMAD) technology to reliably produce Class B biosolids.
 - The new digester will be heated with steam injection and designed with a foam handling system.
 - A preliminary load calculation will be performed on Service Entrance Sections SES-1 and SES-2. If adequate capacity is available, the existing digester complex and the new digester complex will be fed power from the existing SES’s.
 - Thickened sludge will be delivered to the digesters via the existing sludge thickening systems. However, DESIGN CONSULTANT will evaluate the capacity of the existing thickening system and make recommendations for additional infrastructure, if required.
 - Design digester gas scrubbing and compression systems to deliver gas to the existing gas handling systems, which are assumed to have sufficient capacity. However, DESIGN CONSULTANT will evaluate anticipated gas production and gas quality, as well as overall gas management strategies.
 - An evaluation of a PONDUS sludge conditioning process includes mixing thickened waste activated sludge (TWAS) with caustic soda, heated in a loop with a high efficiency heat exchanger, fed into a new PONDUS THP system to go through hydrolysis and volume reduction, and the thickened primary sludge (PS) and hydrolyzed TWAS will be mixed and fed into the new digester. Should the PONDUS system be determined to be feasible and cost-effective for incorporation into this Project, the associated detailed design effort for incorporating the PONDUS system shall be handled through an allocated Allowance (per Task 8.3 herein).
3. All equipment and technology evaluations and recommendations will be conducted by the CITY and Others, as a part of the parallel RDFWRP Digester Project. All approved equipment/technology selections and costs will be supplied by the CITY and will be incorporated into this Project’s design effort. Additional evaluation of equipment/technology, and/or additional time associated with equipment selection is not anticipated with this Scope of Services. If the CITY expresses the need for additional equipment or technology evaluation by DESIGN CONSULTANT, the additional effort will be handled under Supplemental Services accordingly.
4. A field condition assessment of the existing digesters, including preliminary evaluation of the digester lids, exterior walls, control room piping and pumping equipment, grease receiving station, solids thickening system, and the hot water boiler were performed as part of the 2019 Wastewater BMP. The recommendations for improvements from the BMP form the basis of the design of the rehabilitation of the existing digesters (and supporting equipment) included as part of this Project. A summary of the rehabilitation recommendations will be submitted to the CITY and compiled for the design of the existing digester rehabilitation

under this Project. The existing digester rehabilitation will occur once the new digester comes online, and the existing digesters can be taken offline (one at a time).

5. The WHWRP Digester Complex Project will not increase the current rated liquids treatment capacity of the WHWRP; however, the solids loading projections will be updated to current flow and load data. New population, flow and load projections will not be developed.
6. Project is anticipated to be procured using the Design-Bid-Build (DBB) project delivery method.
7. All project deliverables will be electronic, unless otherwise required for Agency Review Submittals.
8. Detailed Design and Bid Phase Services are targeted to be completed in February 2024, based on an anticipated 16-month design and bidding schedule and October 2022 Notice-to-Proceed (NTP) date.
9. Subsequent Construction Administration and Inspection, Testing Phase Services, Start-up and Commissioning, and Post-Construction (i.e., Warranty) Services, which may include office-related engineering services during construction (ESDC) as well as field-related construction administration and inspection (CA&I) efforts, are not a part of this Scope of Services and may be handled under a separate Task Order(s), if desired by the CITY.
10. The design efforts will be completed in a hybrid 2D/3D environment to enhance visualization and minimize potential conflicts (i.e., clash detection) during design for new facilities but will exclude 3D development of existing facilities that are not significantly impacted as part of the WHWRP Digester Complex design. As such, the 3D models will essentially be limited to new facilities only (defined further herein).
11. Applicable codes and standards will apply only to new buildings, structures, and associated facilities, as well as expansions and major modifications to existing buildings and structures. Existing buildings, structures, and facilities shall not be subject to revised codes or standards compliance. Detailed Design will be based on the applicable codes and standards as adopted by the City of Flagstaff at the time of the 30% Preliminary Design Review Submittal.
12. Potholing of existing underground facilities and utilities required for design and/or construction shall be performed by a subconsultant to the DESIGN CONSULTANT.
13. *Project Deliverables.* DESIGN CONSULTANT will produce and submit draft and final reports/memoranda in electronic format for review by the CITY and Flagstaff Water Commission (WATER COMMISSION) throughout the Project, as identified herein. Electronic copies of the various deliverables will generally be provided in PDF format and in native file format (i.e., MS Word, MS Excel, etc.). CITY shall agree to review draft Project deliverables and provide comments to DESIGN CONSULTANT in a timely manner (i.e., two (2) weeks for conceptual design deliverables). To the greatest extent possible, review of draft deliverables in a collaborative workshop setting to obtain comments from CITY will be followed to reduce overall review time and streamline project schedule.
14. *City Responsibilities.* CITY shall perform / complete the responsibilities as identified in **EXHIBIT A-1 – CITY RESPONSIBILITIES**. These items shall be provided in a timely manner as required to meet and maintain the Project schedule.
15. *Supplemental Services.* As directed by the CITY, DESIGN PROFESSIONAL will provide services as defined in **EXHIBIT A-2 – SUPPLEMENTAL SERVICES**. Supplemental Services will be provided by DESIGN PROFESSIONAL for additional compensation as

agreed to by CITY and DESIGN PROFESSIONAL and are anticipated to be handled through an Amendment or other funds as appropriate.

16. *Opinion of Probable Construction Cost.* Since the DESIGN CONSULTANT has no control over the cost of labor, materials, or equipment, over the Contractor's method for determining prices, or over competitive bidding or market conditions, any opinions of probable project cost provided as part of this scope are to be made based on DESIGN CONSULTANT's experience and qualifications. These opinions represent DESIGN CONSULTANT best judgment as an experienced and qualified professional engineer. However, the DESIGN CONSULTANT cannot and does not guarantee that actual project cost will not vary from opinions of cost prepared by DESIGN CONSULTANT.
17. *Third Parties.* The services to be performed by the DESIGN CONSULTANT are intended solely for the benefit of the CITY. No person or entity not a signatory to the Contract shall be entitled to rely on the DESIGN CONSULTANT's performance of its services hereunder, and no right to assert a claim against the DESIGN CONSULTANT by assignment of indemnity rights or otherwise shall accrue to a third party as a result of the Contract or the performance of the DESIGN CONSULTANT's services hereunder.
18. *Standard of Care:* DESIGN CONSULTANT will be responsible to the level of competency and standard of care presently maintained by other practicing Professional Engineers performing the same or similar type work at the time NTP is issued. DESIGN CONSULTANT and CITY mutually agree that standard of care, as applied to design professional, shall be defined as the ordinary and reasonable care required and established by expert testimony of what a reasonable and prudent professional would have done under the same or similar circumstances.

GENERAL SCOPE OF PROJECT

The first phase of the overall WHWRP Digester Complex will be comprised of one (1) circular, above-ground, reinforced concrete, anaerobic digester approximately 60-feet in diameter and 0.524 million gallons in volume. The ultimate new digester complex configuration is undetermined at this but will be assumed as a quad arrangement for facility expansion planning purposes. The design and permitting of the WHWRP Digester Complex will include the following major components and elements:

- New Digester Complex Building (DCB), potentially with a new Electrical Building, and other associated appurtenances, to support the capacity of the new WHWRP digester facilities and connect to the existing digester and cogeneration facilities, as applicable.
- New digester feed pumps, new digested sludge transfer pumps (located north near the existing thickeners) and new digested sludge transfer pumps to transfer sludge to the SSBs/geotube bags and other associated appurtenances. NOTE: CITY wants to forego the use of subsurface tunnels for infrastructure placement.
- Evaluation and cost-to-benefit analysis of the PONDUS thermal hydrolysis process (THP) sludge conditioning [volume reduction] system, recommendation to the CITY for acceptance/rejection, and if accepted, the design of a new PONDUS THP for sludge volume reduction.
- New sludge heating systems, glass-lined ductile iron sludge piping, and miscellaneous support facilities.
- New digester mixing systems and new digester foam handling system.

- Heat the new digesters by steam injection, electrical or natural gas heating units to heat the DCB, and associated appurtenances, new waste gas flare, gas scrubbing and compression systems, and operational connection to the existing cogeneration system and waste gas flares.
- Miscellaneous modifications and additions to site/civil elements, including but not necessarily limited to plant paving and grading, yard piping, site utilities, and plant drainage system, as applicable for a fully functioning digester complex facility.
- Miscellaneous electrical, instrumentation and controls (EI&C) elements, including but not necessarily limited to electrical switchgear, transformers, motor control centers (MCCs), motors and variable frequency drives (VFDs), electrical ductbanks and manholes, standby generators, programmable logic controllers (PLCs), panels, fiber optic cabling, as applicable for a fully functioning new digester complex facility.
- Select rehabilitation and replacement of assets associated with the existing digestion system at WHWRP.

SCOPE OF SERVICES

The Scope of Services for the Digester Complex design is based on the following major Work Breakdown Structure (WBS) elements:

- Task 1 – Project Management
- Task 2 – Preliminary Design
- Task 3 – Detailed Design
- Task 4 – Quality Management
- Task 5 – Permitting Assistance
- Task 6 – Bid Phase Services
- Task 7 – Allowances
- *Future Task – Construction Phase Services (Not Included)*
- *Future Task – Post-Construction Phase Services (Not Included)*

Specific efforts to be completed for the tasks (and sub-tasks) and the associated deliverables are defined further herein.

TASK 1 – PROJECT MANAGEMENT

DESIGN CONSULTANT will perform general project and quality management activities throughout the 16-month Project design and bid phase period, as delineated in the following sub-tasks.

1.1 – Project Control and Reporting

Develop monthly progress reports and invoices and submit to the CITY Project Manager that identifies the following:

- Work completed since the previous report.
- Work anticipated in the upcoming month.

- Project status, including scheduled and actual percent complete for the major tasks.
- Budget status, including contracted amount, total spent to date, amount remaining, percent spent and actual percent complete.
- Schedule status, including variances in the project schedule by milestone and/or deliverable, and total project.
- Dates of anticipated milestones and/or deliverables in the upcoming month.
- List of coordination and/or information required, including responsible parties.
- List of problems encountered (if any) and proposed resolution, including technical, budgetary and schedule problems.
- List of potential scope changes, including a brief description and reason for change, along with potential impact on budget and schedule.
- List of issues needing resolution, including party(s) involved and date required so as not to impact project schedule.

In addition to monthly status updates, DESIGN CONSULTANT will develop and maintain Project logs documenting key decisions and action items throughout the Project duration.

DELIVERABLES (PDF only): Monthly Progress Reports & Invoices; Decision Log; Action Log

1.2 – Project Meetings

Facilitate meetings as described below. Prepare and distribute agendas and minutes for each meeting. Final agendas will be submitted to the CITY at least one (1) day prior to the meeting. Minutes will be submitted to the CITY no more than seven (7) working days following each meeting and will summarize decisions and action items.

1.2.1 – Design Phase Kickoff Meeting

Conduct a Project kickoff meeting approximately two (2) weeks following receipt of written NTP from the CITY. Meeting objectives will be to review the various draft submittals; confirm lines of communication; coordinate the schedule of monthly Project meetings anticipated throughout the duration of the Project.

DELIVERABLES (PDF only): Meeting Agenda & Notes

1.2.2 – Monthly Project Meetings

Conduct twelve (12) virtual monthly project meetings to keep the CITY and key Project stakeholders informed of the Project progress and obtain input and direction as required. Assume one (1) virtual meeting will include coordination with Brown and Caldwell staff regarding existing cogeneration facilities. This task includes a virtual Basis of Design Report (BDR) Review Workshop.

DELIVERABLES (PDF only): Meeting Agendas & Notes

1.2.3 – Submittal Review Workshops

Conduct the following submittal review workshops following the various interim milestone review submittals. CITY shall participate in the workshops and provide review comments at that time. Following each review workshop, DESIGN CONSULTANT will compile all comments into a “Comments/Response Log” for review by the CITY.

- 30 Percent Submittal Review Workshop – Conduct a one-day (1 day) submittal review workshop approximately two (2) weeks following the 30 percent design submittal to CITY.
- 60 Percent Submittal Review Workshop – Conduct a one-day (1 day) submittal review workshop approximately two (2) weeks following the 60 percent design submittal to CITY. The second half of the workshop is anticipated to focus specifically on EI&C/Process Controls coordination.
- 90 Percent Submittal Review Workshop – Conduct a one-day (1 day) submittal review workshop approximately two (2) weeks following the 90 percent design submittal to CITY. The second half of the workshop is anticipated to focus specifically on EI&C/Process Controls coordination.

DELIVERABLES (PDF only): Comments & Response Logs

1.3 – Flagstaff Water Commission (FWC) and City Council Meetings

The Flagstaff Water Commission (FWC) and City Council meeting efforts are intended to aid the project team in their communication with the City Council throughout the duration of the Project. It is the intention of the meetings to keep City Council informed of proposed changes to the site, consider comments from and listen to potentially affected interests, and work with the project team to make sure that alternatives are developed which consider the feedback obtained from the FWC and Council.

With assistance of CITY, conduct two (2) meetings with the FWC and one (1) meeting with City Council to provide updates on the proposed Digester Complex facility elements, including a presentation of 3D architectural renderings of proposed facilities. Meetings will be conducted at the Flagstaff City Hall and are anticipated to occur near the end of the 30% Preliminary and 90% Detailed Design (FWC only) and Final Design (City Council only) Phases.

DELIVERABLES (PDF only): Meeting Presentations

1.4 – Project Schedule

Develop a baseline project schedule, including anticipated design and bid phase services (16 months), and construction (18 months for new digester and 12 months for existing digester rehabilitation) activities. The initial project schedule will be developed in MS Project format. Each activity of the scope of services herein, including the various deliverables, meetings, and workshops, will be incorporated into the work breakdown structure (WBS) of the schedule. Project timelines, along with identification of task inter-relationships, will be provided in a Gantt format. Project schedule will be updated as needed throughout the Design and Bid Phases.

DELIVERABLES (PDF only): Baseline Project Schedule and Schedule

1.5 – Subconsultant Management

Prepare and coordinate Subconsultant agreement(s) required for the Project and manage and coordinate the work of its Subconsultant(s) throughout the duration of the Project.

TASK 2 – PRELIMINARY DESIGN

PURPOSE: The overall focus of the Preliminary Design Phase is to develop design concepts, facilitate decisions by consensus with the CITY, and develop the applicable unit process and discipline design criteria and site development requirements for subsequent detailed design phase services. Preliminary Design will be developed to an approximate 30% level of completeness.

DESIGN CONSULTANT will develop the necessary facilities, utilities, and on-site infrastructure to accommodate the necessary improvements at the WHWRP site. Provisions will include preliminary sizing, layouts, connections, corridors, and other general requirements, and will be incorporated into design criteria, technical memoranda, preliminary layouts, and other preliminary design elements as appropriate and as defined herein, and document in a Basis of Design Report (BDR). The CITY will provide an approved equipment list for the principal digester and digester complex facilities, including equipment costs.

The following tasks describe the specific efforts associated with the Preliminary Design Phase of the Project.

NOTE: All draft technical memoranda (TMs) developed as part of Task 2 as identified herein will be finalized as part of the Basis of Design Report (included as appendices to BDR).

2.1 – Solids Loading Assessment

Compile, review, characterize and summarize the anticipated primary sludge (PS) and secondary waste activated sludge (WAS) quantities and associated mass balance for current and future WHWRP and RDFWRP capacities. Solids loadings will be updated to current flow and load data, without developing new population, flow and load projections.

Evaluate grease loadings on the digesters, based on the results of laboratory testing to be performed by the CITY.

Evaluate capacity of existing sludge thickening systems and provide recommendations for system expansion and/or rehabilitation to support the proposed new Digester Complex, if appropriate.

Determine the capacity and heating requirements for the potential new PONDUS THP system.

Estimate the anticipated digester gas production quantity based on anaerobic digestion of thickened PS and thickened WAS. Gas production will be estimated at current and design flows and loads. Digester gas quantity to be sent to the existing cogeneration facilities and natural gas required for building heating will be estimated based on use of the boilers and digester heating systems being installed. Available excess digester gas, after cogeneration use is accounted for, will also be projected.

Determine the estimated quality of biogas produced (i.e., content of CH₄, CO₂, H₂S, siloxanes and others), including review of historical data and/or any supplemental sampling to be performed by the CITY.

Evaluate digester gas management strategies (i.e., biogas scrubbing, biogas compression, etc.) beyond connection to existing cogeneration facility and flares.

Develop draft technical memorandum summarizing the solids loading assessment. Submit draft technical memorandum for CITY review and comment.

DELIVERABLES (PDF only): TM-1 – Solids Loading Assessment (see Task 2.10)

2.2 – New Digestion Facilities Assessment

Review the approved digester equipment and treatment process technology list supplied by the CITY and develop digester complex layouts and applicable design criteria for the WHWRP digester facility and digestion system, based on the information provided.

Evaluate the potential inclusion of the PONDUS sludge conditioning process, which includes mixing thickened waste activated sludge (TWAS) with caustic soda, heating in a loop with a high efficiency heat exchanger, feeding into a new PONDUS THP system to go through hydrolysis and volume reduction, and mixing and feeding the thickened primary sludge (PS) and hydrolyzed TWAS into the new digester.

Develop preliminary process flow schematics for the approved digester equipment and technology and evaluate for connection to the existing WHWRP CMAD digestion system. Review applicable information from the RDFWRP Digester Project (by CITY and Others) on each treatment technology with respect to economic (capital and operational, including life-cycle cost analyses) and non-economic factors, including compatibility and interaction with Project elements (assumed no future phasing), and summarize the pros and cons associated with the CITY-supplied technology and equipment list.

Develop recommended equipment arrangement and unit process design criteria, based on the approved technologies and equipment. Develop a proposed overall site layout, including existing infrastructure and proposed corridors for new utilities, yard piping and associated construction requirements.

Develop a draft TM summarizing the Digestion Facilities and selected design criteria. Submit draft technical memorandum for CITY review and comment. Incorporate final version of the TM into the BDR.

DELIVERABLES (PDF only): TM-2 – New Digestion Facilities Assessment (see Task 2.10)

2.3 – Support Facilities and Utilities Assessment

In conjunction with the solids loading assessment, review the existing support facilities and utilities and identify applicable needs and updates.

Evaluate requirements, including space needs assessments and occupancy classifications, and identify additional facilities and/or facility expansions that may be required.

Evaluate chemical storage and feed facilities requirements and identify additional facilities that may be required. Summarize chemical storage and feed facilities requirements for the WHWRP.

Evaluate existing site, utilities, and associated support systems and identify additional system components and/or system expansions or upgrades that may be required, including:

- Site paving and grading
- Site yard piping
- Plant drain system

- Potable water
- Plant (non-potable) water (for seal water)
- Compressed and instrument air
- Natural gas

Develop draft technical memorandum summarizing the support facilities and utilities assessment. Submit draft technical memorandum for CITY review and comment.

DELIVERABLES (PDF only): TM-3 – Support Facilities and Utilities Assessment (see Task 2.10)

2.4 – Electrical System Strategies

A preliminary load calculation will be performed on Service Entrance Sections SES-1 and SES-2. If adequate capacity is available, the existing digester complex and the new digester complex will be fed power from the existing SES's.

The capacity of the existing standby generator for SES-2 will be assumed adequate for standby power for the existing digestion facilities.

. In addition, load calculations will be developed to determine the size of the new standby diesel (or gas) generator. The following equipment will be identified and sized, with their preliminary ratings:

- Automatic Transfer switch
- Main Power Distribution Switchgear
- Motor Control Center(s)
- Power distribution Panel(s)
- Stepdown Transformer(s)
- Panelboards
- Variable Frequency Drives
- Solid State Soft Starters

A very preliminary single line diagram will be developed for the equipment identified in the bullet points above and a list of preferred manufacturers will be developed based on the CITY's preferences.

The equipment listed above will be preliminarily sized, and a layout for the new electrical building will be developed. Hazardous areas and main ductbank routings be identified.

Items not specifically identified above are not included in this phase.

DELIVERABLES (PDF only): TM-4 – Electrical System Strategies (see Task 2.10)

- **Preliminary load calculation for the existing Service Entrance Sections**
- **Preliminary load calculation for a potential new Service Entrance Section SES-3**
- **Preliminary single line diagram for the new equipment**
- **Preliminary electrical building plan layout for the new equipment**
- **Preliminary electrical site plan layout for the new equipment**
- **List of preferred manufacturers**

2.5 – Instrumentation & Controls and SCADA System Strategies

Identify the instruments needed for the new digester Project such as:

- Level switches and transmitters
- Flow transmitters
- Temperature transmitters
- Pressure switches, gauges, and transmitters
- Analyzers and gas detectors

A list of preferred manufacturers will be developed based on the CITY's preferences.

Identify other I&C and SCADA-related components required for the Project, such as PLC devices, including PLC(s), communication switches, Ethernet switches, and fiber optic patch panels.

Determine the method of communication between the instruments and electronic equipment (i.e., VFDs) with the PLC: hardwire Input and Outputs or communication protocols such as Ethernet.

Identify the point of connection of the new PLC system to the existing PLC system.

DELIVERABLES (PDF only): TM-5 – I&C and SCADA Strategies (see Task 2.10)

- **Preliminary Network Diagram for the new PLC system as identified above**
- **Preliminary PLC cabinet location in the new electrical building**
- **List of preferred instrumentation manufacturers**

2.6 – Existing Digestion Facilities Rehabilitation and Replacement Assessment

A field condition assessment of the existing digesters, including preliminary evaluation of the digester lids, exterior walls, control room piping and pump equipment, grease receiving station, solids thickening system and the hot water boiler, was performed by DESIGN CONSULTANT as part of the 2019 Wastewater BMP. The development of improvement recommendations and design of the rehabilitation of the existing digesters (and supporting equipment) is included as part of this Project. A summary of the rehabilitation recommendations will be developed and used as the basis for the design for the existing digester improvements.

Develop draft technical memorandum summarizing the existing digester rehabilitation recommendations. Submit draft technical memorandum for CITY review and comment.

DELIVERABLES (PDF only): TM-6 – Existing Digestion Facilities Rehabilitation and Replacement Assessment (see Task 2.10)

2.7 – Geotechnical Investigation

Perform a preliminary geotechnical investigation of the WHWRP site in the proposed area of the new Digester Complex to assist with structural design criteria and foundation requirements. Based on the proposed location of the new Digester Complex and the historical use of this site, the geotechnical investigation will include the drilling and sampling of no more than four (4) test borings to determine subsoil conditions and provide samples for laboratory testing. Geotechnical investigation effort shall be completed by SUBCONSULTANT under the direction of DESIGN CONSULTANT.

Submit a Geotechnical Investigation Report to CITY for review. NOTE: Further coordination and consultation with geotechnical subconsultant during the subsequent preliminary and detailed design may be required.

DELIVERABLES (PDF only): Draft and Final Geotechnical Investigation

2.8 – Topographical Site Survey

A new topographical survey is required for accurate design drawing development and to confirm elements constructed since the most recent WHWRP Improvement project. The DESIGN CONSULTANT's surveyor will perform a site topographical survey in the area(s) of the Digester Complex to document the current conditions and surface features of the area proposed for the new facilities. The site survey will be based on City of Flagstaff datum and will include existing spot grades for use in developing new contours and identification of above-ground structures. Specific tasks include verification of the existing control points; set up to four (4) additional control points (northing, easting and elevation); verification of the elevation of the existing digester walls and overflow piping; verification of existing catch basin inlet and invert elevations and storm drain pipe inlet/outlet elevations; research existing easements and prepare a results of survey map indicating recorded easements and rights-of-way within and adjacent to the plant perimeter; and locate the adjacent site property line on the north and east sides of the WHWRP site. The survey will also include identification of staked geotechnical borings and horizontal grid development for design, as well as survey of existing utility and yard piping crossings and existing features to be potholed or uncovered by the CONTRACTOR.

2.9 – Drainage Report

A site Drainage Report will be required for permitting efforts. The DESIGN CONSULTANT will prepare a Drainage Report, including preliminary Grading and Drainage Plan in the area(s) of the proposed Digester Complex, to document the site drainage conditions, for review and approval by the City of Flagstaff Building Department as part of the associated permit application.

A draft Drainage Report will be submitted in conjunction with the 60 Percent Design Review submittal package. The final Drainage Report will be submitted to the CITY along with the Agency Review submittal.

DELIVERABLES (PDF only): Draft and Final Drainage Report

2.10 – Design Technical Memoranda

To advance the initial design concepts and strategies previously developed and summarized in the 2019 Wastewater BMP, and update/revise this summary information in the Project Technical Memoranda (TMs). Efforts will include the results of the selection of the applicable processes and technology types not previously selected or updated, and other key design decisions not previously made. The TMs will form the basis of the final BDR.

A total of six (6) TMs are anticipated, and are described as follows:

- TM-1 – Solids Loading Assessment/Planning
- TM-2 – New Digestion Facilities Assessment
- TM-3 – Support Facilities and Utilities Assessment
- TM-4 – Electrical System Strategies
- TM-5 – Instrumentation & Controls and SCADA System Strategies
- TM-6 – Existing Digestion Facilities Rehabilitation and Replacement Assessment

The TMs will generally be organized in the following format:

- Introduction
- Purpose and Objectives
- Supplemental Evaluations (as applicable)
- Design Criteria
- Regulatory Requirements
- Process and Equipment Evaluation
- Major Equipment List
- Preliminary Design Considerations
- Preliminary Process Flow Diagrams (PFDs)
- Appendices (as applicable)

Elements of the TMs will be presented and discussed during the monthly progress meetings throughout the duration of the preliminary design efforts, to solicit input and feedback from the CITY, plant personnel, and other key stakeholders.

The draft TMs will be submitted to CITY for review throughout the Preliminary Design Phase. Upon receipt of CITY comments, the final TMs will be included as part of the BDR (see Task 2.13).

DELIVERABLES (PDF only): Draft and Final Technical Memoranda

2.11 – Preliminary (30%) Design Review Submittal Package

The Preliminary (30%) Design review submittal is intended to expand the preliminary design concepts and strategies and present in 2D format, and 3D format for applicable facilities, to initiate the necessary administrative and regulatory permitting process. This submittal will be used to perform initial review and coordination with the internal CITY Departments and stakeholders.

The 30% design review submittal will consist of all project elements and not be separated for potential multiple bid packages. The 30% design review submittal will consist of the elements defined in Task 3 – Detailed Design, with a reduced level of detail as appropriate. The 30% design review submittal will generally consist of the following:

- General Drawings
- Civil Drawings
- Landscaping Drawings – None anticipated.
- Architectural Drawings
- Structural Drawings
- Process / Mechanical Drawings
- HVAC / Plumbing Drawings
- Electrical Drawings
- Instrumentation and Controls Drawings

- Technical Specifications – Develop a list [outline] of technical specifications expected for the Project. List of specifications will be arranged in tabular format by CSI Division utilizing the CSI MasterFormat (17-Division) structure.
- Typical Details – Develop a list [outline] of typical details expected for the Project. List of typical details will be arranged in tabular format by discipline.
- Equipment & Instrumentation List Tag Numbering – Summarize the CITY list of approved major equipment and instrumentation, in accordance with proposed tag numbering scheme.

DELIVERABLES (PDF only): Drawings, 3D PDFs (for appropriate facilities), Technical Specifications (list only), Typical Details (list only), and Equipment and Instrumentation List

2.12 – Preliminary Design (30%) Cost Estimate

Prepare an independent comparative cost estimate to support Project element inclusion and phasing decisions during the preliminary design. Cost estimate will be prepared to AACEI Level 4 standards. Cost estimate will include direct and indirect cost elements for a total construction cost of both the new digester and existing digester rehabilitation, as well as other Consultant and CITY project costs (e.g., detailed design, construction administration and inspection, startup and commissioning, warranty services, legal, administrative, etc.) for a Total Project Cost Estimate (TPCE) for CITY capital planning purposes.

DELIVERABLES (PDF only): Opinion of Probable Construction Cost and Total Project Cost Estimate

2.13 – Basis of Design Report (BDR)

The purpose of the BDR is to “lock down” key design decisions to transition into preliminary and detailed design accordingly and will be the basis for the preparation of subsequent detailed design plans and specifications.

Summarize and document the preliminary alternatives, equipment, schematics, layouts, and criteria developed and evaluated in previous tasks into an overall BDR for CITY review and approval, which will include the following elements:

- Executive summary that identifies the loading characteristics, performance targets, and other process design criteria.
- Process flow diagrams and schematics for the recommended digestion processes, including mass balance.
- Overall site layout depicting the recommended Digester Complex and supporting facilities.
- All layouts, schematics, and diagrams will be in 11-inch by 17-inch format suitable for inclusion into a bound report.
- Compilation of the anticipated preliminary design criteria for the recommended unit treatment processes and supporting facilities, compiled from the preliminary criteria developed under previous tasks. Criteria shall be in tabular format suitable for inclusion into a bound report.

- Inclusion of preliminary project schedule for design, permitting, early procurement strategies (if necessary), construction, start-up and commissioning.
- Inclusion of conceptual (Level 4) cost estimate.
- Incorporation of CITY comments on draft TMs prepared under previous tasks, to finalize accordingly, and include as appendices to BDR document.

Develop draft BDR, with updated technical memoranda. Facilitate a virtual (4-hr duration) BDR review workshop with CITY staff. Submit draft BDR for CITY review and comment, and then finalize accordingly.

DELIVERABLES (PDF only): Draft and Final BDR

TASK 3 – DETAILED DESIGN

DESIGN CONSULTANT will develop construction documents through a progressive detailed design effort that generally consists of the following efforts and tasks.

Detailed Design Efforts

DESIGN CONSULTANT will prepare detailed construction contract documents for the Project that will be used by the bidders to; bid and construct the project, develop a project schedule, equipment and subcontractor procurement; as well as by the regulatory agencies to issues applicable permits for the construction and operation of the Project.

The Detailed Design will consist of a multi-discipline design effort generally described by the following elements:

- General / Civil / Site Work – The general / civil design will include hydraulic analysis, development of plant layout and survey control in the area(s) of the digester complex, site drainage, paving and grading, and location of yard piping. Where necessary to define vertical alignment, yard piping profiles will be included for gravity pipelines and pressure pipes greater than 12 inches in diameter.
- Landscaping – No landscaping design (plantings or irrigation system) is anticipated.
- Architectural – The architectural design will include the development of basic building layouts, conformance to the existing overall site theme and site security requirements, and selection of building materials. A building code occupancy plan will also be developed. Building designs will include the new Digester Complex, Electrical Building, existing Solids Thickening Building modifications, and other miscellaneous support buildings. Conduct supplemental programming workshops with CITY representatives to identify building layout needs and requirements prior to development of layouts.
- Structural – The structural design will include the development of structural design criteria, selection of structural construction materials, design of foundations and foundation treatment, and design of the structural members for the various required facilities.
- Process / Mechanical – The process design will include development of the detailed control and operation schemes for the various processes and process units. The mechanical design will include determination of equipment performance and characteristics required, selection of mechanical equipment, location and arrangement of the equipment (with tag numbers) and associated piping, design of the equipment and the associated piping, and design of the supports for equipment and piping. Components of the required odor control systems, including foul air ventilation and treatment, will be included in the mechanical design.

Coordinate with CITY to develop schedules and typical details for supports of exposed process piping, foul air ductwork, and equipment. Supports will be shown on the design drawings as agreed to by DESIGN CONSULTANT and CITY. In general, tag numbers for all valves 4 inches or greater and any other actuated valves (electric or pneumatic) will be included on mechanical drawings.

- HVAC / Plumbing / Fire Protection – The HVAC design will include the development of heating, ventilation, and air conditioning systems required for the Digester Complex building and areas, including equipment, ductwork and ancillary devices. The plumbing design will include the development of potable and non-potable water and drainage systems required for the various buildings and areas. The fire protection design will be a performance specification only and will include fire suppression systems required for the various buildings and areas, including wet sprinklers and alarm systems. The plumbing and fire protection design will be coordinated with utility requirements. Coordinate with CITY to develop schedules and typical details for supports of exposed utility piping, HVAC ductwork, and equipment. Supports will be shown on the design drawings as agreed to by DESIGN CONSULTANT and CITY.
- Electrical – The electrical design will include an assessment of new Digester Complex unit power requirements, coordination with the WHWRP’s existing power distribution system (SES-2), design of power distribution and lighting systems for the new building and areas, development of motor control schemes, design of MCCs and power conduits, and identification of area classifications, based on CITY’s input and approval of recommended strategies and manufacturers. The electrical design will be coordinated with CITY’s and the local power providing utility requirements. Coordinate with CITY to develop schedules and typical details for supports of exposed conduit and equipment. Supports will be shown on the design drawings as agreed to by DESIGN CONSULTANT and CITY. Specific items relative to standard electrical drawings and specifications will be as follows:
 - Digester Complex electrical plan identifying major electrical components, such as primary switchgear, standby generators, duct banks and electrical manholes; load calculations; area power, lighting, grounding and receptacle plans; area classification (class and division); general notes, key notes and detail callouts. Plan drawings will not include point-to-point conduit routing.
 - MCC design will include MCC front-face elevations (not to scale) and single-line diagrams identifying process equipment, panels, and other electrical power requirements.
 - Local control panel (LCP) layout design will include description of general panel components, including wiring and color-coding standards, and will be included in the technical specifications. Layouts for panels provided by manufacturers to be provided as part of an engineered package with equipment will not be included in DESIGN CONSULTANT’s design drawings. Panel layout drawings will not include interior layouts; internal and external wiring/connection diagrams; bill of materials; detailed labeling; or detailed dimensional drawings.
 - Electrical design will include “typical” electrical schematics supplemented with tables for multiple products. Repetitive and/or redundant equipment items will not be identified with individual schematics. Wire numbers and PLC input/output (I/O) terminal assignments will also not be included.
 - Electrical design will include lighting fixture and panel schedules; plant fire alarm system (performance specification); security system power and controls including card readers,

door contacts; and lightning protection systems (performance specification) for the Digester Complex building.

- Electrical design will include cable/conduit block diagrams, but will not include detailed cable/conduit schedules; cathodic protection (not applicable), wide area network (WAN), loop diagrams (analog); wiring diagrams (discrete signals); or point-to-point control wiring diagrams.
- Technical specifications developed by the DESIGN CONSULTANT will include provisions requiring the CONTRACTOR (and associated subcontractors and/or suppliers) to provide an additional level of detail as part of the shop drawing submittal process for DESIGN CONSULTANT and CITY's review and approval, and for documentation purposes, in both hardcopy and electronic format for the following elements:
 - Point-to-point electrical conduit routing
 - Internal panel layouts and vendor panel details, including internal and external wiring/connection diagrams, bill of materials, detailed labeling and detailed dimensions
 - Detailed, individual custom electrical schematics, including wire numbers and PLC input/output (I/O) terminal assignments
 - Detailed cable and conduit schedules
 - Detailed loop/wiring diagrams and point-to-point wiring diagrams, including PLC I/O addressing.

NOTE: Record ("as-built") drawings for above detailed information will be a contract requirement of the CONTRACTOR under the construction phase services effort.

- Instrumentation and Controls – The instrumentation and controls (I&C) design will include specification of instrumentation hardware and software required to accomplish the distributed control and operation scheme(s), design of alarm and display systems, selection of control and monitoring instruments, and detailed control strategies to facilitate programming efforts. Instrumentation design will include only on-site Digester Complex facilities up to the interface point with the CITY's SCADA telemetry system. Specific items relative to standard I&C drawings and specifications will be as follows:
 - Provide block diagram(s) and network diagram(s) for the Digester Complex control system, including outside connection of the Local Area Network (LAN) to the Wide Area Network (WAN).
 - PLC panel layout design will include description of general panel components, including wiring and color-coding standards, and will be included in the technical specifications. Layouts for PLC panels provided by manufacturers to be provided as part of an engineered package with equipment will not be included in DESIGN CONSULTANT's design drawings. Panel layout drawings will not include interior layouts; internal and external wiring/connection diagrams; bill of materials; detailed labeling; or detailed dimensional drawings.
 - Provide process and instrumentation diagram (P&ID) drawings based on a vertical hierarchy of layers (or bands) ordered from top to bottom as follows:
 - SCADA LEVEL (telemetry interface only)
 - CONTROL PANEL (PLC) and POWER SOURCE LEVEL
 - FIELD LEVEL (process equipment, field instrumentation and local control panels (LCPs))

- Tag numbers for all equipment, motorized (i.e., control) valves, and instrumentation will be included on P&IDs. Control descriptions will be included in technical specifications.
- Manufacturer's packaged equipment will be shown on P&IDs as a "black box" with only the interface monitoring and control signals identified.
- P&IDs will not be provided for the following systems:
 - Fire detection and alarm systems
 - Telephone and plant intercom/paging systems
 - Maintenance service equipment
 - Automatic overhead coiling doors
 - Storm water drainage
 - Existing equipment (unless modified as part of this Project).
- Technical specifications developed by the DESIGN CONSULTANT will include provisions requiring the CONTRACTOR (and associated subcontractors and/or suppliers) to provide an additional level of detail as part of the shop drawing submittal process for DESIGN CONSULTANT and CITY's review and approval, and for documentation purposes, in both hardcopy and electronic format for the following elements:
 - Internal panel layouts and vendor panel details, including internal and external wiring/connection diagrams, bill of materials, detailed labeling and detailed dimensions
 - Detailed, individual custom electrical schematics, including wire numbers and PLC input/output (I/O) terminal assignments
 - Detailed loop/wiring diagrams and point-to-point wiring diagrams, including PLC I/O addressing.

NOTE: Record ("as-built") drawings for above detailed information is a contract requirement of the CONTRACTOR under the construction phase services effort.

3.1 – Interim (60%) Design Review Submittal Package

The 60% review submittal will include applicable updates from the 30% review submittal, including the incorporation of applicable 30% submittal review comments provided by CITY. Provide a copy of a 30% design submittal comments log with the 60% review submittal.

Update the opinion of probable construction costs estimate to AACEI Class 3 level of accuracy based on the 60% level of design for the new digester and existing digester rehabilitation. The TPCE will also be updated accordingly.

Upon completion of the 60% design review submittal, DESIGN CONSULTANT will coordinate with CITY to complete an analysis of the early procurement items to separately package for permitting and construction purposes accordingly.

DELIVERABLES (PDF only): Drawings, Typical Details (book form), Technical Specifications, 3D PDFs, Equipment and Instrumentation List, and Opinion of Probable Construction Costs and TPCE Update

3.2 – Interim (90%) Design and Agency Review Submittal Package

This interim (90%) submittal is intended as a concurrent internal review set for quality management and reviews by regulatory agencies and agencies having jurisdiction.

The 90% submittal package will include applicable updates from the 60% review submittal, including the incorporation of applicable 60% submittal review comments provided by CITY, plus the incorporation of typical details from book form into the drawing set. Provide a copy of a 60% design submittal comments log with the 90% review submittal.

Update the opinion of probable construction costs estimate to AACEI Class 2 level of accuracy based on the 90% level of design for the new digester and existing digester rehabilitation. The TPCE will also be updated accordingly.

Provide six (6) sets of submittal package consisting of the full-size plans and specifications for submission to the City of Flagstaff Development Services (Planning, Building, Engineering, and Fire) Departments for code compliance and agency review. Agency review sets will be sealed and stamped with “*FOR AGENCY REVIEW ONLY - NOT FOR CONSTRUCTION*” or similar note. All applicable department review fees will be paid for directly by the CITY.

Provide three (3) sets of submittal package consisting of the full-size plans and specifications for submission to the Coconino County Environmental Services Department (CCESD) for code compliance and agency review. Agency review sets will be sealed and stamped with “*FOR AGENCY REVIEW ONLY - NOT FOR CONSTRUCTION*” or similar note. All applicable agency review fees will be paid by the DESIGN CONSULTANT.

DELIVERABLES:

- **Drawings, Technical Specifications, 3D PDFs, and Opinion of Probable Construction Costs and TPCE Update**
- **CITY Staff: Half-Size Review Drawings, Technical Specifications, and 3D PDFs (PDFs only)**
- **CITY DSD: Full-Size Drawings and Technical Specifications (6 hardcopy sets)**
- **CCESD: Full-Size Drawings and Technical Specifications (TBD hardcopy sets)**

3.3 – Final (100%) Contract Documents

The 100% (Final) set of Contract Documents will include applicable updates from the Agency Review submittal, plus applicable CITY and agency review comments. Finalize, seal, and submit all design drawings and technical specifications (including “Front-End Documents, Special Provisions, Bid Alternatives, and a Bid Schedule) in the appropriate format within thirty (30) days following receipt of all review comments provided by CITY and other review agencies. Provide a copy of a 90% design submittal and Agency review comments log to CITY with the final submittal.

Update the opinion of probable construction costs estimate to AACEI Class 2 level of accuracy based on the 100% design for the new digester and existing digester rehabilitation, to be used as the “Engineer’s Estimate” for Bid comparison. The TPCE will also be updated accordingly.

DELIVERABLES (PDF only): Drawings, Technical Specifications, 3D PDFs, and Opinion of Probable Construction Costs and TPCE Update

TASK 4 – QUALITY MANAGEMENT

DESIGN CONSULTANT will perform general project and quality management activities throughout the Design Phase as delineated in the following sub-tasks.

4.1 – Quality Management Plan

Develop a Quality Management Plan (QMP) that will identify and detail the proposed quality management activities for the duration of the Project. Specific components of the QMP will include identification of project personnel responsible for peer reviews and detailed checks; anticipated schedule of milestones and review dates (to be updated as part of subsequent Project phases); and project standards.

Prepare and submit a draft Quality Management Plan to the CITY for review and approval no later than two (2) weeks following receipt of written NTP from the CITY. Upon receipt of comments, submit a final Quality Management Plan to the CITY for distribution.

DELIVERABLES (PDF only): Draft and Final Quality Management Plan

4.2 – Technical Peer Reviews

Conduct an in-house technical peer review at the 30% design submittal stage to review the various design efforts, including relevant design criteria, layouts, and inter-relationships with current and anticipated future regulatory requirements. Peer review will be conducted using DESIGN PROFESSIONAL's national subject matter expert(s).

4.3 – Operability Reviews

Perform an internal operability review at the 30% design submittal stage. This review will be conducted to verify that the preferred operational strategies and control philosophy are being properly implemented.

4.4 – Constructability Reviews

Perform an internal constructability analysis of the plans and specifications at the 60% design submittal stage. This will include a review of the design for the use of practical cost-effective construction measures, procedures and scheduling; required construction activities and their impact on existing facility operation; and review and coordination of contract provisions and construction details to minimize potential conflicts and claims.

4.5 – Detailed Quality Management Checks

Perform an internal detailed quality management check of the plans and specifications prior to the 90% design review [Agency Review] submittal. Efforts will include items identified on DESIGN CONSULTANT's detailed checklist, in accordance with the Quality Management Plan. This check will include a review of the plans, specifications, and typical details for conformity with the local, state and federal guidelines; as well as coordination between all discipline groups.

DELIVERABLES (PDF only): 90% Design Review Submittal Comments Log

TASK 5 – PERMITTING ASSISTANCE

DESIGN CONSULTANT will perform various permitting coordination and assistance activities with the City of Flagstaff Regulatory Compliance Specialist throughout the Design Phase, as delineated in the following tasks.

5.1 – City of Flagstaff Permitting Coordination

DESIGN CONSULTANT will lead the permitting efforts required with the CITY Development Services Department. Confirm applicable codes and standards identified during the Preliminary Design phase and update as appropriate. Develop applicable permit applications and supporting documents in accordance with the Permitting Assistance Plan. Facilitate early coordination meetings with applicable representatives of the CITY Development Services Departments at the 30% design stage. Submit applicable Interim Submittal Review and Agency Review documents and associated reports, plans and supporting information to the CITY Development Service Departments for Building, Site, Civil and Fire plan review approvals accordingly.

The initial versions of the application packages will be assembled and submitted to CITY for review after receipt of all necessary information. Upon receipt of comments, the application packages will be finalized and include necessary CITY signatures and will then be submitted to the appropriate Department representatives.

Following submittal of the final packages, DESIGN CONSULTANT will support the application process through discussions with CITY staff and will submit additional information, as requested.

NOTE: *It is assumed that any permit fees for the Project will be paid directly by the CITY.*

DELIVERABLES: Draft and Final Permit Applications and Supporting Documentation (Number of copies TBD)

5.2 – Approval to Construct Permit Coordination

If determined to be required, DESIGN CONSULTANT will lead the Approval to Construct (ATC) permitting efforts with the Coconino County Environmental Services Department (CCESD) and/or Arizona Department of Environmental Quality (ADEQ).

Prepare for and facilitate a pre-application meeting with CCESD and/or ADEQ to discuss the ATC permit requirements and required supporting information, including potential phased review requirements.

In addition to the Agency Review document set(s) and Design Report, develop an ATC permit application in accordance with applicable requirements. The initial versions of the ATC application packages will be assembled and submitted to CITY for review after receipt of all necessary information. Upon receipt of comments, the application packages will be finalized and submitted for non-expedited review to obtain the ATC.

Following submittal of the final application packages, DESIGN CONSULTANT will support the application process through additional agency discussions and will submit additional information, as requested.

NOTE: *It is assumed that applicable permit application review fees will be paid directly by the CITY.*

NOTE: *The subsequent Approval of Construction (AOC) submission is not included within this scope of services but will be included under a subsequent Construction Phase Services contract (if desired).*

DELIVERABLES: Draft and Final Permit Applications and Supporting Documentation (Number of copies TBD)

TASK 6 – BID PHASE SERVICES

6.1 – Contractor Prequalification

If determined to be required by the CITY, DESIGN CONSULTANT will assist the CITY with CONTRACTOR prequalification, including criteria recommendations, independent bidder evaluations, and participation in a Prequalification Review meeting with CITY staff. CITY and Flagstaff Procurement Department staff will create, issue, and receive CONTRACTOR prequalification documents.

6.2 – Bid Services, Meetings and Bidder Evaluation

DESIGN CONSULTANT will facilitate and attend a Pre-Bid meeting to explain the Project's principal design elements, goals, objectives, schedule, and construction budget. During the bidding period, DESIGN CONSULTANT will answer questions from bidders, respond to RFIs, review requests for "or equal" determinations and prepare no more than three (3) addenda with detailed responses. DESIGN CONSULTANT will attend the Project Bid Opening meeting and assist the CITY with the public opening and reading of bids. DESIGN CONSULTANT will review and evaluate the responsive bids and make a recommendation to the CITY for acceptance or rejection.

DELIVERABLES (PDF only): Addenda, Bid Tab Summary, and Bid Recommendation Memorandum

TASK 7 – FUNDING ASSISTANCE SERVICES

7.1 – Funding Assistance Services

DESIGN CONSULTANT will review potential available supplemental funding, grant research, and financing opportunities to assist the CITY with the Project funding opportunities. Efforts will include, but not limited to, initial coordination with the Water Infrastructure Finance Authority of Arizona (WIFA) for potential low-interest loans and grants associated with the Clean Water State Revolving Funds (CWSRF) program. The DESIGN CONSULTANT will compile the identified financing opportunities, including what supporting information will be required, and summarize into a stand-alone memorandum for CITY review. Additional funding assistance efforts by DESIGN CONSULTANT shall not proceed until direction is given in writing by the CITY.

DELIVERABLES (PDF only): Supplemental Funding Assistance Opportunities Memorandum

TASK 8 – ALLOWANCES

DESIGN CONSULTANT will coordinate with appropriate CITY staff regarding any required modifications to the existing scope of services for the use of Task 8 – Allowances funds and provide any supporting information as applicable.

8.1 – Owner's Contingency

PURPOSE: The CITY has set aside funds in the amount of \$50,000 to address unforeseen circumstances and/or events that alter the scope of work during the design or bid services.

8.2 – Miscellaneous Services and Other Direct Costs

PURPOSE: The direct costs to the DESIGN CONSULTANT will be reimbursed for

miscellaneous services and/or other direct costs (ODCs) such as, but not limited to, printing, mail, courier service, travel, and lodging.

8.3 – PONDUS Detailed Design Services

PURPOSE: Should the PONDUS evaluation per Task 2.2 be determined to be feasible and cost-effective for inclusion in this Project, the associated detailed design efforts (drawings and specifications) will be funded through this allocated Allowance.

TIME OF PERFORMANCE

The work covered by this design services Task Order will be complete within 16 months from the receipt of written Notice to Proceed (NTP) from CITY, in accordance with the preliminary schedule presented in EXHIBIT C.

PAYMENT

Payment for the items listed herein shall include a Not-to-Exceed amount of **\$1,252,024** based on the actual expended manhours and costs estimated in EXHIBIT B plus Subconsultants in the amount of **\$483,457**, for a base Project amount of **\$1,735,481**.

Additional Allowances in the amount of **\$155,000** are also included as defined in Exhibit A, for a total contract Not-to-Exceed amount of **\$1,890,481**.

EXHIBIT A-1

CITY RESPONSIBILITIES

The following items to be completed by the CITY are intended to supplement the requirements set forth in the DESIGN CONSULTANT Agreement:

1. Supply an approved Equipment List and costs for the principal equipment to be designed and installed at the digester and digester complex facilities.
2. As requested, aid the DESIGN CONSULTANT in gaining access to and making provisions for the DESIGN CONSULTANT to enter upon public and private land as required for the DESIGN CONSULTANT to perform its work under this Contract.
3. Provide all CITY standards, specifications, and details that are to be incorporated into the design.
4. Review and provide written comments to DESIGN CONSULTANT's questions, draft and interim submittals, and other design review materials in a timely manner within the appropriate review/comment period(s) as identified on the Project Schedule.
5. Furnish, to the extent reasonable, available copies of all calculations, reports, and data applicable to the WHWRP.
6. Furnish information regarding CITY utilities (existing and/or proposed) near the proposed WHWRP Digester Complex.
7. Obtain all easements and rights-of-way (as applicable).
8. Directly pay all Building and Fire Department review fees (for civil, building and fire plan reviews), as applicable.

EXHIBIT A-2

SUPPLEMENTAL SERVICES

Supplemental Services are defined as those services that are not included in the base services in EXHIBIT A, but that may be provided during the Project duration if requested by the CITY. If directed by CITY, Supplemental Services will be provided by DESIGN CONSULTANT for additional compensation as agreed to by DESIGN CONSULTANT and CITY, anticipated to be handled through available Allowance funds as appropriate. Supplemental Services may include, but not necessarily limited to, the following:

1. Evaluation of new or significantly revised process technologies, facilities, and related appurtenances as a result of significant changes to the identified "General Scope of Project" elements listed herein, which may be required due to project budget limitations.
2. Assistance to the CITY in plotting, computing, filing descriptions and/or obtaining rights-of-way, easements, and property.
3. Process pilot testing, if required, unless specifically identified herein.
4. Computational fluid dynamic (CFD) modeling of structures and/or process components, if required, unless specifically identified herein.
5. Efforts related to mitigation of burrowing owls or other protected species, if required.
6. Additional facility tours or site visits to facilities other than those identified in the Phoenix metropolitan area.
7. Additional SCADA-related evaluations beyond those identified, such as assessing the plant's existing SCADA system, evaluating, and recommending a new plantwide SCADA system, or a new SCADA master plan. NOTE: This also excludes work associated with SCADA system design, programming standards, PLC configuration standards, control and monitoring standards, and similar detailed design work (some or all of which is anticipated to be included in supplemental Detailed Design phase efforts).
8. Efforts related to Preliminary and/or Detailed Design Value Engineering.
9. Additional treatment technologies.
10. Additional evaluation of equipment.
11. Additional time associated with evaluation.