

EXHIBIT “A” – SCOPE OF WORK

Backup Water Source – Exploratory Well Drilling

1. Project Services. Consultant agrees to perform professional services for a project known and described as North Well Field Evaluation (Project). The Services are described in the following tasks:

A. Project Management (Task 1)

Provide Project management and implementation of procedures to track and control Project performance against the Project work plan, cost budget and schedule. Specific activities include Project planning, staff management, Project controls and invoicing, overall Project coordination, weekly Project Manager verbal reporting to City, and change management. It is anticipated that the Consultant will meet with City staff on five separate occasions, including:

- a. Kick-off meeting.
- b. Pre-design report review.
- c. 60-percent deliverable.
- d. 90-percent deliverable.
- e. Pre-bid meeting (well construction).
- f. Pre-bid meeting (pipeline construction).

These meetings will be attended by the Consultant’s Project Manager, Design Manager, and Design Engineer. The purpose of these meetings is to review the Project status, budgets, schedule, and performance. All meetings except the pre-bid meetings will be held via teleconference. The purpose of the pre-bid meetings is to provide potential bidders an opportunity to see the proposed work areas and discuss details of the planned work.

B. Site Evaluation and Acquisition (Task 2)

Identify and evaluate potential well locations in the North Well Field (NWF) and pipeline routes from the NWF to the LHC water treatment plant (WTP). This is anticipated to include:

- a. Confirm the general wellfield area. Consultant will finalize general areas for further evaluation based on existing well locations, current understanding of area hydrogeology, water quality, and general recommendations for well spacing. This will include an evaluation of publicly-available data related to groundwater contamination in the vicinity of the NWF including a review of the horizontal and vertical extent of contamination relative to the potential locations and screened intervals of the new wells.
- b. Identify and review up to three potential pipeline routes from the NWF to the WTP. Potential routes currently identified include the current pipeline alignment, placing the pipeline within London Bridge Road, or placing the pipeline parallel to London Bridge Road.
- c. Identify property ownership and easements in the areas identified for further evaluation using publicly available records.
- d. Develop a ranking system for potential well sites based on hydrogeology, proximity to contaminated groundwater, well spacing, access, proximity of electricity, easements, and proximity to potential pipeline routes.
- e. Select the top 5 potential sites based on the ranking system. One of the sites will be constructed on State Parks land and will be used to explore for both the conventional

vertical wells and a new horizontal radial collector well. Discuss the well sites and pipeline alignment with City. This will include a teleconference between Consultant and City with the Project Manager, lead engineer, and principal-in-charge in attendance.

- f. Assist City with negotiations for property acquisitions and easement or access agreements for the 5 well sites and preferred pipeline alignment. Consultant assumes that the pipeline alignment will be within an existing easement or public right of way and that each well site is owned by a different entity. Consultant will provide up to 16 hours of support to prepare limited exhibits for purchase contracts or access agreements.
- g. Prepare a Technical Memorandum describing the identification, evaluation, and selection of the well sites and pipeline alignment and summarizing the acquisition of properties, easements, or access agreements.
 - i. The Technical Memorandum will include up to 10 pages of text, six appendixes (including a summary of each property or access acquisition and the pipeline easement), two tables (including summaries of property ownership and well site ranking results), and eight figures (including a map showing the properties that were evaluated, a map showing the pipeline alignments evaluated, and a map of the recommended properties and pipeline alignment).
 - ii. Consultant will provide a draft copy of the Technical Memorandum to the City for review and will address one set of comments from the City.
- h. Conduct a preliminary assessment of the condition of the existing power supply and control instrumentation at seven current NWF well sites to evaluate the ability to operate the wells if needed. This will include a 1-day inspection by the lead engineer and electrical subcontractor. The Consultant will prepare a brief memorandum describing the condition of the power supply and control instrumentation at each well and recommendations for improving the systems to provide a temporary backup water supply if needed during construction of the new wells.

C. Test Boring Construction (Task 3)

Drill five test borings at the top-ranked well sites to obtain design data including lithology, grain size distribution, and water quality. This is anticipated to include:

- a. Develop construction specifications and drawings for the test borings. Consultant will also develop preliminary specifications and drawings for the production wells for the purposes of obtaining subcontractor quotes. Actual construction details may change from the preliminary specifications and drawings based on field conditions. Consultant assumes 16 pages of specifications and 3 drawings (including a location map, a generalized construction diagram for the test borings, and a generalized construction diagram for the production wells).
- b. Consultant will procure a drilling subcontractor and will specify that subcontractor maintains the necessary licenses, insurance, and safety qualifications to perform the work in accordance with legal requirements and Consultant and City policies.

Procure the drilling subcontractor and an analytical laboratory in accordance with the City's procurement code. Assist the drilling subcontractor in obtaining a drilling permit from the Arizona Department of Water Resources (ADWR) for each boring. Consultant will provide the relevant information to the drilling subcontractor, who will apply for and obtain the permits.

- c. Coordinate, oversee, and document field activities. Consultant assumes that field activities will take 40 12-hour days. Activities include the following:
 - i. Prepare a health and safety plan.
 - ii. Mobilize drilling equipment, which includes the drill rig, support truck, and portable mud pit, and install temporary fencing around each drill site. Consultant assumes an area 100 feet square will be required at each drill site with fencing to remain in place for up to 30 days.
 - iii. Drill five test borings to a depth of 600 feet using mud rotary drilling equipment.
 - iv. Log soil cuttings and provide a continuous legible written description following the Unified Soil Classification system. Cuttings will be logged at a minimum of 10-foot intervals and where changes in lithology are observed.
 - v. Take photographs of the soil cuttings and label and store them with the date of sampling and the depth interval the sample represents.
 - vi. Obtain soil samples to be sent out for sieve analysis. Ten soil samples from each boring will be obtained using a split spoon sampler and sent out for laboratory analysis using ASTM Method D6913.
 - vii. Obtain three depth-discrete groundwater samples from each test boring using a temporary pump and packer assembly. Samples will be analyzed for major ions, hexavalent chromium, and VOCs.
 - viii. Obtain geophysical logs including caliper; specific potential; short, long, and normal range resistivity; and gamma logs from each borehole.
 - ix. Analyze data from the test borings to estimate potential borehole yields.
- d. The drilling subcontractor will fill the test borings in accordance with ADWR requirements so the boreholes can be drilled out for water well production at a later date.
- e. The drilling subcontractor will manage waste generated during drilling. Drill cuttings and spent drilling mud will be stored in roll-off bins at each well site. The drilling subcontractor will collect samples of the soil and drilling mud to facilitate characterization and disposal. Samples of the soil and drilling mud will be analyzed for Resource Conservation and Recovery Act metals. If analytical data support a determination that the waste is nonhazardous, it will be disposed of at the landfill in Lake Havasu City.
- f. Assist City to obtain a coverage under the AZPDES General Permit for discharging groundwater generated during well development, testing, and maintenance. Activities supporting the AZPDES permitting include:
 - i. Prepare and submit a Notice of Intent for Single Source de Minimus Discharges to ADEQ. The NOI will include discharges of well development and aquifer testing water and periodic discharges of purge water from up to four new production wells. Water quality data to support the NOI will be obtained from the pilot boring depth-discrete sampling. Consultant assumes that the well development and aquifer testing discharge will be routed through temporary piping to either Kiowa Wash or other adjacent waterway, depending on the test boring location. Consultant will pay the \$250 application fee.
 - ii. Prepare a Best Management Practices Plan using a template provided by ADEQ.

2. Additional Services

Consultant has identified additional services that will be needed in the future to complete the work. These additional services will require separate authorization from the City and may include:

A. Well Design and Construction (Task 4)

Design and construct two production wells. This is anticipated to include:

- a. Analyze data from the pilot borings to estimate borehole yields. Consultant currently assumes that each well will be constructed as follows, but may adjust the total depth, screened interval, screen size, filter pack, screen material, and casing material based on results of the data analysis or field conditions:
 - i. Total depth of 550 feet.
 - ii. Borehole diameter of 30 inches.
 - iii. Conductor casing, 36-inch diameter, set to a depth of 20 feet.
 - iv. Casing and screen diameter of 20 inches.
 - v. Screened interval from 200 feet to 550 feet; screen material is stainless steel v-wire.
 - vi. Carbon steel or stainless steel casing from land surface to 200 feet.
- b. Select final locations for two wells based on previous ranking and estimated yield.
- c. Finalize construction specifications and drawings for the new wells. Consultant assumes 16 pages of specifications and 4 drawings (including a location map and a planned construction diagram for each well) will be prepared.
- d. Prepare a request for proposals (RFP) for the City to bid and procure the drilling contractor in accordance with City's procurement code. Review proposals and evaluate responsiveness.
- e. Coordinate and document well construction and development. Consultant assumes that each well will take 30 12-hour days to drill, construct, and develop. Consultant activities associated with well construction include:
 - i. Coordinate drilling contractor's activities including:
 - 1. Mobilize drilling equipment, which includes the drill rig, support truck, portable mud pit, and install temporary fencing around each drill site.
 - 2. Drill a pilot hole to a depth of 600 feet using mud rotary drilling equipment at each location.
 - 3. Obtain geophysical logs including caliper; specific potential; short, long, and normal range resistivity; and gamma logs from each borehole.
 - 4. Ream the pilot hole to the total borehole diameter using reverse rotary drilling equipment.
 - 5. Set well screen, casing, and annular materials. Consultant assumes that constructing each well will take nine 12-hour days.
 - 6. Conduct a gyroscopic log of each well to assess plumbness and straightness.
 - 7. Develop each well using methods such as pumping, double disk swab/airlift, polymer/dispersant injection and airlifting.

8. Conduct a step test and constant-rate test of each new well. The drilling contractor will be responsible for temporary power for the test.
 9. Manage waste generated during well drilling and development.
- ii. Log soil cuttings and provide a continuous legible written description following the Unified Soil Classification system. Cuttings will be logged at a minimum of 10-foot intervals and where changes in lithology are observed.
 - iii. Take photographs of the soil cuttings and label and store them with the date of sampling and the depth interval the sample represents.
 - iv. Maintain a log of construction activities to include construction quantities completed, personnel present, and other pertinent information.
 - v. Measure field parameters and collect up to 3 samples of discharged groundwater during each aquifer test at each well (12 samples total) to be analyzed for major ions, hexavalent chromium, and VOCs. At the end of the constant-rate test, a sample will be collected from each well and analyzed for the parameters required by ADEQ to approve each well as a new drinking water source (2 samples total).
- f. Manage discharged well development water. If water produced during well development and testing shall be discharged to surface water, the Consultant will conduct additional monitoring and reporting to comply with the AZPDES permit, including:
- i. Measuring the flow rate, duration of flow, and turbidity on a daily basis for discharges to a surface water.
 - ii. Collecting samples on a daily basis for discharges to surface water. Consultant assumes samples will be tested for antimony, arsenic, barium, beryllium, boron, cadmium, chromium (total and hexavalent), copper, hardness, lead, manganese, mercury, nickel, selenium, thallium, zinc, and oil and grease using EPA methods 130.2, 200.7, 218.7, 245.1, and 1664.
- g. Attend a site visit at each well to observe the completion of the work associated with the agreement between the City and the drilling contractor.

B. Well Site Facility and Pipeline Design (Task 5)

Consultant will design well site facilities including well and equipment pads, line shaft turbine pumps, in-well piping, power supply, connection to the underground pipeline, access for sampling the discharged water, fencing, and shade structure. Consultant will design pipeline facilities including connection to each well, underground pipeline from each well to the WTP, and discharge into the existing aerator at the WTP. The design process is anticipated to include the following activities:

- a. Prepare a preliminary design report for the well sites and pipeline. The design report will summarize the requirements and design criteria including:
 - i. Site layout.
 - ii. Pump selection criteria.
 - iii. Piping materials and pressure classes.
 - iv. Thrust restraint methods.
 - v. Identified utility crossings.

- vi. Valve selection and location.
 - vii. Site structural facility requirements and foundation design.
 - viii. Electrical power evaluation. The Consultant will determine whether the existing power distribution supply has sufficient capacity to provide electrical service for the new pump at both sites. If not, the Consultant will make recommendations for delivery of new electrical service from a utility company. The City shall coordinate with the Utility to obtain the new electrical service. Coordination of new service is not included in this Scope of Work.
 - ix. Preliminary SCADA control concepts.
 - x. Construction and maintenance access.
- b. Request information on existing utilities in the pipeline vicinity from the City and other dry utility companies. Consultant will make a field visit to the site to identify and/or confirm general location of existing utilities within the general vicinity of the pipeline and will take photos that will be placed into the file for documentation purposes. No potholing will be performed by Consultant.
 - c. Conduct a topographic and cultural survey, geotechnical evaluation, and utility review to develop a base map for the construction drawings. The survey will include spot elevations, contours, depiction of existing utilities, drainage features, facilities, and major vegetation. Surveys and evaluations will be completed for:
 - i. The two selected well sites.
 - ii. The identified pipeline route.
 - d. Perform engineering design. Specifications and drawings will include:
 - i. Mechanical improvements, including a new vertical turbine pump, pump enclosure, motor, wellhead, pad, piping, and connection details.
 - ii. Civil improvements at the new well sites to include layout design and grading.
 - iii. Electrical improvements to include an electrical supply for the new wells.
 - iv. Structural improvements, including a perimeter fence, access gate, and equipment enclosures.
 - v. Instrumentation and control design including control panels and monitoring and control from City's SCADA to the wells.
 - e. The specifications and drawings will progress from 60 percent to 90 percent to 100 percent final Bid Documents.
 - i. For the 60 percent submittal, the Consultant will prepare:
 - 1. Draft design development drawings,
 - 2. Draft technical specifications,
 - 3. Process control descriptions, and
 - 4. Revised preliminary cost estimate.
 - ii. For the 90 percent submittal, the Consultant will prepare:
 - 1. Detailed design drawings;
 - 2. Technical specifications; and

3. Engineer's cost estimate.
- iii. For the 100 percent submittal, City's comments will be incorporated into the specifications and drawings and final Bid Documents will be prepared.
- iii. The Consultant will provide electronic delivery of the 60, 90, and 100 percent deliverables to the City. The list of Project drawings provided below will be refined as the Project progresses:
 1. Cover Sheet
 2. Legend 1
 3. Legend 2
 4. Legend 3
 5. Site Layout 1
 6. Site Layout 2
 7. Civil Details 1
 8. Civil Details 2
 9. Mechanical Plan and Profile
 10. Mechanical Details 1
 11. Mechanical Details 2
 12. Electrical Layout
 13. Electrical One-Line
 14. Electrical Details 1
 15. Electrical Details 2
 16. P&ID
 17. Pipeline Legend 1
 18. Pipeline Legend 2
 19. Civil Details 3
 20. Civil Details 4
 21. Civil Details 5
 22. Pipeline Layout
 23. Plan and Profile 1
 24. Plan and Profile 2
 25. Plan and Profile 3
- f. Prepare an engineering cost estimate for the well site construction project based on the 90 percent drawings. The cost estimate will be generally in accordance with the Association for the Advancement of Cost Engineering International Class 1 standards for which the estimated accuracy is from -10 to +15 percent.

C. Well and Pipeline Facilities Construction (Task 6)

Coordinate and document well facility construction. City will provide similar coordination and all services during construction for the pipeline construction. This will include the following activities:

- a. Upon the City's approval of the Construction Documents, Consultant will prepare the required documents to submit for the Authorization To Construct (ATC) through ADEQ, as further described below within the following sub-tasks:
 - i. Attend a pre-application meeting with ADEQ to confirm the requirements for obtaining the ATC and Approval of Construction (AOC) certificate.
 - ii. Waterline Design Technical Memorandum – Consultant will prepare a Design Technical Memorandum based on the Construction Documents to be included with the ADEQ application for the ATC.
 - iii. Application for Approval to Construct – Consultant will prepare the ATC application and coordinate efforts with the City to acquire the required signatures.
 - iv. Deliverables for this task will include a digital PDF copy of the Design Technical Memorandum, the application for ATC, the fee of \$1,250, the New Source Analysis form, and pertinent contract documents that will be sent digitally to ADEQ for review and approval via e-mail correspondence.
- b. Prepare a request for proposals (RFP) for the City to bid and procure the well site and pipeline construction contractor in accordance with the City's procurement code.
- c. The Consultant will provide Construction Management Services to assist in coordinating the site activities, communication, reporting, and administering the contract for construction. Consultant assumes that construction of the well facilities will take 16 weeks. The Consultant will implement and maintain regular communications with the construction contractor during the construction. The Consultant will receive and log all major communications from the construction contractor and will coordinate the communications between the City and construction contractor. The construction contractor will be responsible for obtaining necessary permits for construction.
- d. The Consultant will keep the City advised of the progress of the construction throughout. The Consultant will submit a monthly construction progress summary via email that includes construction schedule, expected date of completion, contract price, retainage, pending changes to the contract price or completion date and other issues material to the cost and time for completion of the construction and attachments of documentation logs including the construction contractor's Quality Control Reports. In addition, the Consultant will provide monthly reports and invoices to the construction contractor activities related to the Consultant's scope of work.
- e. The Consultant will coordinate, conduct and attend one pre-construction conference with the construction contractor and the City to review the Project communication, coordination and other procedures and discuss the construction contractor's Quality Control System. The Consultant will lead the meeting and record the results of this conference.

- f. The Consultant will conduct up to 8 bi-weekly progress meetings with the construction contractor, subcontractors as appropriate, and City attending. The progress meetings conducted by Consultant will review work progress, progress schedule, quality control, schedule of submittals, application for payment, contract modification, and other matters requiring discussion and resolution. These meetings will be conducted via teleconference and will be attended by the Project Manager and the Construction Manager.
- g. The Consultant will issue field instructions, orders or similar documents during construction. The Consultant may authorize minor variations in the work which do not involve an adjustment in the construction contractor's contract price nor time for construction and are not inconsistent with the intent of the contract documents. Additionally, the Consultant will issue field directives to authorize allowances in the contract for construction. The Consultant will also review construction contractor requested changes to the contract for construction. The Consultant will make recommendations to the City regarding the acceptability of the change order and, upon approval of the City, assist the City in negotiations of the requested change.
- h. The Consultant will receive and review the construction contractor's requests for payment and will determine whether the amount requested reflects the progress of the construction contractor's work, and is in accordance with the contract for construction. The Consultant also will review the construction contractor's schedule of values at the beginning of construction. The Consultant will provide recommendations to the City as to the acceptability of the requests, in addition will advise the City as to the status of the total amounts requested, paid, and remaining to be paid under the terms of the contract for construction.
- i. The Consultant will conduct periodic on-site observations of the construction contractor's work for the purposes of determining if the work generally conforms to the contract for construction and that the integrity of the design concept as reflected in the contract for construction has been implemented and preserved by the construction contractor. The Consultant will not provide a full time Resident Engineer/Inspector. All observation will be provided on an as needed basis to confirm compliance with the Contract Documents. For the purposes of this scope of work up to one site visit per bi-weekly period is anticipated.
- j. The Consultant will observe the construction contractor's quality control coordination. Should Consultant discover or believe that any work by the construction contractor is not in accordance with the contract for construction, or is otherwise defective, or not conforming to requirements of the contract or applicable rules and regulations, Consultant will bring this to the attention of the construction contractor's Quality Control Manager and the City. The Consultant will thereupon monitor the construction contractor's corrective actions and will advise the City as to the acceptability of the corrective actions.
- k. The Consultant will assist the City with inspections at substantial and final completion, in accordance with the contract for construction. The Consultant will prepare up to two (2) separate punch lists of items requiring completion or correction. The Consultant will make recommendations to the City regarding acceptance of the work based upon the results of the final inspection.
- l. The Consultant will obtain from the construction contractor and review a proposed submittal schedule of shop drawings, samples, submittals, and operation and

maintenance (O&M) manuals required by the contract for construction, along with the anticipated dates for submission. The Consultant will coordinate with the design team for the reviews of the construction contractor's, shop drawings, samples, submittals, and O&Ms in accordance to the contract documents. Consultant's review of all shop drawings, samples and submittals will be for general conformance with the design concept and general compliance with the requirements of the contract for construction. Such review will not relieve the construction contractor from its responsibility for performance in accordance with the contract for construction.

- m. The Consultant will review the construction contractor's requests for information (RFI) or clarification of the contract for construction. The Consultant will coordinate such review with the design team and with the City as appropriate. The Consultant will coordinate and issue responses and log the construction contractor's requests. The Consultant will assist the City in reviewing and responding to the construction contractor's requests for substitution of materials and equipment. The Consultant will review such requests and will advise the City as to the acceptability of such substitutions.
- n. The Consultant will contract with a Process Instrumentation and Control Systems (PICS) Integrator for the work tasks related to the installation and implementation of the PICS, point to point testing verification, calibration verification, installing and testing software, and operator training. The Consultant will coordinate construction activities with the PICS integrator when work activities are scheduled. The Consultant will schedule and conduct up to 2 coordination meetings to review task requirements as outlined in the specifications with one Consultant representative attending. Attendees will include Consultant, City, construction contractor, PLC programmer, and PICS subcontractor/installer.
- o. The Consultant will provide specialty inspections and testing in accordance with the construction specifications. This will include such work as structural, electrical, mechanical, coatings, and corrosion.
- p. Start up planning meetings shall be conducted by Consultant in order to facilitate completion and communication of the start-up plan. The Consultant will review start up plan which include facility and performance demonstration plan. The Consultant will provide 1 day of witness field performance tests required to confirm that individual components and systems operate as specified in startup plan. Consultant will provide up to 3 days of witness pump functional testing in the field after pump installation to verify pump performance in accordance with the specifications. The construction contractor will perform testing under the witness of the Consultant. A report will be issued for the testing based on data presented by the construction contractor.
- q. Upon completion of startup the Consultant will receive and review functional and performance test results and advise the City whether the facility is functioning in accordance with the contract for construction.
- r. As part of the Start Up plan, the Consultant will receive and review the disinfection plan and procedures for the well site facilities including review and approval of independent testing agency for performing water quality sampling and testing. City will provide similar services for the pipeline construction. Consultant will witness disinfection performance. Upon receiving water quality test results from the construction contractor, the Consultant will review and advise the City on the acceptance and water

quality is met based upon the conformance of bacterial limitations for public drinking water.

- s. The Consultant will coordinate with the construction contractor for the submission of required warranties, guarantees, lien releases and other similar documents as required by the contract for construction. The Consultant will advise the City as to the acceptability and compliance of these documents with the contract for construction. The Consultant will provide to the City an organized set of Project documents and records.
- t. The Consultant will coordinate the construction contractor's submittal of construction red lines of drawings, specifications and other record documents in preparation for finalizing record drawings and will transmit these to the Owner. The Consultant will meet with the construction contractor to discuss the preparation and submittal of as-built or record drawings.
- u. The Consultant will meet with City for up to one day to observe final construction conditions and conduct an engineering inspection.
- v. Submit required documentation to support an Approval of Construction certificate from ADEQ. Activities associated with obtaining the certificate include:
 - i. Prepare record drawings of the completed pipeline.
 - ii. Prepare and submit the application form and provide the results of the testing and the record drawings to ADEQ and request the certificate.

3. General Assumptions

- A. In soils, foundation, groundwater, and other subsurface investigations, the actual characteristics may vary significantly between successive test points and sample intervals and at locations other than where observations, exploration, and investigations have been made. Because of the inherent uncertainties in subsurface evaluations, changed or unanticipated underground conditions may occur that could affect total cost and/or execution beyond the Consultant's control.
- B. Completion of the activities described in this Agreement depends in part on obtaining legal access to the properties where drilling and construction will take place.

4. Schedule. The Services will commence upon receipt of an executed Agreement and an issuance of a "Notice to Proceed" and will roughly follow the schedule below:

FY 2019-2020

Notice to Proceed (NTP)	To be determined
Kick-off meeting	NTP + 2 weeks
Recommend well sites and pipeline route to LHC	NTP + 8 weeks
Mobilize for pilot borings and begin drilling	NTP + 12 weeks*
Property acquisition complete	NTP + 25 weeks

FY 2020-2021

Complete pilot borings	NTP + 35 weeks
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Additional Services (to be authorized by the City in the future)

Develop well design and specifications based on data analysis	NTP + 51 weeks
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Mobilization for two production wells	NTP + 51 weeks
First well construction complete	NTP + 57 weeks
First well developed and pump-tested	NTP + 60 weeks
Second well construction complete	NTP + 63 weeks
Second well developed and pump-tested	NTP + 66 weeks
<u>FY 2021-2022</u>	
Well and pipeline design complete	NTP + 95 weeks
Mobilize for well site and pipeline construction	NTP + 113 weeks
Pipeline construction complete	NTP + 125 weeks
Well equipping complete	NTP + 136 weeks

EXHIBIT “B” – FEE SCHEDULE
Backup Water Source – Exploratory Well Drilling

Consultant agrees to perform the services outlined in Exhibit A for time and materials not to exceed amount of \$750,000, excluding additional services if necessary, to be invoiced on an hourly rate based on the Rate Schedule below and as follows:

Fiscal Year	Activities	Jacobs Labor Cost	Expenses	Subcontractors	Subtotal
2019-2020	Task 1 -- Project Management	\$32,995	\$-	\$5,291	\$ 38,286
	Task 2 -- Site Evaluation and Acquisition	\$52,014	\$1,785	\$32,275	\$ 86,074
	Task 3 -- Test Boring Construction, 5 Borings	\$143,174	\$22,440	\$397,026	\$562,640
SUBTOTAL		\$228,183	\$24,225	\$434,592	\$687,000
Contingency					\$ 63,000
TOTAL JACOBS CONTRACT FEE*					\$750,000

Notes:

1. Pipeline services during construction to be provided by the City.
2. Travel and other direct expenses and field supplies are included in the above.
3. Drilling subcontract costs based on Exhibit A assumptions and include waste handling and field mark-outs.
4. All subcontract costs include a 5% mark-up.
5. All expenses include a 10% markup.

Professional and Technician Hourly Billing Rates

Classification	2019 Rate
Principal in Charge	\$240
Project Manager/Principal Technologist	\$233
Principal Engineer/Professional	\$217
Senior Engineer/Professional	\$196
Project Engineer/Professional	\$170
Staff Engineer	\$138
Engineering Technician	\$106
Office/Admin	\$90

EXPENSES		
Expense Type	Estimating Method	Rate
Health & Safety Assessment*	Service Center	\$1.75
Auto Mileage	Travel	Current IRS Rate + 10%
Auto Rental	Travel	Actual + 10%
Other Travel (FTR Guidelines)	Travel	Actual + 10%
Equipment Rental	Operating Expense	Actual + 10%
Postage/Freight	Operating Expense	Actual + 10%
Reprographics	Outside Service	Actual + 10%
Subcontractors	Outside Service	Actual + 5%

These rates are effective January 1, 2019 through December 31, 2019