EXHIBIT "A" - SCOPE OF WORK AND TIME SCHEDULE

BOOSTER STATION 5A UPGRADES

1. Project Services. Consultant agrees to provide professional civil, process mechanical and electrical engineering and design services for a project known and described as Booster Station 5A Upgrades ("Project").

The Project includes the following elements:

A. New booster pump station (BPS) at Site 5A and the following related improvements at the site:
   a. New booster pumps with variable frequency drives (VFDs), if needed, appurtenances, instrumentation and controls for Zone 5A.
   b. Valves, piping and appurtenances required for new pump installation.
   c. Replace the existing electrical and SCADA systems with new systems including a new emergency generator and automatic transfer switch (ATS).
   d. Surge control assessment of hydropneumatic tank to ensure proper protection against pressure transients is provided for Zone 5A; replace the existing hydropneumatic tank with two new tanks.
   e. Pump controls and instruments.
   f. Design shall consider the new larger storage tank (not part of this Project) and appropriate space provisions.
B. Preparation of construction cost estimates.

The engineering services described herein (Items 1.1 and 1.2) to be provided as a Lump Sum Basis.

The Services are described in the following subtasks:

1.1 Provide Professional Engineering and Design Services for the following elements of the Project:

A. Project Management and Quality Control – Assurances

The Consultant will conduct progress meetings and status calls with the City's Project Manager and other members of the City to report on the progress of current and planned activities on the Project. Biweekly status reports will be submitted to the City. The Consultant will also coordinate requirements for new electrical service at Site 5A with representatives from the Electric Utility.

B. Task 1 – Field Investigation/Data Collection

The Consultant will conduct a site visit to Site 5A and meet with the City Project Manager and/or staff, to review the existing facilities at Site 5A, obtain field measurements (location of equipment, piping, etc.), confirm dimensions and layout with as-built plans, and identify space requirements and space availability for the new and replacement facilities. The Consultant will also request as-built drawings, operational data, water quality and any other site-specific information to assist in the evaluation and design of the Project. Existing as-builts and information provided by the City will be used to develop the preliminary layouts and design drawings for the BPS at Site 5A.

C. Task 2 – Pump Station Hydraulic Modeling and Surge Modeling

Hydraulic modeling of the booster pump station will be performed and the flows and pressures to meet the system operating conditions will be determined. Recommendations for other site improvements will be made as necessary.

Hydraulic transient modeling analysis will be conducted to identify critical surge conditions and the sizing of the two new hydropneumatic tanks, which will replace the existing 5,000 gallon hydropneumatic tank. The impacts of the new booster pumps start up and shut down and power failure on the site infrastructure will be considered to ensure that hydraulic surges do not cause a failure of the pumps, pipelines, valves, etc., and to ensure a long robust life for the pumps and appurtenances. The need for variable frequency drives (VFDs) for the pumps will also be modeled, and provisions will be made for the future pumps that will serve Zone 6A.

The surge analysis will be conducted using commercial software and the results of the findings of the modeling analysis will be presented in the BODR, as discussed in Task 3.

D. Task 3 – Basis of Design Report

Per Consultant's initial discussions with the City, a new booster pump station is required to deliver water to serve Zone 5A by replacing the existing booster pumps at Site 5A, with provisions for future pumps to serve Zone 6A. Additionally, the existing hydropneumatic tank will be replaced with two new hydropneumatic tanks; and the existing electrical and SCADA systems will be replaced with new equipment. The Consultant will develop a Basis of Design Report (BODR) describing the basis of design criteria for all components of the booster pump station, hydropneumatic tanks and electrical/SCADA systems, etc. The report will include the estimated construction costs for the proposed facilities and will be discussed with City staff in a workshop to review the recommended upgrades and develop consensus on the recommendations. As part of the report, the Consultant

will prepare a preliminary facility schematic and layout depicting the recommended facility and equipment, including interconnects to any existing facilities at the site. The Consultant will review electrical service requirements for the existing and upgraded facility and coordinate requirements for the new electrical services with the utility, in consultation with City representatives.

The BODR will be submitted to the City and will be finalized after receipt of City's review comments. The approved BODR will be used for developing final design for the new BPS and other upgrades at the site, as approved by the City. The following key issues will be considered in preparing the BODR:

- Booster pump size and type with variable frequency drives for each pump.
- Ancillary facilities including piping, valves and flow meters.
- Civil/site elements design and modifications to the station and new interconnections.
- Replace the hydropneumatic tank with two new hydropneumatic tanks (validate with surge modeling).
- Site Layout: The Consultant will prepare and present a preliminary facility schematic and layout depicting the new BPS, including interrelationships to existing facilities at the site. The layouts will be finalized based on City review and comment.
- Electrical Supply: The Consultant will review electrical service requirements for the existing and upgraded facilities and provide recommendations for the new utility service, RTU panel replacement, site instrumentation, site lighting, convenience power and security for the facility.
- Booster station/RTU/SCADA interface and communication upgrades.
- The design will also consider site planning for future expansion of the booster station and any storage tank modifications.
- Preliminary cost estimates for construction of the BPS and associated upgrades at the site.

After finalization of the preliminary layout and site modifications necessary, the Consultant will conduct field meetings and walk-throughs with City staff to finalize the BODR and concepts.

E. Task 4 – Design Drawings

The Consultant will prepare design drawings for the Project based on recommendations from Task 3 and prepare drawings for various engineering disciplines including General, Civil, Mechanical, Structural, Electrical and Instrumentation. Review sets will be submitted at 60%, 90% and 100% Project levels along with updated construction cost estimates.

The Consultant will prepare the following construction drawings:

Design Drawings - Sheet Count

- General Sheets (3 sheets) – Cover/Sheet Index and Abbreviations, Symbols and General Notes.
- Civil Sheets (3 sheets) – Demolition, New Facilities and Yard Piping Plan.
- Mechanical Sheets (5 sheets) – BPS Plan and Sections, Surge Tank Plan and Sections, Typical Mechanical Details.
- Structural Sheets (1 sheet) – BPS and Hydropneumatic Tank Plans and Structural Details
- Electrical Sheets (10 sheets) - Notes, Symbols and Legend (1); Single Line and Load Calculations (1); Electrical Schedules (1); Power, Lighting and Grounding Plan (1); Schematic and Connection Diagrams (4); Conduit Block Diagram (1); Electrical Details (1).
- Instrumentation Sheets (2 sheets) - P&ID Symbols and Legend (1); P&ID (1).

(If VFDs are required to properly operate the facility, the allowance task funds will be used to develop these additional sheets.)

F. Task 5 – Project Specifications

The Consultant will prepare complete Project specifications including technical and administrative divisions. The specifications will consider construction schedules, coordination of shutdowns, material and installation specifications, and the use of regional and industry standards for the design performed under Task 4. As applicable, the Consultant will utilize the City's standard document templates to develop the plans and specifications. Copies of the Project specifications will be submitted along with plan drawings at the appropriate interim milestones.

G. Task 6 – Coordinate Permitting and Regulatory Approvals

The Consultant will coordinate with the City and any regulatory agencies (Arizona Department of Environmental Quality) to obtain Approval to Construct (ATC) permit, and the City's planning and development department (if building permits are needed) to obtain design and construction approvals. This task will include preparing forms, transmitting design information and drawings, and preparing correspondence.

H. Task 7 – Project Coordination and Design Phase Meetings

Consultant anticipates four Project coordination and design phase meetings with City staff will be needed to complete this Project (2 in person and 2 remote or web-

based). Meeting support and documentation will be provided by the Consultant as needed for these meetings. The Consultant will also prepare meeting minutes of the progress meetings, including action items, and distribute by electronic mail to the team members and appropriate City staff.

I. Design Allowance – Variable Frequency Design

If the findings of the hydraulic modeling analysis demonstrates that a VFD is needed for proper operation of the facility, the Consultant will develop two additional design drawings and include enhancements to other electrical and instrumentation sheets to make provisions for the VFD in the overall design documents (Task 4). An additional specification will also be added to the design documents (Task 5).

1.2 Engineering and Design Service Deliverables. LUMP SUM BASIS.

A. Basis of Design Report.

B. Final Design Drawings and Specifications.

Assumptions

- City will provide the Consultant with two years of operational data (flows, pressures, system demands, etc.).
- City will provide as-builts for Site 5A.
- Survey, grading, drainage, landscape design, etc., is not anticipated at Site 5A. Existing as-built drawings will be used for base mapping.
- Existing Geotechnical reports will be used for the design or alternatively, allowable soil pressures as allowed by code.

1.3 Schedule**.** The Services will commence upon receipt of an executed Agreement and will require 150 calendar days for completion of Services.