



**PURCHASING ITEM
FOR
COUNCIL AGENDA
Memo No. CA13-095**

1. Agenda Item Number:
25
2. Council Meeting Date:
February 28, 2013

TO: MAYOR & COUNCIL
THROUGH: CITY MANAGER

3. Date Prepared: February 7, 2013

4. Requesting Department: Municipal Utilities

5. SUBJECT: West Pecos Well Drilling Construction Management (CM) Services

6. RECOMMENDATION: Staff recommends Council award a Project Agreement to Southwest Ground-water Consultants, pursuant to annual contract EN1203-101, for West Pecos Well Drilling Construction Management (CM) Services, Project No. WA1301-451, in an amount not to exceed \$94,571.

7. BACKGROUND/DISCUSSION: The 2008 Water, Wastewater and Reclaimed Water Master Plan recommended 74.5 million gallons per day (MGD) build-out capacity for groundwater wells. As the City's groundwater wells age, it is anticipated well production may decrease by up to three percent per year. To maintain the required 74.5 MGD capacity, new wells and rehabilitation of existing wells are needed. This project will abandon an existing well and replace it with a well at the West Pecos Well site.

The construction management scope of work includes preparation of construction documents, bidding assistance, meetings, drilling and pilot borehole geophysical logging services, zonal water quality sampling, oversight of well abandonment, construction, pump tests, and project close-out.

8. EVALUATION: On August 16, 2012, Council awarded an Annual Hydrogeological Services Contract to Southwest Ground-Water Consultants, Contract No. EN1203-101. This consultant was selected to perform professional services based on availability, experience, and qualifications in accordance with City procedures.

9. FINANCIAL IMPLICATIONS:
Cost: \$94,571
Savings: N/A
Long Term Costs: N/A

Fund Source:

<u>Acct. No.:</u>	<u>Fund Name:</u>	<u>Program Name:</u>	<u>CIP Funded:</u>	<u>Amount:</u>
601.3820.6713.6WA034	Water Bonds	Well Construction/Rehabilitation	Yes	\$94,571

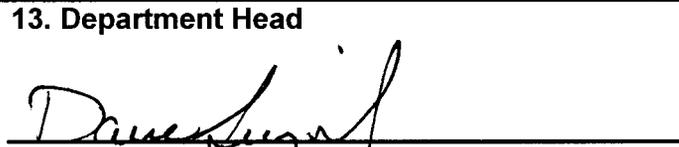
10. PROPOSED MOTION: Move Council award a Project Agreement to Southwest Ground-water Consultants, pursuant to annual contract EN1203-101, for West Pecos Well Drilling Construction Management (CM) Services, Project No. WA1301-451, in an amount not to exceed \$94,571 and authorize the Mayor to sign the contract documents.

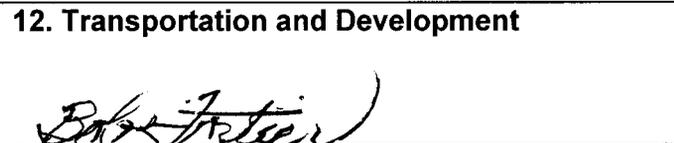
ATTACHMENTS: Location Map, Project Agreement

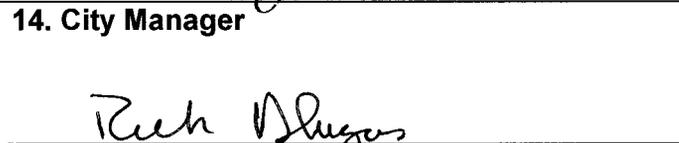
APPROVALS

11. Requesting Department

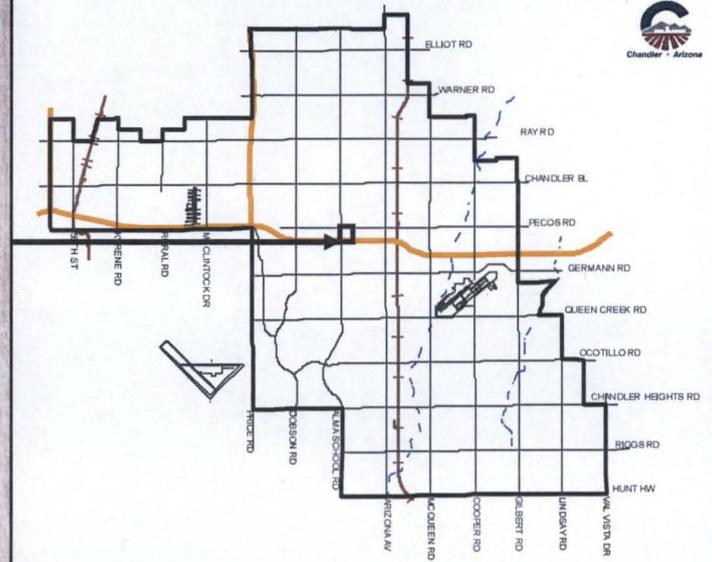
John Knudson, Utilities Engineering Manager

13. Department Head

Dave Siegel, Municipal Utilities Director

12. Transportation and Development

Bob Fortier, Capital Projects Manager

14. City Manager

Rich Dlugas

WEST PECOS WELL DRILLING CONSTRUCTION MANAGEMENT PROJECT NO. WA1301-451



MEMO NO. CA13-095

 PROJECT SITE



**PROJECT AGREEMENT
PURSUANT TO ANNUAL CONTRACT NO. EN1203-101**

AGREEMENT NO: WA1301-451

This AGREEMENT is made this _____ day of _____, 2012, by and between the City of Chandler, a municipal corporation (hereinafter referred to as "CITY") and Southwest Ground-water Consultants, an Arizona corporation, (hereinafter referred to as "Annual Consultant") and is a project agreement entered into pursuant to Annual Contract No. EN1203-101.

CITY and Southwest Ground-water Consultants, in consideration of the mutual covenants herein set forth, agree as follows:

ARTICLE 1 - DESCRIPTION OF WORK:

This project is West Pecos Well Drilling Construction Management Services, Project Number WA1301-451. The scope of work consists of Hydrogeological services for the West Pecos Well, all as more particularly set forth in Exhibit A attached hereto and incorporated herein by reference.

The Annual Consultant shall not accept any change of scope, or change in contract provisions, unless issued in writing, as a contract amendment and signed by the Contract Administrator.

ARTICLE 2 - CONTRACT PRICE:

CITY shall pay Annual Consultant for completion of the Work in accordance with the Contract Documents a fee not to exceed Ninety Four Thousand Five Hundred Seventy One Dollars (\$94,571) determined and payable as set forth in Annual Contract EN1203-101 and Exhibit B attached hereto and made a part hereof by reference.

ARTICLE 3 - CONTRACT TIME:

The contract time is two hundred forty days and Annual Consultant agrees to complete all work within Two Hundred Forty (240) days of the date CITY issues a Notice to Proceed.

ARTICLE 4 - GENERAL:

This Project Agreement is entered into pursuant to Annual Contract No. EN1203-101 and the terms and conditions contained therein are incorporated herein by reference as if set forth in full.

EXHIBIT A SCOPE OF WORK

BACKGROUND

The City has determined the need to abandon the existing well, ADWR Registration Numbers 55-573657, at West Pecos Well located at 1177 S Alma School Road, Chandler, Arizona 85286. This project will abandon the existing well at these site and drill, install, and test a new well.

SCOPE OF WORK

ANNUAL CONSULTANT shall perform Hydrogeological Professional Services for the West Pecos Well as more specifically described below:

TASK 1.0 - BIDDING ASSISTANCE

Sub-task 1.1 - Kick-off Meeting

ANNUAL CONSULTANT will schedule a kick-off meeting with the City to review the scope and schedule for the project. Work tasks will be reviewed and a detailed timeline determined.

Sub-task 1.2 - Review and Revision of Contracting Procedures

The City's contracting procedures for well drilling contractors will be obtained and reviewed with a view toward meeting the requirements of Contracting Services and Municipal Utilities Department. If appropriate, ANNUAL CONSULTANT will provide recommended language to be included in bid documents to be issued to drilling contractors.

Sub-task 1.2 - Assistance with Contractor Selection

If requested by the City at the bid opening, ANNUAL CONSULTANT will review each contractor's bid and individual bid items to identify potential errors. After review, the Apparent Low Bidder will be identified. ANNUAL CONSULTANT will interview the Apparent Low Bidder to discuss prior experience with similar scopes of work and further investigate the bid for errors. If appropriate, a contractor may be asked to withdraw their bid. Based on review of the bids and an interview with the low bidder, ANNUAL CONSULTANT will make recommendations to the City.

TASK 2.0 - TECHNICAL SPECIFICATIONS

Technical specifications and bid tabs to be included with the contractor bid package will be prepared by ANNUAL CONSULTANT with approval from the City for the installation and testing of a new well and the abandonment of an existing well.

Sub-task 2.1 - Review Existing Technical Specification and Site Information

ANNUAL CONSULTANT will review the existing City well installation and testing technical specifications, and propose updates to the specifications to conform to the requirements of the contractor selection process as well as any proposed technical changes. The City will provide to ANNUAL CONSULTANT initial design criteria and well specific information for the existing West Pecos well designated for replacement. Based on this information and review of local hydrogeologic conditions, ANNUAL CONSULTANT will develop a preliminary well design for the new well construction and for the abandonment of the existing well. ANNUAL CONSULTANT will include preliminary abandonment designs in the Technical Specifications.

A draft technical specification and bid tab package for the well installation and abandonment shall be presented to the City for review and comment.

Sub-task 2.2 - Technical Specification Progress Meeting

The purpose of this progress meeting is to provide the City an opportunity to comment on the proposed changes to the bid package, draft technical specification, and preliminary well design (new wells and abandonments).

Sub-task 2.3 - Preparation of Final Technical Specification

The final technical specifications and bid package will be prepared by ANNUAL CONSULTANT based on the results of the Progress meeting with the City (Sub-task 2.2). This package will include an electronic version in a

format requested by the City. It is understood that the City will prepare the final bid package for distribution to contractors for bidding purposes.

Sub-task 2.4 – Preparation of New Well and Well Abandonment Permits

ANNUAL CONSULTANT will prepare and submit the replacement well drilling and existing well abandonment ADWR NOI permits. Cost of these permits is included in the cost estimate.

TASK 3.0 - CONSTRUCTION MANAGEMENT

Construction management services provided by ANNUAL CONSULTANT will include the documentation of contractor activities for the drilling, installation, and testing of a new replacement potable well and abandonment activities for the existing well. In addition, in consultation with the City, ANNUAL CONSULTANT will also provide the contractor clarification and oversight for certain tasks which require response to evaluation of site specific conditions.

Sub-task 3.1 - Pre-Construction Meeting

Prior to drilling and well construction, ANNUAL CONSULTANT will attend one (1) on-site meeting with the City and contractor. The intent of pre-construction meeting is to develop a shared understanding between the City, ANNUAL CONSULTANT, and contractor of the requirements of the project, the expectations of the City, and to develop the lines of communication. Questions and comments regarding the scope of work, technical specification, and contracting will be addressed.

Sub-task 3.2 - Drilling and Logging

During pilot borehole drilling activities, ANNUAL CONSULTANT personnel will ensure that contractor activities are in compliance with the technical specifications. An ANNUAL CONSULTANT geologist will describe the drilled cuttings, review the drilling penetration rate log, and analyze the geophysical logs to prepare a lithologic log of the pilot borehole. These data will be used to identify the major water bearing intervals. Geophysical logging services of the pilot borehole will be subcontracted by the drilling contractor.

Sub-task 3.3 - Zonal Water Quality Sampling

The identified major water bearing intervals will be selected for zonal water quality sampling. It is anticipated that one (1) meeting with the City will be conducted to present and review the selected intervals for approval. The zonal sampling results and the lithologic logs interpretations will be used to design the screened interval of the new well.

Up to 12 zonal samples will be collected for water quality analysis. ANNUAL CONSULTANT will present the approved zonal sampling intervals to the contractor in graphical form including depths and intervals, and will assist the contractor with the design of the zonal sampling program. ANNUAL CONSULTANT will provide oversight during zone construction and purging of each zone to assure the zonal sample is representative of the targeted water bearing interval.

ANNUAL CONSULTANT will collect water samples in laboratory-supplied containers and submit the samples to the laboratory under chain-of-custody for rush analysis (48 hour turn-around). Samples will be analyzed for the following parameters:

- Total Dissolved Solids
- Nitrate as Nitrogen
- Fluoride
- Total and dissolved Arsenic
- Total and dissolved Chromium

Lab turn-around time may be extended depending on the time of sample collection and submittal (day of week/holidays) and the laboratory back-log.

The production capacity and water quality requirements of the well, lithologic log data, zonal water quality data, and local hydrogeologic conditions will be the basis for the final well design. These data and the proposed well design will be presented to the City for approval. Upon approval, the final design will be presented to the contractor for completion.

Sub-task 3.4 - Well Construction

To verify borehole diameter prior to installation of the well, the contractor will subcontract geophysical logging services for a caliper log survey of the reamed borehole. ANNUAL CONSULTANT will monitor and document the installation of the well casing, screen, and annular materials at the well to ensure compliance with the well design and technical specification. ANNUAL CONSULTANT staff will be onsite during the installation of these materials to assist the contractor with questions regarding the well design and to provide oversight in meeting the requirements of the technical specifications.

Sub-task 3.5 - Well Development

ANNUAL CONSULTANT will document and provide oversight for all well development activities. Development will be optimized in an effort to maximize well efficiency and reduce long-term pumping costs.

During swabbing and airlift development of the well, field water quality parameters including Imhoff cone sand content, specific conductance, pH, and visual turbidity measurements will be collected. This information will be evaluated by ANNUAL CONSULTANT during swab and airlift activities to assist in evaluating the need for additional development effort. An estimated 10 minutes of swab and surge development per foot of perforated interval will be conducted. However, if more development time is necessary based on the observed and measured results, ANNUAL CONSULTANT will review the data with the City for authorization to extend the development time.

Following swab and airlift development, the contractor will install temporary test pumping equipment. The maximum duration of pump and surge development is anticipated to extend no longer than 40 hours. Actual duration of pump and surge activities will be based on field analysis of Rossum sand content and specific capacity results during testing.

Sub-task 3.6 - Pumping Tests

Pumping tests at the well will include a step-rate test, a constant-rate test, and a production profile survey. Following development, a 20-hour step-rate pumping test will be conducted. The rates for the step-rate test will be selected by ANNUAL CONSULTANT based on the results of pump and surge development. Following a 20-hour recovery period, a 24-hour constant-rate test and 24-hour recovery test will be conducted. The pumping rate for the constant-rate test will be based on the results of the step test. During the constant-rate test, ANNUAL CONSULTANT will subcontract a production profile survey and collection of up to eight (8) depth specific samples. ANNUAL CONSULTANT will subcontract the laboratory analysis of the samples for the same parameters analyzed for zonal sampling. Water levels in the wells to be replaced will be monitored during testing of the new wells in order to further characterize the aquifer and the pumping impacts of the new wells.

During pumping test activities, ANNUAL CONSULTANT personnel will monitor water levels, discharge rates, Rossum sand content, and water quality parameters including pH, specific conductivity, and temperature. Water levels will be monitored with a data-logging transducer and a manual sounder. The test data will be plotted following appropriate aquifer testing methods in order to calculate the efficiency of the well (step-rate test) and the long-term yield of the well (constant-rate test). The pump contractor will be on-site during this period to ensure that the test pumping equipment functions as required. City staff will collect a ground-water sample during the constant-rate test to be analyzed by an Arizona State licensed laboratory for New Source Approval.

Sub-task 3.7 - Post-Construction Surveys

Post-construction surveys will include a final well video and plumbness and alignment surveys which will be subcontracted by the drilling contractor. ANNUAL CONSULTANT will be onsite to witness the surveys and evaluate the results for compliance to the final well design and requirements of the technical specification.

TASK 4.0 - WELL ABANDONMENT

The new well will be installed as a replacement well to the existing well at the West Pecos well site. The existing well will be abandoned before installation and testing of the new well. ANNUAL CONSULTANT staff will visit the well site with City staff to inspect the nature and condition of all above-ground facilities to be removed/demolished.

Sub-task 4.1 - Pump Removal, Video Survey, and Abandonment Design

The technical specifications will specify the disposition of existing pump and wellhead related equipment and facilities. ANNUAL CONSULTANT will facilitate communication between the City and the Contractor regarding removal, transportation, and disposal activities.

The Contractor will conduct a video survey under the oversight of ANNUAL CONSULTANT in order to document the condition of the well. Based on the results of the video survey and the preliminary abandonment design presented in the technical specifications, ANNUAL CONSULTANT will prepare a well final well abandonment design for the well to present to the City for approval.

Sub-task 4.2 - Abandonment Oversight

ANNUAL CONSULTANT will oversee the abandonment of the well and provide documentation for all field activities. Abandonment details will be provided to the City and contractor in support of the final permit submittals to ADWR.

TASK 5.0 – WELL COMPLETION REPORT

Following the completion of the above tasks, ANNUAL CONSULTANT will prepare a report for the new well and abandonment of the existing well. Each report will document contractor activities and the results of all of the tasks including new well construction and abandonment activities. Of particular importance will be the recommended production rate and estimated pumping water level for the new well and pumped water quality. Additional information to be presented in the final report includes the following:

- ADWR permits
- Pilot borehole penetration rate and lithologic logs
- Geophysical logs
- Zonal sampling water quality results
- Well completion forms and summaries
- As-built well diagrams for both new and abandoned wells
- Pumping test data and analysis
- Post-construction surveys
- Well abandonment forms and summaries
- Additional water quality data provided by the City

ASSUMPTIONS AND CLARIFICATIONS

- BasinWells Associates, PLLC (BWA) is subcontractor that shall provide assistance during Construction Management Task 3.0.
- The City will provide the following:
 1. Site access
 2. Payment of the drilling contractor
 3. Collection and analysis of the New Source Approval sample

**EXHIBIT B
FEE SCHEDULE**

Task	Hours	Fees	Subcontractor Cost	Total
Task 1.0 Bidding Assistance	43	\$6,169	\$0	\$6,169
Task 2.0 Technical Specifications	62	\$8,064	\$0	\$8,064
Task 3.0 Construction	641	\$66,624	\$2,557	\$69,181
Task 4.0 Well Abandonment	55	\$5,187	\$0	\$5,187
Task 5.0 Completion Reports	62	\$5,970	\$0	\$5,970
Total	863	\$92,014	\$2,557	\$94,571