

CONTRACT FOR ENGINEERING SERVICES
CDM Smith Inc.

This Contract, dated _____, 2016, is between the **City of Bryan**, a Texas home-rule municipal corporation, (the City) and CDM Smith Inc. a corporation (the Engineer), whereby the Engineer agrees to provide the City with certain professional services as described herein and the City agrees to pay the Engineer for those services.

1. Scope of Services

In consideration of the compensation stated in paragraph 2, the Engineer agrees to provide the City with the professional services as described in Attachment A, the Scope of Services, which is incorporated herein by reference for all purposes, and which services may be more generally described as follows: **Aquifer Storage and Recovery Feasibility Assessment, and Piloting Phase Services.**

2. Payment

In consideration of the Engineer's provision of the professional services in compliance with all terms and conditions of this Contract, the City shall pay the Engineer according to the terms set forth in Attachment A. Except in the event of a duly authorized change order, approved by the City in writing, the total cost of all professional services provided under this Contract may not exceed **Six Hundred Twenty Thousand and 00/100s (620,000.00).**

3. Time of Performance

- A. All design work and other professional services provided under this Contract must be completed by the following date: **January 31, 2018.** The City, by and through the Director of the City's Water Services Department, may agree to an extension of the time for completion. Any extension of the time for completion approved by the City, however, shall only be effective upon the execution of an instrument in writing stating the terms of the extension and signed by both the City and the Engineer. The Schedule is more fully defined in Attachment A.
- B. **Time is of the essence of this Contract.** The Engineer shall be prepared to provide the professional services in the most expedient and efficient manner possible in order to complete the work by the times specified.

4. Warranty, Indemnification, & Release

- A. As an experienced and qualified design professional, the Engineer warrants that the information provided by the Engineer reflects high professional and industry standards, procedures, and performances. The Engineer warrants the design preparation of drawings, the designation or selection of materials and equipment, the selection and supervision of personnel, and the performance of other services under this Contract, is pursuant to a high standard of performance in the profession. The Engineer warrants that the Engineer will exercise diligence and due care

and perform in a good and workmanlike manner all of the services pursuant to this Contract. Approval of the City shall not constitute, or be deemed, a release of the responsibility and liability of the Engineer, its employees, agents, or associates for the exercise of skill and diligence to promote the accuracy and competency of their designs, information, plans, specifications or any other document, nor shall the City's approval be deemed to be the assumption of responsibility by the City for any defect or error in the aforesaid documents prepared by the Engineer, its employees, associates, agents, or subcontractors.

- B. The Engineer shall promptly correct any defective designs or specifications furnished by the Engineer at no cost to the City. The City's approval, acceptance, use of, or payment for, all or any part of the Engineer's services hereunder or of the Project itself shall in no way alter the Engineer's obligations or the City's rights hereunder.
- C. In all activities or services performed hereunder, the Engineer is an independent contractor and not an agent or employee of the City. The Engineer and its employees are not the agents, servants, or employees of the City. As an independent contractor, the Engineer shall be responsible for the professional services and the final work product contemplated under this Contract. Except for materials furnished by the City, the Engineer shall supply all materials, equipment, and labor required for the professional services to be provided under this Contract. The Engineer shall have ultimate control over the execution of the professional services. The Engineer shall have the sole obligation to employ, direct, control, supervise, manage, discharge, and compensate all of its employees or subcontractors, and the City shall have no control of or supervision over the employees of the Engineer or any of the Engineer's subcontractors.
- D. The Engineer must at all times exercise reasonable precautions on behalf of, and be solely responsible for, the safety of its officers, employees, agents, subcontractors, licensees, and other persons, as well as their personal property, while in the vicinity of the Project or any of the work being done on or for the Project. It is expressly understood and agreed that the City shall not be liable or responsible for the negligence of the Engineer, its officers, employees, agents, subcontractors, invitees, licensees, and other persons.
- E. Responsibility for damage claims (indemnification): Engineer shall defend, indemnify and save harmless the City and all its officers, agents, and employees from all suits, actions, or claims of any character, name and description brought for or on account of any injuries or damages received or sustained by any person or persons or property resulting from the Engineer's negligent performance of the work, or by or on account of any claims or amounts recovered under the Workmen's Compensation Law or any other law, ordinance, order or decree, and his sureties shall be held until such suit or suits, action or actions, claim or claims for injury or damages as aforesaid shall have been settled and satisfactory evidence to the effect furnished the City. Engineer shall defend, indemnify and save harmless the City, its officers, agents and employees in accordance with this indemnification clause only for that portion of the damage caused by Engineer's negligence.
- F. Release. The Engineer releases, relinquishes, and discharges the City, its officers, agents, and employees from all claims, demands, and causes of action of every kind and character,

including the cost of defense thereof, for any injury to, sickness or death of the Engineer or its employees and any loss of or damage to any property of the Engineer or its employees that is caused by or alleged to be caused by, arises out of, or is in connection with the Engineer's negligent performance of the work. Both the City and the Engineer expressly intend that this release shall apply regardless of whether said claims, demands, and causes of action are covered, in whole or in part, by insurance.

5. **Engineer's Insurance**

The Engineer agrees to maintain, on a primary basis, for the duration of this contract the insurance coverages and limits as described below. See Attachment D for insurance example. The Engineer must deliver to the City a certificate(s) of insurance evidencing that such policies are in full force and effect within 5 business days of notification of the City's intent to award a contract. Failure to meet the insurance requirements and provide the required certificate(s) and any necessary endorsements within five business days **may cause the contract to be rejected**. The City reserves the right to obtain complete, certified copies of all required insurance policies at any time.

The requirements as to types and limits, as well as the City's review or acceptance of insurance coverage to be maintained by Engineer, is not intended to nor shall in any manner limit or qualify the liabilities and obligations assumed by the Engineer under the Agreement.

- A. **Commercial General Liability Insurance** – Limit of liability not less than \$1,000,000 per occurrence Engineer agrees to maintain a standard ISO version Commercial General Liability occurrence form, or its equivalent providing coverage for, but not limited to, Bodily Injury and Property Damage, Premises/Operations, Products/Completed Operations, Independent Engineers.
- B. **Professional Liability Insurance** – Limit of liability not less than \$1,000,000 per occurrence Engineer agrees to maintain Professional (Errors & Omissions) Liability to pay on behalf of the insured all sums which the insured shall become legally obligated to pay as damages by reason of any act, malpractice, error or omission of the Engineer or any person employed or acting on the Engineer's behalf (including but not limited to sub-contractors). For policies written on a "claims-made" basis, Engineer agrees to maintain a retroactive date prior to or equal to the effective date of this contract and that continuous coverage will be maintained or a supplemental extended reporting period will be purchased with a minimum reporting period not less than two years after the completion of this contract. The Engineer is solely responsible for any additional premium for the supplemental extended reporting period.
- C. **Business Automobile Liability Insurance** – Limit of liability not less than \$1,000,000 per occurrence Engineer agrees to maintain a standard ISO version Business Automobile Liability, or its equivalent, providing coverage for all owned, non-owned and hired automobiles. Should the Engineer not own any automobiles, the business auto liability requirement shall be amended to allow the Engineer to agree to maintain only Hired & Non-Owned Auto Liability. This amended coverage requirement may be satisfied by way of endorsement to the Commercial General Liability, or separate Business Auto policy.

- D. **Workers' Compensation Insurance & Employers' Liability Insurance** – Statutory & \$500,000/\$500,000/\$500,000. The Engineer agrees to maintain Worker's Compensation Insurance & Employers Liability. In the event any work is sublet, the Engineer shall require the subcontractor similarly to provide the same coverage and shall himself acquire evidence of such coverage on behalf of the subcontractor.
- E. **Additional Insured Endorsements** The Engineer agrees to endorse the City as an Additional Insured on each insurance policy required to be maintained, with the exception of the worker's compensation, employer's liability and professional liability policy.
- F. **Waiver Of Subrogation** Waiver of subrogation in favor of the City of Bryan for each required policy. When required by the insurer or should a policy condition not permit Engineer to enter into a pre-loss agreement to waive subrogation without an endorsement, then Engineer agrees to notify the insurer and request the policy be endorsed with a Waiver of Transfer of rights of Recovery Against Others, or its equivalent. This Waiver of Subrogation requirement shall not apply to any policy, which includes a condition specifically prohibiting such an endorsement, or voids coverage should Engineer enter into such an agreement on a pre-loss basis.
- G. **Deductibles, Coinsurance Penalties, & Self-Insured Retention** Engineer shall agree to be fully and solely responsible for any costs or expenses as a result of a coverage deductible, coinsurance penalty, or self-insured retention; including any loss not covered because of the operation of such deductible, coinsurance penalty, or self-insured retention.
- H. **Subcontractor's Insurance** The Engineer shall agree to cause each subcontractor employed by Engineer to purchase and maintain insurance of the type specified, provided the Engineer's insurance does not afford coverage on behalf of the subcontractor.
- I. **Certificate Of Insurance** Engineer shall furnish the City with a certificate(s) of insurance, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements. The certificate must be from a company with an A.M. Best rating of "A-" or better and/or otherwise acceptable to the City. Certificates must be submitted using the ACORD form and all endorsements must be included with the submittal. The certificate(s) shall contain a provision that coverage under such policies shall not be cancelled or non-renewed until at least thirty (30) days prior written notice, or ten (10) days notice for cancellation due to non-payment of premiums, is given the City of Bryan.

If the event the City is notified that a required insurance coverage will cancel or non-renew during the contract period, the Engineer shall agree to furnish prior to the expiration of such insurance, a new or revised certificate(s) as proof that equal and like coverage is in effect. The City reserves the right, but not the obligation, to withhold payment to Engineer until coverage is reinstated. If the Engineer fails to maintain the required insurance, the City shall have the right, but not the obligation, to purchase the required insurance at Engineer's expense.

Certificates and notices should be given to the City at the following address:

**City of Bryan
Attn: Risk Management Department
300 S. Texas Ave.
Bryan, TX 77803**

RIGHT TO REVIEW AND ADJUST The City reserves the right to review these requirements and to modify insurance coverage and their limits when deemed necessary and prudent. Furthermore, the City reserves the right, but not the obligation, to review and reject any insurer providing coverage because of poor financial condition.

6. Termination

- A. The City may terminate this Contract. Without cause, at any time upon **thirty (30)** calendar days written notice. Upon the Engineer's receipt of such notice, the Engineer shall cease work immediately. The Engineer shall be compensated for the services satisfactorily performed prior to the termination date.
- B. If, through any cause, the Engineer fails to fulfill its obligations under this Contract, or if the Engineer violates any of the agreements of this Contract, the City has the right to terminate this Contract by giving the Engineer **five (5)** calendar days written notice to the Engineer. The Engineer will be compensated for the services satisfactorily performed before the termination date.
- C. No term or provision of this Contract shall be construed to relieve the Engineer of liability to the City for damages sustained by the City because of any breach of contract by the Engineer. The City may withhold payments to the Engineer for the purpose of setoff until the exact amount of damages due the City from the Engineer is determined and paid.

7. Miscellaneous Terms

- A. This Contract has been made under and shall be governed by the laws of the State of Texas. The parties agree that performance and all matters related thereto shall be in Brazos County, Texas.
- B. Notices shall be mailed to the addresses designated herein or as may be designated in writing by the parties from time to time and shall be deemed received when sent postage prepaid U.S. Mail to the following addresses:

The City of Bryan

The Engineer:

Attn: Jayson Barfknecht, Ph.D., P.E.
P.O. Box 1000
Bryan, TX 77805

Attn: Allen Woelke, P.E., BCEE
12357-A Riata Trace Pkwy, Suite 210
Austin, TX 78727

- C. No waiver by either party hereto of any term or condition of this Contract shall be deemed or construed to be a waiver of any other term or condition or subsequent waiver of the same term or condition.
- D. This Contract represents the entire and integrated agreement between the City and the Engineer and supersedes all prior negotiations, representations, or agreements, either written or oral. This Contract may only be amended by written instrument approved and executed by the parties.
- E. This Contract and all rights and obligations contained herein may not be assigned by the Engineer without the prior written approval of the City.
- F. The Engineer, its agents, employees, and subcontractors must comply with all applicable federal and state laws, the charter and ordinances of the City of Bryan, and with all applicable rules and regulations promulgated by local, state, and national boards, bureaus, and agencies. The Engineer must obtain all necessary permits and licenses required in completing the work and providing the services required by this Contract.
- G. The parties acknowledge that they have read, understood, and intend to be bound by the terms and conditions of this Contract.

Party of the First Part

CITY OF BRYAN, TEXAS

Approved as to Form:

Approved:

Janis K. Hampton, City Attorney

Jason P. Bienski, Mayor

Approved for Processing:

Attest:

Jayson Barfknecht, P.E., Ph.D
Director of Public Works

By: _____
Mary Lynne Stratta, City Secretary

Date: _____

Kean Register, City Manager

Party of the Second Part
ENGINEER:

By: _____

Printed Name: Allen D. Woelke, P.E.
Title: Vice President
Date: _____
Firm's License No. TBPE No. F-3043

Witness

ATTACHMENT “A”

Aquifer Storage and Recovery (ASR) Project

Scope of Services

The City of Bryan (Bryan) currently has 12 water supply wells in the Simsboro and Sparta Aquifers; ten actively used wells and two inactive wells. Aquifer Storage Recovery (ASR) has been identified as a viable water management strategy for the City. The recharge objective is to store surplus groundwater into a suitable aquifer(s) when demand is lower, and to recover the stored groundwater during periods of drought and high demand periods during the summer. An initial assessment of the hydrogeology in the vicinity suggests the Sparta, Queen City, and Carrizo-Wilcox (Simsboro) Aquifers are potential subsurface formations that could be used for ASR.

Relatively limited experience exists with the development of ASR systems in Texas, therefore prior to implementing a full scale ASR system, the City proposes to pilot test a single well. In order to reduce costs the City is considering retrofitting an existing well for testing. Well #10, one of two wells which are currently inactive, has been identified as being potentially suitable. However prior to proceeding further, its suitability needs to be more reliably confirmed. Well #10 intersects the Simsboro aquifer, and although water withdrawn from this aquifer is hot (about 115 degrees Fahrenheit) and will require cooling prior to distribution, fortunately the City owns and operates a cooling and water treatment facility (Site) near this well. Preliminary discussions between the Engineer and City have therefore identified the location of the cooling and treatment facility as viable for an ASR pilot study.

Project Approach

Engineer proposes a phased approach for developing ASR as a water supply alternative for the City. The approach includes the following broad phases:

- Phase 1 Initial Assessment - The Initial Assessment includes the collection and evaluation of existing data to identify the most feasible aquifer and site location for a pilot test as well as the development of a conceptual design for the pilot test.
- Phase 2 ASR Pilot Test - Conduct an ASR pilot test to confirm the feasibility of the selected aquifer and site location for an ASR system. The pilot test would include retrofitting an existing well (if feasible) for pilot testing and/or monitoring, drilling and constructing an ASR pilot test well, associated monitoring wells, pumping and injection testing, and pilot test data evaluation.
- Phase 3 Refine ASR Strategy – Once the feasibility of an ASR project has been confirmed, collect additional field data (if necessary) to fill identified data gaps, conduct aquifer modeling to evaluate impacts of varying injection rates, injection location, annual withdrawals from the aquifer. More detailed water quality compatibility evaluations would also be conducted if recommended in the feasibility study.
- Phase 4 ASR System Design and Construction
- Phase 5 ASR Operation and Maintenance

This proposal outlines the scope of work, schedule, and budget for conducting the Initial Assessment (Phase 1), and Single Well Pilot Study (Phase 2). It assumes that Well#10 is suitable for conversion. The implementation of Phase 2 and subsequent phases will be based on the results and recommendations from the Initial Assessment.

Scope of Work

The proposed scope of work for the Initial Assessment (Phase 1) will be conducted as described below.

Task 1 Initial Assessment

Task 1.1 - Program Development and Coordination

The objective of Task 1.1 is to hold a kick off meeting with the City to confirm the type of ASR system that would best meet the needs of the City. Engineer will meet with the City to discuss their needs and the goals for the ASR project, potential sites for an ASR system, and logistical issues. The following items will be determined during this task:

- Confirm goals, needs, and preferences of City.
- Confirm preferred and alternative ASR system locations.
- Confirm operational strategy for ASR system

The decisions made during this task will influence how Engineer proceeds with this Initial Assessment to identify the preferred and alternative ASR system sites.

Task 1.2 - Data Collection and Review

The objective of Task 1.2 is to gather and review available data required for the evaluation of the preferred and alternative ASR system sites. Engineer will work with the City to compile available and relevant data necessary for this assessment. This task includes the collection of the following data:

- Regional and local hydrogeologic reports and data available from Texas Water Development Board, Bureau of Economic Geology (BEG)
- Site specific hydrogeologic data (e.g., geological logs, geophysical logs, aquifer testing results, groundwater quality data) available from TWDB, BEG and log libraries;
- Available construction, maintenance and rehabilitation, water level, water quality, and production data for the City water supply wells and other nearby water supply wells. Well #10 is of particular interest in this data gathering effort.
- Potentiometric surface (groundwater level) elevation maps for the targeted aquifers in the vicinity of the proposed ASR well(s) from monitoring data or groundwater modeling
- Historical and projected City of Bryan water demand data
- Data for other nearby users of the targeted aquifers such as well locations, existing and future pumping rates and permitted allocations

Specific issues that will be considered during the data collection and review will include:

- Project objectives (type of ASR system).

- Seasonal variability of utility water supply and demand. The seasonal availability of water for storage will be evaluated, including consideration of demand center location relative to water sources, potential ASR sites, and treatment and distribution facilities. The evaluation will include a consideration of long-term water supply and demand trends and will be based on the probabilistic evaluation previously completed for Region G planning.
- Required system capacity (short and long term daily and seasonal demands).
- Potential Water supply options for pilot ASR system testing, including location of nearest source (pipeline), logistics of connection, pipe size and delivery pressures.
- Quality of source water to be used for initial testing, as well as quality of water to be used for long term system operation.
- Identification of any data gaps.

Task 1.3 – Well #10 Evaluation

The objective of Task 1.3 is to evaluate the compiled hydrogeologic, well, and water quality data relevant for Well #10 and to answer the following questions:

1. Is the City-owned property around Well #10 a suitable location for an ASR system?
2. Is the thickness and hydraulic parameters of the Simsboro aquifer intersected by Well #10 suitable?
3. Are any water quality issues for the recovered water anticipated?
4. Is the current construction and condition of Well #10 suitable for retrofitting?

Specific tasks and issues to be examined within this task include the following:

- Likely hydrogeology of the potential storage zone, including hydraulic parameters (transmissivity and storage coefficient of the targeted aquifer, leakance of the confining units), storage zone thickness (including the degree and type of aquifer heterogeneity within this zone that may impact recovery efficiency), potentiometric surface elevation, groundwater flow direction and aquifer hydraulic gradient (that may impact the potential for the recharged groundwater to move off-site), and water quality. This assessment will incorporate results obtained from a groundwater modelling task completed under a separate agreement.
- Location of aquifer users that might be impacted by the proposed ASR system. A well inventory will be performed within a one-mile radius of Well #10 with the data presented on a map and table.
- Engineer has been actively involved in the passage of HB655. The Texas Commission on Environmental Quality (TCEQ) is currently implementing the new rule change and permitting program process. As such, CDM Smith will summarize the current status of the regulatory framework and identify potential opportunities/risks that might impact permitting an ASR system for the City.
- Evaluation of the land acquisition requirements of the ASR system.

- A condition assessment of Well #10, to include a down-hole video inspection, cement bond log on final casing if required (likely using a modified CBL tool) and a mechanical pressure test on the final casing above the well screen. Dependent on the results from the hydrogeologic evaluation, additional static and dynamic fluid logs may be conducted. Engineer will provide specification for testing and oversee the inspection, but actual downhole inspection services to be provided by a third party Contractor.

Task 1.4 – Conceptual ASR Pilot Test and ASR System Design

The objective of Task 1.4 is to develop a conceptual design for a one-well pilot ASR system using Well #10, on the assumption that **Task 1.3** identifies this well as suitable. The tasks and issues to be examined for this task include the following:

- Conceptual design of a one-well pilot ASR system using Well#10. The conceptual design will include ASR and monitor well construction details, recommended cycle testing program, monitoring requirements, volumes, durations, testing parameters, pilot testing and operational strategy, and site logistical issues, such as piping, electrical service provision, pumping, and instrumentation. If existing wells are identified that could be used as monitor wells for the pilot test, the conceptual design will include construction details needed to evaluate / convert the well for ASR use.
- A preliminary cost estimate for a one-well pilot ASR system. The cost estimate will include design, permitting, construction, construction services (supervision), testing, and operating costs.
- Preliminary plans for site-specific hydrogeologic testing program (test well) with a construction and testing cost estimate.

Task 1.5 - Technical Memorandum

A Technical Memorandum will be prepared that presents the results of the initial evaluation. The Technical Memorandum will include the following:

- Presentation and interpretation of the data collected in Tasks 1.2 and 1.3.
- A summary of the current status of the ASR regulatory framework (including both rules and permitting program) and identify potential opportunities/risks that might impact permitting an ASR system for the City.
- Suitability of retrofitting well #10.
- A conceptual ASR Pilot test including preliminary plans and cost estimate as prepared for in Task 1.4.

Engineer proposes to conduct an in-person meeting with up to two (2) Engineer staff to present the findings and recommendations from the Technical Memorandum. During this meeting, Engineer and the City would jointly agree the preferred ASR pilot test configuration. Subsequently, the draft Technical Memorandum will be provided to the City for one round of review and comment before being finalized.

The proposed scope of work for the Single Well Pilot Study (Phase 2) will be conducted as described below.

Task 2–ASR Pilot Test

Task 2 includes the design, bidding, and general services during construction for improvements to Well No. 10 to allow it to be used as an ASR pilot well. These improvements may include piping improvements to move production water to Well No. 10, replacement of Well No. 10 pump and motor, piping from Well No. 10 to the cooling towers. Task 2 also includes pilot testing of Well No. 10, permitting of Well No. 10 as an ASR well.

Task 2.1 – Well No. 10 Pilot ASR System Design

Task 2.1.1 -- Preliminary Engineering Phase. This phase involves determination of project scope, economic and technical evaluation of feasible alternatives, and development of conceptual design and preliminary design. Services during this phase include:

- 1) Reviewing available data and consulting with the City to clarify and define the City's requirements for the project.
- 2) Advising the City as to the necessity of providing or obtaining from others additional data or services. These additional services may include, reconnaissance surveys, property surveys, topographic surveys, geotechnical investigations and consultations, compilation of hydrological data, materials engineering, assembly of zoning, deed, and other restrictive land use information, and environmental assessments and impact statements.
The project budget includes the following special services:
 - a) Threatened and Endangered Species Habitat Assessment, and Archaeological Survey
 - b) Topographic survey,
 - c) Property Survey and Field Notes and Sketch for Property acquisition, and
 - d) Geotechnical field investigation and laboratory analysis.
- 3) Identifying and analyzing requirements of governmental authorities having jurisdiction to approve the design of the project, and participating in consultations with such authorities.
 - a) The project includes coordinating with TCEQ and submitting the preliminary engineering report and required construction documents (plans and specifications) to the TCEQ Plan Review Division for review and approval.
- 4) Providing analyses of the City's needs, planning surveys, and comparative evaluations of prospective sites and solutions.
- 5) Consulting with the City, reviewing preliminary reports, clarifying and defining the project requirements, reviewing available data, and discussing general scheduling. Conferences may also be required with approving and regulatory governmental agencies and affected utilities.
- 6) Advising the City as to whether additional data or services are required, and assisting the City in obtaining such data and services.
- 7) Preparing conceptual design documents consisting of final design criteria, preliminary drawings, outline of specifications, and written descriptions of the project. A maximum of five copies will be provided to the City for review.

- 8) Preparing revised opinions of probable total project costs based on the conceptual design.
- 9) Preparing preliminary design documents, including preliminary engineering report, if necessary, drawings and specifications.

Subtask 2.1.2 - Prepare Drawings and Specifications

The Engineer will prepare for incorporation into the Contract Documents, Drawings showing the scope, extent and character of the work to be performed and furnished by Contractor, and Technical Specifications (which will be prepared, where appropriate, in general conformance with the sixteen-division format of the Construction Specifications Institute). The Contract documents will include all items required for a fully operating ASR pilot project. The conceptual design agreed under Task 1.4 will form the basis for design. The Drawings and Specifications will be prepared in three phases:

- Preliminary Design (30%) – Engineer will:
 - Evaluate geotechnical, survey and environmental findings
 - Finalize design criteria requirements
 - Develop preliminary specification table of contents
 - Prepare specifications for pre-purchase items (if appropriate)
 - Develop 30% complete design Drawings
- Pre-Final Design (90%) – Engineer will prepare 90% complete design Drawings and Specifications. Table 1 below summarizes the anticipated number of design drawings for each discipline. These documents will be signed and sealed for permitting purposes.
- Final Design (100%) – Engineer will revise the 90% design Drawings and Specifications based on comments received from the City. The final design documents will be transmitted electronically (in PDF format) to the City for bidding of the project.

TABLE 1 Preliminary Count of Drawings to be Developed

Preliminary List of Drawings	No.
Cover and General	3
Civil: Plan, Profile and Details	5
Architectural	0
Structural: Plan, Sections and Details	2
Mechanical: Plan, Sections and Details	5
Plumbing & HVAC	0
Electrical	8
Instrumentation	5
Total Estimated Drawings	28

Task 2.2 - Permitting

The Engineer will prepare the permit applications necessary for the construction of the ASR well field, meet with regulatory agencies as required to review the permit applications and provide responses to additional information requested by the regulatory agencies. The permits to be applied for the City by the Engineer include:

Subtask 2.2.1- TCEQ UIC Class V ASR Permit

Engineer will prepare one "Application to Construct/Operate Class V ASR Systems" which will cover the retrofitting of Well #10 to allow full scale ASR pilot testing. One permit application, one meeting with the Texas Commission on Environmental Quality, Underground Injection Control Department (TCEQ UIC) to discuss comments on the application and one response to a request for additional information are assumed for budgeting this subtask.

Task 2.3 - Bidding Phase Services

After acceptance by City of the Engineer's Drawings, Specifications and other Design Phase documentation (including the OPCC), Engineer shall assist the City during the bidding phase as follows:

- Attend pre-bid conference.
- Issue Addenda as appropriate to clarify, correct, or change the Bidding Documents based on minor modifications.
- Provide responses to the City for questions received from Contractors, which do not require an addendum to be issued.
- Consult with City as to the acceptability of subcontractors, suppliers and other persons and entities proposed by Contractor for those portions of the work as to which such acceptability is required by the Bidding Documents.
- Prepare bid tabulation sheets and assist City in evaluating bids or proposals and in assembling supporting documentation for recommendation of awarding contracts for construction.

Task 2.4 - Construction Phase Services

Subtask 2.4.1 - Conform Construction Documents

Engineer will conform the Contract Documents incorporating addenda revisions to drawings and technical specifications, as appropriate, for use during the construction phase.

Subtask 2.4.2 - Pre-Construction and Construction Progress Meetings

Engineer will prepare the agenda, attend and issue meeting notes for one Preconstruction Conference and bi-weekly construction progress meetings. It is anticipated that the construction phase of the project will take 6 months. Therefore, 13 construction meetings (including the Preconstruction Conference) have been budgeted for.

Subtask 2.4.3 - General Administration of Construction Contract

Engineer shall consult with and advise City and act as City's representative as provided in the Contract Documents. All of City's instructions to Contractor will be issued through Engineer who shall have authority to act on behalf of City in dealings with Contractor to the extent provided in the Agreement and said Contract Documents except as otherwise provided in writing.

Engineer shall evaluate and render the initial opinions on all claims of City and Contractor relating to the acceptability of the work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the work.

Subtask 2.4.4 - Visits to Site and Observation of Construction

In connection with observations of the work of Contractor while in progress:

- Engineer will provide construction inspection and professional oversight on a part time basis, on average 4 hours per day, during construction of the ASR well appurtenances and associated facilities, to observe and document that each phase of construction is completed according to the Contract Documents and is in compliance with applicable regulations. For budgeting purposes, 80 days of active construction are assumed, and the drilling of a storage zone monitor well is not required.
- Engineer's field staff will prepare a daily report for every day on site, which will be transmitted to the City on a weekly basis.
- Engineer shall make visits to the site at intervals appropriate to the various stages of construction as Engineer deems necessary to observe as an experienced and qualified design professional the progress and quality of the various aspects of Contractor's work. Such visits and observations by Engineer are not intended to be exhaustive or to extend to every aspect of the work in progress, or to involve detailed inspections of the work beyond the responsibilities specifically assigned to Engineer in this Agreement and the Contract Documents, but rather are to be limited to spot checking, selective sampling and similar methods of general observation of the work based on Engineer's exercise of professional judgment. Based on information obtained during such visits and such observations, Engineer shall endeavor to determine in general if such work is proceeding in accordance with the Contract Documents and Engineer shall keep City informed of the progress of the work.

The purpose of Engineer's visits to the site will be to enable Engineer to better carry out the duties and responsibilities assigned to and undertaken by Engineer during the Construction Phase, and, in addition, by the exercise of Engineer's efforts as an experienced and qualified design professional, to provide for City a greater degree of confidence that the completed work of Contractor will conform in general to the Contract Documents and that the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents has been implemented and preserved by Contractor. On the other hand, Engineer shall not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct or have control over Contractor's work nor shall Engineer have authority over or responsibility for the means, methods, techniques, sequences or procedures of construction selected by Contractor, for safety precautions and programs incident to the work of Contractor or for any failure of Contractor to comply with laws, rules, regulations, ordinances, codes or orders applicable to Contractor's furnishing and performing the work. Accordingly, Engineer neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform its work in accordance with the Contract Documents.

During such visits and on the basis of such observations, Engineer shall have authority to disapprove of or reject Contractor's work while it is in progress if Engineer believes that such work will not produce a completed Project that conforms generally to the Contract Documents or that it will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents.

Subtask 2.4.5 - Clarifications and Interpretations

Engineer shall issue necessary clarifications and interpretations of the Contract Documents as appropriate to the orderly completion of the work. Such clarifications and interpretations will be consistent with the intent of and reasonably inferable from the Contract Documents.

Subtask 2.4.6 - Change Orders and Work Change Directives

Engineer shall recommend Change Orders and Work Change Directives to CITY as appropriate, and shall prepare Change Orders and Work Change Directives as required. Major change orders significantly deviating from the Contractor's scope of work may require authorization of additional services.

Subtask 2.4.7- Shop Drawings and Other Submittals

Engineer shall review and approve (or take other appropriate action in respect of) Shop Drawings and Samples and other data which Contractor is required to submit, but only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews and approvals or other action will not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Engineer will provide document management for all submittals including logging of the submittal in a submittal log, distributing the submittal to the appropriate reviewer(s), coding the submittal with the approval status and distributing the submittal back to the Contractor with copy to the City.

Engineer may require special inspections or tests of the work, and shall receive and review all certificates of inspections, tests and approvals required by laws, rules, regulations, ordinances, codes, orders or the Contract Documents. Engineer's review of such certificates will be for the purpose of determining that the results certified indicate compliance with the Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests or approvals comply with the requirements of the Contract Documents. Engineer shall be entitled to rely on the results of such tests.

Engineer shall evaluate and determine the acceptability of up to three substitute or "or-equal" materials and equipment proposed by Contractor in accordance with the Contract Documents. However, services in making revisions to Drawings and Specifications occasioned by the acceptance of substitute materials or equipment other than "or-equal" items; and services after the award of the construction contract in evaluating and determining the acceptability of a substitute which is appropriate for the Project or an excessive number of substitutes will only be performed pursuant to an amendment to this Agreement for additional compensation.

Subtask 2.4.8 - Applications for Payment

Based on Engineer's on-site observations as an experienced and qualified design professional and on review of Applications for Payment and the accompanying data and schedules:

Engineer shall determine the recommended amount for Contractor monthly payment. Such recommendations of payment will be in writing and will constitute Engineer's representation to City, based on such observations and review, that, to the best of Engineer's knowledge, information and belief, the work has progressed to the point indicated, the quality of such work is generally in accordance with the Contract Documents (subject to an evaluation of such work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents and to any other qualifications stated in the recommendation), and the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the work. In the case of unit price work, Engineer's recommendations of payment will include final determinations of quantities and classifications of such work (subject to any subsequent adjustments allowed by the Contract Documents). The responsibilities of Engineer contained in this paragraph are expressly subject to the limitations set forth in the paragraph that follows below and other express or general limitations in this Agreement and elsewhere.

By recommending any payment Engineer shall not thereby be deemed to have represented that on-site observations made by Engineer to check the quality or quantity of Contractor's work as it is performed and furnished have been exhaustive, extended to every aspect of the work in progress, or involved detailed inspections of the work beyond the responsibilities specifically assigned to Engineer in this Agreement and the Contract Documents. Neither Engineer's review of Contractor's work for the purposes of recommending payments nor Engineer's recommendation of any payment (including final payment) will impose on Engineer responsibility to supervise, direct or control such work or for the means, methods, techniques, sequences or procedures of construction or safety precautions or programs incident thereto, or Contractor's compliance with laws, rules, regulations, ordinances, codes or orders applicable to Contractor's furnishing and performing the work. It will also not impose responsibility on Engineer to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or to determine that title to any of the work, materials or equipment has passed to City free and clear of any liens, claims, security interests or encumbrances, or that there may not be other matters at issue between City and Contractor that might affect the amount that should be paid.

This subtask is budgeted based on an anticipated six (6) pay applications (including the final pay application).

Subtask 2.4.9 - Contractor's Completion Documents

Engineer shall receive, review and transmit to City with written comments maintenance and operating instructions, operation and maintenance (O&M) manuals (up to six O&M manuals, including one resubmittal of each), schedules, guarantees, Bonds, certificates or other evidence of insurance required by the Contract Documents, certificates of inspection, tests and approvals, and marked-up record documents (including Shop Drawings, Samples and other data approved as provided under Subtask 2.4.7 and marked-up record Drawings) which are to be assembled by Contractor in accordance with the Contract Documents to obtain final payment. Engineer's review of such documents will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

Subtask 2.4.10 - Substantial Completion

Following notice from Contractor that Contractor considers the entire work ready for its intended use, Engineer and City, accompanied by Contractor, shall conduct an inspection to determine if the work is Substantially Complete (SC). A punch list of remaining work items will be prepared by the Engineer based on the SC inspection. If after considering any objections of City, Engineer considers the work substantially complete; Engineer shall deliver a certificate of Substantial Completion to City and Contractor with a list of any deficiencies to be corrected prior to Final Acceptance.

Subtask 2.4.11 - Final Notice of Acceptability of the Work

Engineer shall conduct a final inspection to determine if the completed work of Contractor is acceptable so that Engineer may recommend, in writing, final payment to Contractor. Accompanying the recommendation for final payment, Engineer shall indicate that the work is acceptable (subject to the provisions of Subtask 2.4.10) to the best of Engineer's knowledge, information and belief and based on the extent of the services performed and furnished by Engineer under this Agreement. This subtask is budgeted based on one final inspection site visit.

Subtask 2.4.12 - Record Drawings

Engineer shall review the Contractor's As-Built Drawings for any material deviations to design intent. The Engineer shall convert the Contractor's As-Built Drawings into Record Drawings and deliver five hard copy sets and one CD/DVD with the PDF and AutoCAD files of the Record Drawings to the City.

Task 2.5 – Cycle Testing and Reporting

Available information will be collected from the City and other sources on the design and completion of Well #10. Well #10 will be subjected to hydrologic and water quality testing using the existing pump and motor and flow discharged safely on site. Upon completion of successful hydrogeologic testing of Well #10, the Engineer will finalize the cycle testing protocol, assist the City with well start-up, operator training and general troubleshooting, and will provide guidance during three Cycle Tests. The specific subtasks are as follows:

Subtask 2.5.1 - Cycle Test Protocol

Engineer will develop a cycle testing protocol for Well #10. Items to be included will be recharge and recovery rates, durations and anticipated volumes, water level and water quality monitoring frequencies, sampling protocols and recommended water quality sample parameters. Recommended injection and recovery rates will be based using hydrogeologic pumping test results obtained during the retrofitting and construction of Well #10, but may be subject to change following preliminary cycle testing.

Subtask 2.5.2 - Well Start-up and Operator Training

After the cycle testing protocol has been approved, the Engineer will provide on-site services for the start-up of cycle testing and troubleshooting assistance. The Engineer will have an operations specialist on site full-time for the recharge and recovery stages of a preliminary cycle test. The preliminary cycle test which is anticipated to be completed over several days, will also be used as an opportunity to train the City Utility Operators. As part of the training, standard operating practice documents (SOP's) will be provided as a guide.

Subtask 2.5.3 - Cycle Test Assistance

The Engineer will provide on-call services for cycle testing and troubleshooting assistance during three cycle tests. The City will be able to call or email the Engineer with questions that arise during these tests. Additionally, the Engineer will make field visits to assist the City on-site as requested. The actual duration of each recharge storage and recovery cycle still needs to be finalized. However, for budgeting purposes it is assumed that following preliminary testing, an initial recharge cycle will be completed, with focus on recharging a larger volume for approximately 6 months to minimize any potential issues with the recovered water quality, followed by two smaller cycles of approximately 3 months duration each to better confirm likely hydraulic performance and water quality recovery characteristics. Accordingly this task is budgeted based on providing an average of 4 hours of assistance per cycle test week for an approximate cycle duration of 52 weeks. It is assumed that all operation and monitoring including water quality sampling will be performed by the City, but the Engineer will provide guidance when required.

Subtask 2.5.4 - Cycle Test Analysis and Reporting

The Engineer will prepare a report summarizing the performance of the system during each cycle test and provide revised testing protocols for subsequent cycles as deemed necessary. This subtask is budgeted based on the first three cycle tests being completed within 365 calendar days following commencement of cycle testing.

Task 2.6 –O&M Manual for ASR System

The Engineer will update an O&M manual for the City of Bryan Well #10 ASR System based on any lessons learned during Cycles 1 through 3 of the cycle testing program. A draft version of the revised O&M manual will be submitted to the City for review. Upon incorporation of the City's comments, the O&M manual will be finalized.

TASK 3 SERVICES ARE NOT INCLUDED IN THIS CONTRACT BUT ARE SHOWN BELOW SO THE SCOPE AND COST OF THE DESIGN AND CONSTRUCTION PHASE OF THE IMPLEMENTATION OF THE ASR PROJECT IS KNOWN.

Task 3 ASR Well Field Design

Following completion of the ASR Pilot Study, Engineer with approval of City will design the improvements for two ASR recharge and recovery wells and associated pumping and piping improvements.

Task 3.1 -- Preliminary Engineering Phase. This phase involves determination of project scope, economic and technical evaluation of feasible alternatives, and development of conceptual design and preliminary design. Services during this phase include:

- 1) Reviewing available data and consulting with the City to clarify and define the City's requirements for the project.
- 2) Advising the City as to the necessity of providing or obtaining from others additional data or services. These additional services may include, reconnaissance surveys, property surveys, topographic surveys, geotechnical investigations and consultations, compilation of hydrological data, materials engineering, assembly of zoning, deed, and other restrictive land use information, and environmental assessments and impact statements.
The project budget includes the following special services:
 - b) Threatened and Endangered Species Habitat Assessment, and Archaeological Survey
 - b) Topographic survey,

- c) Property Survey and Field Notes and Sketch for Property acquisition, and
 - d) Geotechnical field investigation and laboratory analysis.
- 3) Identifying and analyzing requirements of governmental authorities having jurisdiction to approve the design of the project, and participating in consultations with such authorities.
 - a) The project includes coordinating with TCEQ and submitting the preliminary engineering report and required construction documents (plans and specifications) to the TCEQ Plan Review Division for review and approval.
 - 4) Providing analyses of the City's needs, planning surveys, and comparative evaluations of prospective sites and solutions.
 - 5) Consulting with the City, reviewing preliminary reports, clarifying and defining the project requirements, reviewing available data, and discussing general scheduling. Conferences may also be required with approving and regulatory governmental agencies and affected utilities.
 - 6) Advising the City as to whether additional data or services are required, and assisting the City in obtaining such data and services.
 - 7) Preparing conceptual design documents consisting of final design criteria, preliminary drawings, outline of specifications, and written descriptions of the project. A maximum of five copies will be provided to the City for review.
 - 8) Preparing revised opinions of probable total project costs based on the conceptual design.
 - 9) Preparing preliminary design documents, including preliminary engineering report, if necessary, drawings and specifications.

Task 3.2 -- Design Phase. The basic services for the final design phase includes:

- 1) Preparing construction drawings and specifications showing the character and extent of the project.
- 2) Preparing and furnishing to the City a revised opinion of probable total project costs based on the final drawings.
- 3) Furnishing the necessary engineering data required to apply for regulatory permits from local, state, or federal authorities. This is distinguished from and does not include detailed applications and supporting documents for government grant-in-aid or planning grants that would be furnished as additional services.
- 4) Preparing basic documents related to construction contracts for review and approval by the City (and the City's legal and other advisors). These may include contract agreement forms, general conditions and supplementary conditions, invitations to bid, instructions to bidders, insurance and bonding requirements, and preparation of other contract-related documents.
- 5) Furnishing to the City a maximum of five copies of drawings, specifications, and other contract documents.

Task 3.3 - Permitting

The Engineer will prepare the permit applications necessary for the construction of the ASR well field, meet with regulatory agencies as required to review the permit applications and provide responses to additional information requested by the regulatory agencies. The permits to be applied for the City by the Engineer include:

Subtask 3.3.1- TCEQ UIC Class V ASR Permit

Engineer will prepare one "Application to Construct/Operate Class V ASR Systems" which will cover the retrofitting of Well #10 to allow full scale ASR pilot testing. One permit application, one meeting with the Texas Commission on Environmental Quality, Underground Injection Control Department (TCEQ UIC) to discuss comments on the application and one response to a request for additional information are assumed for budgeting this subtask.

Task 3.4 – Bidding Phase Services

After acceptance by City of the Engineer's Drawings, Specifications and other Design Phase documentation (including the OPCC), Engineer shall assist the City during the bidding phase as follows:

- Attend pre-bid conference.
- Issue Addenda as appropriate to clarify, correct, or change the Bidding Documents based on minor modifications.
- Provide responses to the City for questions received from Contractors, which do not require an addendum to be issued.
- Consult with City as to the acceptability of subcontractors, suppliers and other persons and entities proposed by Contractor for those portions of the work as to which such acceptability is required by the Bidding Documents.
- Prepare bid tabulation sheets and assist City in evaluating bids or proposals and in assembling supporting documentation for recommendation of awarding contracts for construction.

Task 3.5 – Construction Phase Services

Subtask 3.5.1 - Conform Construction Documents

Engineer will conform the Contract Documents incorporating addenda revisions to drawings and technical specifications, as appropriate, for use during the construction phase.

Subtask 3.5.2 - Pre-Construction and Construction Progress Meetings

Engineer will prepare the agenda, attend and issue meeting notes for one Preconstruction Conference and bi-weekly construction progress meetings. It is anticipated that the construction phase of the project will take 6 months. Therefore, 13 construction meetings (including the Preconstruction Conference) have been budgeted for.

Subtask 3.5.3 - General Administration of Construction Contract

Engineer shall consult with and advise City and act as City's representative as provided in the Contract Documents. All of City's instructions to Contractor will be issued through Engineer who shall have authority to act on behalf of City in dealings with Contractor to the extent provided in the Agreement and said Contract Documents except as otherwise provided in writing.

Engineer shall evaluate and render the initial opinions on all claims of City and Contractor relating to the acceptability of the work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the work.

Subtask 3.5.4 - Visits to Site and Observation of Construction

In connection with observations of the work of Contractor while in progress:

- Engineer will provide construction inspection and professional oversight on a part time basis, on average 4 hours per day, during construction of the ASR well appurtenances and associated facilities, to observe and document that each phase of construction is completed according to the Contract Documents and is in compliance with applicable regulations. For budgeting purposes, 80 days of active construction are assumed, and the drilling of a storage zone monitor well is not required.
- Engineer's field staff will prepare a daily report for every day on site, which will be transmitted to the City on a weekly basis.
- Engineer shall make visits to the site at intervals appropriate to the various stages of construction as Engineer deems necessary to observe as an experienced and qualified design professional the progress and quality of the various aspects of Contractor's work. Such visits and observations by Engineer are not intended to be exhaustive or to extend to every aspect of the work in progress, or to involve detailed inspections of the work beyond the responsibilities specifically assigned to Engineer in this Agreement and the Contract Documents, but rather are to be limited to spot checking, selective sampling and similar methods of general observation of the work based on Engineer's exercise of professional judgment. Based on information obtained during such visits and such observations, Engineer shall endeavor to determine in general if such work is proceeding in accordance with the Contract Documents and Engineer shall keep City informed of the progress of the work.

The purpose of Engineer's visits to the site will be to enable Engineer to better carry out the duties and responsibilities assigned to and undertaken by Engineer during the Construction Phase, and, in addition, by the exercise of Engineer's efforts as an experienced and qualified design professional, to provide for City a greater degree of confidence that the completed work of Contractor will conform in general to the Contract Documents and that the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents has been implemented and preserved by Contractor. On the other hand, Engineer shall not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct or have control over Contractor's work nor shall Engineer have authority over or responsibility for the means, methods, techniques, sequences or procedures of construction selected by Contractor, for safety precautions and programs incident to the work of Contractor or for any failure of Contractor to comply with laws, rules, regulations, ordinances, codes or orders applicable to Contractor's furnishing and performing the work. Accordingly, Engineer neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform its work in accordance with the Contract Documents.

During such visits and on the basis of such observations, Engineer shall have authority to disapprove of or reject Contractor's work while it is in progress if Engineer believes that such work will not produce a completed Project that conforms generally to the Contract Documents or that it will prejudice the integrity

of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents.

Subtask 3.5.5 - Clarifications and Interpretations

Engineer shall issue necessary clarifications and interpretations of the Contract Documents as appropriate to the orderly completion of the work. Such clarifications and interpretations will be consistent with the intent of and reasonably inferable from the Contract Documents.

This subtask is budgeted based on an anticipated 20 requests for clarification.

Subtask 3.5.6 - Change Orders and Work Change Directives

Engineer shall recommend Change Orders and Work Change Directives to City as appropriate, and shall prepare Change Orders and Work Change Directives as required. Major change orders significantly deviating from the Contractor's scope of work may require authorization of additional services.

This subtask is budgeted based on up to 4 Change Orders or Work Change Directives.

Subtask 3.5.7- Shop Drawings and Other Submittals

Engineer shall review and approve (or take other appropriate action in respect of) Shop Drawings and Samples and other data which Contractor is required to submit, but only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews and approvals or other action will not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto. Engineer will provide document management for all submittals including logging of the submittal in a submittal log, distributing the submittal to the appropriate reviewer(s), coding the submittal with the approval status and distributing the submittal back to the Contractor with copy to the City.

Engineer may require special inspections or tests of the work, and shall receive and review all certificates of inspections, tests and approvals required by laws, rules, regulations, ordinances, codes, orders or the Contract Documents. Engineer's review of such certificates will be for the purpose of determining that the results certified indicate compliance with the Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests or approvals comply with the requirements of the Contract Documents. Engineer shall be entitled to rely on the results of such tests.

Engineer shall evaluate and determine the acceptability of up to three substitute or "or-equal" materials and equipment proposed by Contractor in accordance with the Contract Documents. However, services in making revisions to Drawings and Specifications occasioned by the acceptance of substitute materials or equipment other than "or-equal" items; and services after the award of the construction contract in evaluating and determining the acceptability of a substitute which is appropriate for the Project or an excessive number of substitutes will only be performed pursuant to an amendment to this Agreement for additional compensation.

This subtask is budgeted based on a not-to-exceed 120 submittals.

Subtask 3.5.8 - Applications for Payment

Based on Engineer's on-site observations as an experienced and qualified design professional and on review of Applications for Payment and the accompanying data and schedules:

Engineer shall determine the recommended amount for Contractor monthly payment. Such recommendations of payment will be in writing and will constitute Engineer's representation to City, based on such observations and review, that, to the best of Engineer's knowledge, information and belief, the work has progressed to the point indicated, the quality of such work is generally in accordance with the Contract Documents (subject to an evaluation of such work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents and to any other qualifications stated in the recommendation), and the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the work. In the case of unit price work, Engineer's recommendations of payment will include final determinations of quantities and classifications of such work (subject to any subsequent adjustments allowed by the Contract Documents). The responsibilities of Engineer contained in this paragraph are expressly subject to the limitations set forth in the paragraph that follows below and other express or general limitations in this Agreement and elsewhere.

By recommending any payment Engineer shall not thereby be deemed to have represented that on-site observations made by Engineer to check the quality or quantity of Contractor's work as it is performed and furnished have been exhaustive, extended to every aspect of the work in progress, or involved detailed inspections of the work beyond the responsibilities specifically assigned to Engineer in this Agreement and the Contract Documents. Neither Engineer's review of Contractor's work for the purposes of recommending payments nor Engineer's recommendation of any payment (including final payment) will impose on Engineer responsibility to supervise, direct or control such work or for the means, methods, techniques, sequences or procedures of construction or safety precautions or programs incident thereto, or Contractor's compliance with laws, rules, regulations, ordinances, codes or orders applicable to Contractor's furnishing and performing the work. It will also not impose responsibility on Engineer to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or to determine that title to any of the work, materials or equipment has passed to City free and clear of any liens, claims, security interests or encumbrances, or that there may not be other matters at issue between City and Contractor that might affect the amount that should be paid.

This subtask is budgeted based on an anticipated twelve (12) pay applications (including the final pay application).

Subtask 3.5.9 - Contractor's Completion Documents

Engineer shall receive, review and transmit to City with written comments maintenance and operating instructions, operation and maintenance (O&M) manuals (up to six O&M manuals, including one resubmittal of each), schedules, guarantees, Bonds, certificates or other evidence of insurance required by the Contract Documents, certificates of inspection, tests and approvals, and marked-up record documents (including Shop Drawings, Samples and other data approved as provided under Subtask 2.4.7 and marked-up record Drawings) which are to be assembled by Contractor in accordance with the Contract Documents to obtain final payment. Engineer's review of such documents will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

Subtask 3.5.10 - Substantial Completion

Following notice from Contractor that Contractor considers the entire work ready for its intended use, Engineer and City, accompanied by Contractor, shall conduct an inspection to determine if the work is Substantially Complete (SC). A punch list of remaining work items will be prepared by the Engineer based on the SC inspection. If after considering any objections of City, Engineer considers the work substantially complete; Engineer shall deliver a certificate of Substantial Completion to City and Contractor with a list of any deficiencies to be corrected prior to Final Acceptance.

Subtask 3.5.11 - Final Notice of Acceptability of the Work

Engineer shall conduct a final inspection to determine if the completed work of Contractor is acceptable so that Engineer may recommend, in writing, final payment to Contractor. Accompanying the recommendation for final payment, Engineer shall indicate that the work is acceptable (subject to the provisions of Subtask 2.4.10) to the best of Engineer's knowledge, information and belief and based on the extent of the services performed and furnished by Engineer under this Agreement. This subtask is budgeted based on one final inspection site visit.

Subtask 3.5.12 - Record Drawings

Engineer shall review the Contractor's As-Built Drawings for any material deviations to design intent. The Engineer shall convert the Contractor's As-Built Drawings into Record Drawings and deliver five hard copy sets and one CD/DVD with the PDF and AutoCAD files of the Record Drawings to the City.

General Assumptions

This proposal assumes the following:

- All assumptions previously mentioned within this proposal.
- City will provide any available well construction, well logs, water quality data, as-built drawings for the Site.
- City will provide access to the Site and adjacent properties for the investigative activities.
- Well #10 is deemed suitable for retrofitting to an ASR pilot well with no additional remedial activities or well modifications required other than the installation of injection and recovery tubing, pumps and new wellhead appurtenances.
- The Site cover is asphalt and grass.

Schedule

The estimated time to complete the work scope is summarized as follows:

Task	Description	Duration (calendar days)
<i>Task1</i>		
1.1 – 1.2	Kick-off and Data Collection	30
1.3	Well #10 Evaluation	45

1.4	Conceptual Design	45
1.5	Technical Memorandum	30
<i>Task 2</i>		
2.1	Design	120
2.2	Permitting	150
2.3	Bid Phase Services	90
2.4	Construction Phase	180
2.5	Pilot Testing and Reporting	390
2.6	O&M Manual for ASR System	60
<i>Task 3</i>	TASK 3 SERVICES ARE NOT INCLUDED IN THIS CONTRACT AT THIS TIME BUT THE SCHEDULE IS PROVIDED SO THAT THE TIMEFRAME FOR DESIGN AND CONSTRUCTION PHASE SERVICES FOR THE ASR SYSTEM IMPROVEMENTS IS KNOWN.	
3.1	Preliminary Design	120
3.2	Final Design	120
3.3	Permitting	150
3.4	Bidding	90
3.5	Construction Phase Services	250

For all submittals requiring client review, including draft technical memorandums, permit application and RFI, and all design submittals, it is assumed the client will require two weeks for review. The Durations provided assume a sequential schedule.

Payment

Payment will be on a lump sum basis based on the schedule of tasks below. The Engineer will prepare invoices monthly based on the percent complete of each task.

Task 1 Initial Assessment

Task 1.1: Program Development and Coordination	\$10,000
Task 1.2: Data Collection and Review	\$25,000
Task 1.3: Desktop Hydrogeologic Evaluation and Logistic/ Regulatory Feasibility Issues	\$40,000

Task 1.4: Conceptual ASR Pilot Test and ASR System Design	\$25,000
Task 1.5: Technical Memorandum	\$20,000
Sub-Total	\$120,000

Task 2 ASR Pilot Test

Task 2.1: Well No. 10 Pilot ASR System Design	\$165,000
Task 2.2: Permitting	\$15,000
Task 2.3: Bidding Phase Services	\$10,000
Task 2.4: Construction Phase Services	\$225,000
Task 2.5: Cycle Testing and Reporting	\$75,000
Task 2.6 -O&M Manual for ASR System	\$10,000
Sub-Total	\$500,000

TOTAL (Phase 1 and 2) \$620,000

TASK 3 SERVICES ARE NOT INCLUDED IN THIS CONTRACT AT THIS TIME BUT THE FEES ARE PROVIDED SO THAT THE COST OF PROFESSIONAL SERVICES FOR DESIGN AND CONSTRUCTION PHASE SERVICES FOR THE ASR SYSTEM IMPROVEMENTS IS KNOWN.

Task 3 ASR Well Field Design

Task 3.1 Preliminary Design	\$338,000
Task 3.2 Final Design	\$507,000
Task 3.3 Permitting	\$15,000
Task 3.4 Bidding	\$35,000
Task 3.5 Construction Phase Services	\$645,000
Sub-Total	\$1,540,000

TOTAL (Phase 3) \$1,540,000

ATTACHMENT "D" -THE CITY OF BRYAN INSURANCE REQUIREMENTS

CERTIFICATE OF INSURANCE		DATE (MM/DD/YY)
PRODUCER	INSURERS AFFORDING COVERAGE	
INSURED		
	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.	
	INSURER A: INSURER B: INSURER C: INSURER D: INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THEIR TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS
A	GENERAL LIABILITY				EACH OCCURRENCE \$ 1,000,000
	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY				FIRE DAMAGE (Any one fire) \$ 50,000
	<input type="checkbox"/> CLAIMS MADE <input checked="" type="checkbox"/> OCCUR				MED EXP (Any one person) \$ 5,000
	<input type="checkbox"/> CITY'S & CONT. PROT				PERSONAL & ADV INJURY \$ 1,000,000
	<input type="checkbox"/> CITY'S PROTECTIVE LIABILITY				GENERAL AGGREGATE \$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:				PRODUCTS - COMP/OP AGG \$ 1,000,000
	<input type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC				
B	AUTOMOBILE LIABILITY				COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO				BODILY INJURY (Per person) \$
	<input type="checkbox"/> ALL OWNED AUTOS				BODILY INJURY (Per accident) \$
	<input type="checkbox"/> SCHEDULED AUTOS				PROPERTY DAMAGE (Per accident) \$
C	GARAGE LIABILITY				AUTO ONLY-EA ACCIDENT \$
	<input type="checkbox"/> ANY AUTO				OTHER THAN AUTO ONLY EA ACC AGG \$
	EXCESS LIABILITY				EACH OCCURENCE \$
D	<input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS MADE				AGGREGATE \$
	<input type="checkbox"/> DEDUCTIBLE				\$
	<input type="checkbox"/> RETENTION \$				\$
	WORKERS COMPENSATION AND EMPLOYER'S LIABILITY				<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTHER
D					E.L. EACH ACCIDENT \$ 500,000
					E.L. DISEASE-EA EMPLOYEE \$
					E.L. DISEASE-POLICY LIMIT \$
	OTHER				PER CLAIM/AGGREGATE \$ 1,000,000/ \$ 1,000,000
	Professional Liability				

DESCRIPTION OF OPERATIONS / LOCATION / VEHICLES / EXCLUSIONS ADDED BY ENDORSEMENT / SPECIAL PROVISIONS
 City of Bryan shall be named as additional insured on all Commercial General Liability and Automobile Liability policies. General Liability, Automotive Liability and Worker's Compensation policy to include a Waiver of Subrogation in favor of the City of Bryan. (All Endorsements must be submitted with the certificate.)

CERTIFICATE HOLDER	ADDITIONAL INSURED; INSURER LETTER: _____	CANCELLATION
<p>City of Bryan Attn: Engineering Dept. P.O. Box 1000 Bryan, Texas 77805</p>		<p>SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BY CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.</p> <p>AUTHORIZED REPRESENTATIVE</p>