

AMENDMENT NO. 1
Cholla WTP Booster Pump Station and Administration Building Improvements
(City Project No. 141504, Contract No. C-10224)

This Amendment No. 1 ("Amendment") to the Professional Services Agreement ("Agreement") is made this _____ day of _____, 2016, ("Effective Date"), by and between the City of Glendale, an Arizona municipal corporation ("City") and HDR Engineering, Inc., a Nebraska corporation authorized to do business in Arizona ("Contractor").

RECITALS

- A. City and HDR Engineering, Inc. ("Contractor") previously entered into a Professional Services Agreement, Contract No. C-10224, dated August 28, 2015 ("Agreement"); and
- B. The initial study phase, Phase I identified improvements and recommendations to the booster pump stations and the Administration Building that should be implemented to maintain the functionality and serviceability of these assets.
- C. Design documents need to be developed to implement the recommended improvements and recommendations, which will be prepared under Phase II - Design Services of the project, and are included in this Amendment 1 to the Professional Services Agreement.
- D. City and Contractor wish to modify and amend the Agreement subject to and strictly in accordance with the terms of this Amendment.

AGREEMENT

In consideration of the mutual promises set forth herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the City and Contractor hereby agree as follows:

- 1. **Recitals.** The recitals set forth above are not merely recitals, but form an integral part of this Amendment.
- 2. **Term.** The term of the Agreement is extended for a two-year period from January 1, 2017 through December 31, 2018, unless otherwise terminated or canceled as provided by the Agreement. All other provisions of the Agreement except as set forth in this Amendment shall remain in their entirety.
- 3. **Scope of Work.** This project will design selected improvements resulting from the Phase 1 Booster Stations and Administration Building assessments - See Exhibit B. The scope of services for Phase 3 - Construction Administration Services will be finalized in a separate contract amendment at a later date.

4. **Compensation.** Phase 1 resulted in a previous compensation of \$211,739.00. Phase 2 compensation will result in an additional increase in compensation of \$779,183.00 and as shown in Exhibit D
5. **Insurance Certificate.** Current certificate will expire on June 1, 2017 and a new certificate applying to the extended term must be provided prior to this date to Materials Management and the Contract Administrator.
6. **Non-discrimination.** Contractor must not discriminate against any employee or applicant for employment on the basis of race, color, religion, sex, national origin, age, marital status, sexual orientation, gender identity or expression, genetic characteristics, familial status, U.S. military veteran status or any disability. Contractor will require any Sub-contractor to be bound to the same requirements as stated within this section. Contractor, and on behalf of any subcontractors, warrants compliance with this section.
7. **No Boycott of Israel.** The Parties agree that they are not currently engaged in, and agree that for the duration of the Agreement they will not engage in, a boycott of Israel, as that term is defined in A.R.S. §35-393.
8. **Attestation of PCI Compliance.** When applicable, the Contractor will provide the City annually with a PCI-DSS attestation of compliance certificate signed by an officer of Contractor with oversight responsibility.
9. **Ratification of Agreement.** City and Contractor hereby agree that except as expressly provided herein, the provisions of the Agreement shall be, and remain in full force and effect and that if any provision of this Amendment conflicts with the Agreement, then the provisions of this Amendment shall prevail.

[Signatures on the following page.]

CITY OF GLENDALE, an Arizona
municipal corporation

Kevin R. Phelps, City Manager

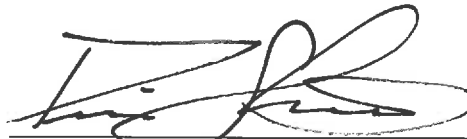
ATTEST:

Julie K. Bower, City Clerk (SEAL)

APPROVED AS TO FORM:

Michael D. Bailey, City Attorney

HDR Engineering, Inc.
a Nebraska corporation



By: David R. Skinner, P.E.
Its: Vice President, Managing Principal

EXHIBIT B
CHOLLA WATER TREATMENT PLANT
BOOSTER PUMP STATION & ADMINISTRATION BUILDING
IMPROVEMENTS
PHASE II – DESIGN SERVICES
(AMENDMENT 1)

CITY OF GLENDALE
PROJECT NO. 141504

PROPOSAL FOR ENGINEERING SERVICES
HDR Engineering, Inc.
November 1, 2016

The Cholla Water Treatment Plant (WTP) provides potable water to Zones 1 and 2 of the City of Glendale (City) distribution system. Treated water from the WTP is pumped into the system by three pump stations. The Zone 1A and 1B Booster Pump Stations (BPSs) deliver water into Zone 1. The Zone 1A BPS, originally constructed in 1981 and upgraded in 2000, has six vertical turbine pumps, each with a capacity of 3,850 gallons per minute (gpm) at 170 feet of total dynamic head (TDH). The Zone 1B BPS, constructed in 2000, has four vertical turbine pumps, each with a capacity of 5,600 gpm at 170 feet TDH. These two stations have a mix of constant speed and variable speed pumps, and the variable speed drive units are obsolete and need to be replaced.

The Zone 2 BPS, originally constructed in 1972 and subsequently expanded in 1982, delivers water into Zone 2. The Zone 2 BPS has four constant speed pumps, each with a capacity of approximately 5,700 gpm at 255 feet TDH. To better meet demand within the Zone 2 distribution system and the possible future needs of the Zone 3 distribution system, the constant speed pumps need to be replaced with variable speed drive units.

The Cholla WTP Administration Building was originally constructed in 1978, and was expanded in 1988. The building consists of a lobby, control room, laboratory, instrument shop, conference room, offices, bathrooms, and miscellaneous storage. Due to the age of this facility, a building assessment was conducted to establish and prioritize required improvements.

HDR completed the Phase I Evaluation Study to identify the preferred alternatives for the upgrades to each pump station and the prioritized improvements for the Administration Building. The BPS improvements are summarized in the Booster Pump Station Evaluation Technical Memorandum dated October 2016. The Administration Building improvements are summarized in the Administration Building Assessment Draft Technical Memorandum dated April 2016. The City intends to proceed with Phase II of the project, and has requested HDR to prepare the design documents for the BPS upgrades and the Administration Building improvements. HDR has prepared this proposal for engineering services associated with preparing design documents (plans and specifications) for installation of the recommended improvements to these facilities.

SCOPE OF SERVICES

This scope of services describes the work to be performed by HDR for this project on behalf of the City. The work includes project management, design services, and bid assistance services as defined below. Allowance tasks for additional work items and specialty subconsultant services are also included.

TASK 1 - PROJECT MANAGEMENT

Objective:

Perform overall project management of the work effort and facilitate City staff understanding, input, and decisions regarding project issues.

Services Provided by HDR:

- Set up and maintain project filing system.
- Update project guide to outline project procedures for the team and the City.
- Prepare and review project correspondence.
- Prepare the design schedule.
- Prepare quarterly cash flow projections.
- Prepare and manage subcontracts and monitor subconsultant work progress.
- Prepare monthly project invoices, progress reports, and schedule updates.
- Conduct periodic management reviews to track schedule and budget compliance.
- Conduct regular internal project team meetings to track project status, identify information needs, and provide overall coordination of the work effort.
- Conduct project meetings/workshops, including kickoff meeting, SCADA network and control strategy workshops, and milestone review meetings.

Deliverables:

- Monthly invoices, progress reports, and schedule updates.
- Meeting minutes

Meetings:

- Up to twelve (12) meetings/workshops, defined as follows:
 - Kickoff meeting
 - Existing Network Review workshop
 - Two (2) Control Strategies workshops
 - 60% milestone submittal review meeting
 - 90% milestone submittal review meeting
 - Up to six (6) additional project status meetings.

Subconsultant Participation:

- ARCADIS (Instrumentation and Control (I&C)) - attend progress meetings and conduct I&C workshops as required.

Key Understandings:

- Notice to Proceed is assumed to be issued in January 2017.
- Estimated project duration is 12 months.
- Basic Services (Tasks 1-3) will be invoiced on an hourly rate, not to exceed fee basis.

- Use of Allowance Tasks will be at the direction of the City.

TASK 2 - FINAL DESIGN

Objective:

To prepare final design documents for construction of the following recommended improvements:

Zone 1A BPS:

- Remove existing constant speed starters and replace with one shared variable frequency drive (VFD) for Pumps 4-6. The shared VFD design will be based on only one of the pumps running while the other two pumps are disabled.
- Expand the capacity of the fiber optic network with new cables, connecting to the Zone 1B and Zone 2 BPSs

Zone 1B BPS:

- Remove existing constant speed starters and replace with one shared VFD for Pumps 3 and 4. The shared VFD design will be based on only one of the pumps running while the other pump is disabled.
- Expand the capacity of the fiber optic network with new cables, connecting to the Zone 1A BPS

Zone 2 BPS:

- Convert station from 4160V to 480V power to include redundant feeds from the medium voltage switchgear to a 480V switchboard in a Main-Tie-Main configuration with an auto transfer controller between the existing utility source and a standby generator (designed by others).
- Provide four new VFDs for pump operation
- Replace motors on Pumps 1 and 2 (convert to 480V units)
- Replace pumps and motors for Pumps 3 and 4 (replace aging pumps and convert to 480V motors)
- Replacement of existing building HVAC unit with new equipment
- Expand the capacity of the fiber optic network with new cables, connecting the Zone 2 BPS to the Administration Building and to the Zone 1A and 1B BPSs

Services Provided by HDR:

- Assess pump hydraulic characteristics for Cholla WTP Zone 1 BPSs, based on updated distribution system modeling results (provided by Black & Veatch (B&V)) which define flow and pressure requirements for various Zone supply/demand scenarios, and Cholla WTP flow production information provided by B&V, and incorporate pump modifications (i.e., de-staging, or replacement of up to two (2) existing pumps and motors with new, smaller capacity pumps) into the design, if applicable.
- Review existing control system network and develop control strategies for Cholla WTP Zone 1 pump station operation, coordinating with Oasis WTP Zone 1 pump station operation strategies developed by others to avoid double pumping.
- Prepare general, civil, structural, mechanical (process), electrical, and instrumentation drawings for construction of the project.

- Prepare proposed sequence of construction.
- Prepare technical specifications for construction.
- Update the Opinion of Probable Construction Cost (OPCC) from the Booster Pump Station Evaluation Technical Memorandum
- Prepare the application to the Maricopa County Environmental Services Department (MCESD) for an Approval to Construct (ATC) Permit.
- Prepare the application for submittal to the City of Glendale Building Safety Department

Deliverables:

- Meeting agendas and minutes
- Draft and final control strategies
- At the 60 percent submittal milestone:
 - Six (6) half size (11x17) copies of the drawings, one (1) full size copy of the drawings, and six (6) copies of the specifications furnished for City staff review.
 - One (1) soft copy of the specifications (with edits), one (1) copy of AutoCAD files, and one (1) copy of the drawings in PDF format, on CD, will be furnished for City staff review.
 - Updated OPCC.
- At the 90 percent (Agency Review) milestone:
 - Six (6) half size (11x17) copies of the drawings, one (1) full size copy of the drawings, and six (6) copies of the specifications furnished for City staff review.
 - One (1) soft copy of the specifications (with edits), one (1) copy of AutoCAD files, and one (1) copy of the drawings in PDF format, on CD, will be furnished for City staff review.
 - Two (2) copies of the drawings (full size) and specifications furnished to MCESD for review, including ATC Permit application.
 - Updated OPCC.
- Final Submittal:
 - Four (4) full size reproducible copies (on bond), and one (1) electronic copy of the final drawings (in AutoCAD and PDF format) on CD will be furnished to the City.
 - Four (4) reproducible copies of the specifications and one (1) electronic copy (in MS Word and PDF format) on CD will be furnished to the City.
 - Update OPCC

Meetings:

- A total of two (2) meetings will be conducted, one each following the City staff review of the 60 and 90 percent submittals to review City comments. (Note: These meetings are budgeted under Task 1, Project Management)
- A total of three (3) workshops will be conducted to define the network requirements and develop the control strategies for operation of the pump stations. (Note: These workshops are budgeted under Task 1, Project Management)

Subconsultant Participation:

- ARCADIS - I&C design.

Key Understandings:

- The level of effort for design is based on the drawing list provided as an attachment to this scope of work.
- The City intends to replace the VFDs for Zone 1A Pumps 1-3 and Zone 1B Pumps 1-2 with their own forces because the VFDs are failing and the replacement needs to be expedited.
- The City will provide to HDR manufacturer's data on the proposed VFDs for up to three (3) manufacturers for HDR's review. HDR will assess the proposed VFDs as it coordinates the design of the new shared VFDs.
- A 480V stand-by generator will be designed by B&V for feeding the proposed Zone 2 switchboard. Scope of generator installation by B&V shall include generator sizing and siting, and conduit and cable from generator set to main switchboard in the electrical room. Auto transfer device will be located in the Zone 2 electrical room and will be furnished as a part of this contract.
- Zone 1 hydraulic modeling will be provided by B&V, and model results provided to HDR will include future required pump station capacities and operating pressures for various supply/demand scenarios. This information will be used to determine if the existing pump hydraulics (head, flow, horsepower) should remain the same or be modified.
- Zone 2 hydraulic modeling will be provided by B&V, and model results provided to HDR will include future required pump station capacities and operating pressures for various supply/demand scenarios. This information will be used to determine if the existing pump hydraulics (head, flow, horsepower) should remain the same or be modified.
- Future Cholla WTP minimum production levels will be provided to HDR by B&V. This information will be used to determine if minimum flows can be met by existing pumps using VFDs, or if smaller capacity pumps need to be provided.
- The design includes replacement of existing Zone 1 and Zone 2 insertion flow meters with new insertion flow meters in the existing meter vaults.
- No structural modifications to the BPS buildings are included in this scope of services.
- New PLCs will be M580 units.
- PLC Panel design and installation, PLC and HMI programming for the VFD replacements, VFD to PLC network design and configuration and any required loop drawings will be done by others prior to construction of this project.
- Based on the timing of this project with respect to the upcoming PLC and VFD replacements at the Cholla BPS by others, the City would like to implement PLC programming standards, if possible. If the timing is not possible to incorporate into the programming for the PLC and VFD replacements installed by others, HDR/ARCADIS will revise the BPS PLC programming to incorporate the PLC programming standards
- The City's standard SCADA template, to be provided by the City's consultant, will be used for the project.

- The I&C design effort includes the following:
 - Control system network design (up to 4 drawings) to incorporate City network standards and include an equipment layout, bill of materials, and modifications to the existing Cholla WTP control systems network for integration of the three BPSs.
 - Integration of shared VFDs assumes the use of a manual selector switch to assign VFD to the desired pump.
- HDR will provide the City with Excel files of asset tags for the new assets installed during the project. The City will provide the standard asset template to be completed.
- Technical specifications will include proposed construction sequencing to minimize station outages and service interruptions.
- HDR will prepare Technical Specifications, Divisions 1 through 46
- Contract Documents (Division 0) will be prepared by the City. City will prepare boiler plate special provisions tailored to this project and provide to HDR for review.
- HDR standard guide specifications (6-digit format) will be utilized, and will include relevant sections from the City of Glendale Engineering Design Standards and Details obtained from the internet, using the revision in effect as of the date of HDR's Notice to Proceed. Any changes to standards after this date will only be incorporated through an amendment to the Contract.
- The Bid Schedule will be based on a lump sum bid format.
- The project will be prepared using the current City CADD standards in effect as of the date of Notice to Proceed.
- Plans and specifications prepared for future submittal to MCESD and the Glendale Building Safety Department will be sealed by a registered engineer, and noted as "Agency Review" in the revision block.
- Full size plans to be 22-inches by 34-inches.
- Meetings to review City comments will be held within two (2) weeks following each submittal.
- HDR will prepare applications and associated document copies (plans and specifications, Booster Pump Station Evaluation Technical Memorandum) for submittal to review agencies (MCESD and Glendale Building Safety Department. Preparation of other agency applications or coordination with other City departments is not included in this scope of services.
- Glendale Building Safety Department review requires no application fee.
- Agency review period is estimated at twenty (20) business days (four (4) weeks).
- The final submittal will be made to the City after receipt of the ATC permit from MCESD, and the Building Permit from the City of Glendale.

TASK 3 – BID PHASE

Objective:

- To assist the City in establishing the construction contract price for the booster pump station improvements. Construction price will be determined either by bid through a Design-Bid-Build (DBB) project delivery method, or a Guaranteed Maximum Price (GMP) based on a Construction Manager at Risk (CMAR) project delivery method.

Services Provided by HDR:

- For DBB:
 - Attend one (1) pre-bid meeting with City staff to answer potential bidder questions.
 - Respond to questions raised, evaluate requests for substitutions, and issue addenda accordingly.
- For CMAR:
 - Solicit CMAR input during design development through progress and milestone review meetings. (Note: These meetings are budgeted under Task 1, Project Management.
 - Provide information for cost estimating.
 - Provide input to construction management plan and schedule.
 - Provide assistance with long-lead procurement activities, if applicable.
 - Evaluate alternative systems suggested by CMAR.
 - Respond to constructability review comments.
 - Attend subcontractor pre-selection meeting conduct by CMAR.
 - Prepare addenda.
 - Assist and review during GMP development.
 - Perform GMP proposal review and prepare recommendation to City.
 - Assist City with review of the subcontractor/supplier bid and selection process.

Deliverables:

- Copies of addendum materials for distribution by others (City or CMAR)
- Recommendation to award correspondence.

Meetings:

- One (1) pre-bid meeting.

Subconsultant Participation:

- ARCADIS

Key Understandings:

- For DBB:
 - Printing of bidding documents will be arranged and paid for by the City.
 - The City will distribute bidding documents to bidders.
 - The City will maintain and update a plan holders list.
 - The City will issue all addenda to plan holders.
 - The City will tabulate the bids, and review the bids submitted for compliance with the technical requirements of the bid documents.
- For CMAR:
 - Preparation of early procurement packages is not included in this scope of work.
 - Printing of GMP bid documents will be arranged and paid for by the City/CMAR.
 - CMAR is responsible for distributing GMP bid documents to subcontractors.
 - CMAR will tabulate subcontractor bids and provide a summary to HDR.
- The level of effort for this task is based on the preparation of two (2) addenda.
- Bid sets will be provided to HDR as needed for use by HDR during the bid period.

ALLOWANCE TASKS

Task A.1 Administration Building Improvements

An allowance to prepare design documents (plans and specifications) for improvements to the Cholla WTP Administration Building. The allowance will consist of final design and bid assistance services. Project management costs, including meetings, are already included in Task 1, Basic Services, based on the 12 month project timeframe.

The improvements are defined in the Administration Building Assessment Draft Technical Memorandum dated April 2016, prepared by HDR. The estimated Opinion of Probable Construction Cost for all improvements (near-term, mid-term, and long-term) totaled \$1,973,000. A task scope and fee, including an anticipated list of drawings, will be prepared by HDR prior to authorization of this task by the City.

Task A.2 VFD Procurement Assistance

The City will be replacing the existing VFDs with new VFDs in the Zone 1A and Zone 1B BPSs as a separate, maintenance-related project. This allowance task provides for as-needed technical assistance to the City to define VFD requirements and vendor selection criteria.

Task A.3 Subconsultant Services

An allowance for various subconsultant services including, but not limited to, the following:

- Survey
- Geotechnical services
- Potholing
- Public relations

Task A.4 Owner's Allowance

An allowance is provided for additional miscellaneous tasks to be defined between the City and HDR, for use at the City's discretion.

EXHIBIT D
Professional Services Agreement – Amendment 1
COMPENSATION

METHOD AND AMOUNT OF COMPENSATION

Compensation shall be based on an hourly billing rate plus reimbursable expenses for Consultant and all Subconsultants. Documentation for reimbursable expenses must be included with each Payment Application.

NOT-TO-EXCEED AMOUNT

The total amount of compensation paid to Consultant for full completion of all work required by the Project during the entire term of the Project must not exceed \$779,183.

DETAILED PROJECT COMPENSATION

Phase II – Design Services

Task 1 – Project Management	\$50,588
Task 2 – Final Design	\$229,651
Task 3 – Bid Assistance	\$25,992
Direct Expenses (Reimbursables)	\$7,200

Subcontract Allowance

ARCADIS	\$145,752
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Allowance Tasks

A.1 Administration Building Improvements	\$200,000
A.2 VFD Procurement Assistance	\$10,000
A.3 Subconsultant Services	\$35,000
A.4 Owner's Allowance	\$75,000

<u>AMENDMENT NO. 1 (PHASE II – DESIGN)</u>	<u>\$779,183</u>
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Original Contract (Phase I – Study Services)	\$211,739
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Amendment No. 1 (Phase II – Design Services)	<u>\$779,183</u>
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TOTAL PROFESSIONAL SERVICES FEE	\$990,922
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