

AMENDMENT NO. 1  
West Area Water Reclamation Facility Recharge Storage Study  
(City Project No. 141509, Contract No. C-10515)

This Amendment No. 1 ("Amendment") to the Professional Services Agreement ("Agreement") is made this \_\_\_\_\_ day of \_\_\_\_\_ ("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-10515, dated December 8, 2015 ("Agreement"); and
- B. The study has progressed to a point where modeling of the aquifer has been completed to define the theoretical recharge volume that can be achieved at the Heroes Park Site without creating impacts to other recharge areas and the City's Landfill; and
- C. The physical hydrologic characteristics of the site are unknown, and field testing is required to provide information needed to size recharge facilities and develop associated permits. This testing is not currently a part of the existing contracted services; and
- 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 one-year period from December 8, 2016 through December 7, 2017, 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.** The scope of work is being amended. Please see Exhibit B.

4. **Compensation.** The original compensation of \$185,724 has been amended and increased to a not exceed amount of \$239,824.
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 Payment Card Industry Data Security Standard (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

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Kevin R. Phelps, City Manager

ATTEST:

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Julie K. Bower, City Clerk (SEAL)

APPROVED AS TO FORM:

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Michael D. Bailey, City Attorney

HDR Engineering, Inc.,  
a Nebraska corporation



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

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## **EXHIBIT A**

### **Professional Services Agreement West Area Water Reclamation Facility Recharge Storage Study City Project No. 141509**

#### **Recharge Capacity Assessment at Heroes Park Site**

##### **Amendment No. 1**

#### **PROJECT DESCRIPTION**

As part of the West Area Water Reclamation Facility Recharge Storage Study for the City of Glendale (City), modeling of the aquifer has been conducted by the HDR Engineering (HDR) \ Clear Creek Associates (CCA) team. This modeling has defined the theoretical recharge volume that can be achieved at the Heroes Park site without creating impacts to other recharge areas and the City's landfill. However, the physical hydrologic characteristics of the site are unknown, and field testing is required to provide information needed to size recharge facilities and develop the Arizona Department of Water Resources (ADWR) Underground Storage Facility (USF) permit application.

This scope of work defines the services to be provided by HDR and its subconsultant, CCA, to characterize the hydrologic capabilities of the Heroes Park site.

**EXHIBIT B**  
**Professional Services Agreement – Amendment 1**

**SCOPE OF WORK**

This scope of services describes the work to be performed by HDR Engineering, Inc. (HDR) and its subconsultant, Clear Creek Associates (CCA), on behalf of the City as defined below.

***RECHARGE CAPACITY ASSESSMENT AT HEROES PARK SITE***

**Objective:**

- Identify the physical hydrologic capabilities at the park site through field investigations and flow tests.

**Services:**

- Manage the work effort, including schedule revisions and subcontract with CCA (HDR).
- Conduct one (1) project coordination meeting at the Heroes Park Site to discuss overall logistics, identify locations for on-site testing, and determine available water sources for basin pilot testing (HDR/CCA).
- Provide drilling oversight, lithologic logging, and geotechnical sampling (CCA)
- Conduct falling head tests (CCA)
- Excavate basin test pits and conduct basin pilot testing (CCA)
- Prepare draft Technical Memorandum and Recommendations (HDR/CCA)
- Incorporate City review comments and issue Final Technical Memorandum (CCA)

**Work Tasks:**

***Task 1 – Project Coordination Meeting (HDR/CCA)***

This task includes time for preparation for and attendance at one project coordination meeting with the City. CCA's Principal-in-Charge, Don Hanson, R.G. and Project Manager, Geno Mammuni, R.G. will attend this meeting unless otherwise instructed by the City or if scheduling conflicts occur. The meeting will take place at the Heroes Park site. The purpose of this meeting will be to discuss overall logistics related to the planning, preparation, and implementation of the field activities at Heroes Park. Locations for soil borings, piezometers, test pits and basins will be selected. Also, available water sources will be identified for basin pilot testing.

### ***Task 2 – Drilling Oversight, Lithologic Logging, Geotechnical Sampling (CCA)***

As part of the effort to assess the hydrogeologic conditions beneath the site, CCA recommends that one borehole be completed to 99 feet, first water or auger refusal. Drive samples for lithologic logging and geotechnical analysis will be collected at 5-foot intervals. Up to 10 samples will be submitted to Speedie and Associates (subconsultant to CCA) for sieve analysis and hydrometer testing. Following completion, the boring will be abandoned by backfilling with drill cuttings.

CCA also recommends the installation of a set of piezometer nests; one 5-foot, one 10-foot, one 15-foot and one 20-foot. These will be completed as temporary piezometers through the installation of 2-inch PVC. The piezometers will be used for falling head tests and to monitor lateral migration of water during mini-basin pilot testing (see Task 3.0). Each borehole will be equipped with 2-feet of 2-inch PVC screen and whatever blank is needed to reach land surface. Screens would be gravel packed with a thin (1-2 foot) bentonite seal on top then filled to land surface with drill cuttings. These will only be temporary so no vaults would be installed but the piezometers would be capped.

For cost estimating purposes, we have assumed no more than 3 days of onsite CCA field staff and 1 day for the CCA project manager.

### ***Task 3 – Falling Head Tests (CCA)***

Following completion of the activities described in Task 2, CCA recommends that falling head tests be conducted in the piezometers followed by pilot infiltration testing via small scale basin (~10' x 10' square x 3' deep). The falling head tests will provide an initial qualitative estimate of potential infiltration rates. This qualitative information will be used to develop estimates of water requirements for the longer term basin pilot testing (see Task 4).

Falling head tests will be completed in all four piezometers. Falling head tests will be conducted by repeatedly filling each piezometer with a known volume of water then monitoring the rate of water level decline. Testing will be done multiple times until the rate of decline is similar (within 10%) between tests. No more than six tests will be completed in any one piezometer.

### ***Task 4 – Test Pit and Basin Pilot Testing (CCA)***

One test pit will be excavated to allow for visual observation of the near surface soils. The test pits will be approximately 10 feet long and 10 feet deep. Test pit sidewalls will be viewed and photographed. Under no circumstances will the test pits be entered. Up to four (4) sidewall samples will be collected from the excavator bucket for sieve analysis and hydrometer testing. Once visual inspection and sampling is complete, the test pits will be backfilled with excavated materials and compacted using the backhoe bucket or wheel rolling technique.

Basin pilot testing will be performed in a basin excavated adjacent to the piezometers. The basin excavation will be approximately 10' x 10' square x 3' deep. Basin sidewalls will be sloped and the basin will be fenced using orange safety fencing. CCA will subcontract a local excavating company to dig the test pits and basins. Spoils from the basins will be temporarily placed adjacent to them until testing is complete. Basin will be backfilled with excavated materials and compacted using the wheel rolling method.

CCA's subcontractor will also set up the water supply system for the basin pilot testing. For costing purposes, we have assumed that one fire hydrant meter will be obtained and that the distance from the hydrant to the basin will be no more than 1,000 feet. Total water usage is estimated at less than 200,000 gallons.

The general methodology for basin pilot testing shall include the following:

- The basin will be equipped with a staff gauge and a pressure transducer. The basin shall be filled with approximately 24-inches of water. Once full, the water will be shut off and the basin will be allowed to drain. While measurements of the rate of infiltration will be collected, this initial cycle will essentially serve as a pre-wetting phase. This initial wetting cycle is assumed to take one day.
- Subsequent filling and draining cycles will be conducted over the next three days. The number of cycles will depend on the rate of infiltration. Finally, one constant rate will be completed where the water height in the basin will be kept at a constant level for a period of eight hours. The rate of water supplied to basin will be tracked so an actual basin recharge capacity can be determined. A final falling head will be recorded after the constant rate test is complete. With set up and tear down, we have estimated seven field days for testing of the basin plus one additional day for overseeing backfilling and compaction of the basins.

#### *Task 5 - Prepare Technical Memorandum and Recommendations (CCA/HDR)*

Upon completion of the proposed activities, CCA will prepare a Technical Memorandum (TM) documenting the procedures and results of the soil borings, test pits, falling head tests and basin pilot testing. In addition to providing basin infiltration rates, the TM will include recommendations to enhance basin infiltration that may need to be implemented during the basin construction phase such as additional trenches, pits, drains, etc.

The TM will be prepared in draft form and submitted to the City for review and comment. Ten copies of the final TM will be prepared for distribution.

#### **Deliverables:**

- Draft Technical Memorandum (electronic copy)
- Final Technical Memorandum (10 copies and one electronic copy)

**Key Understandings:**

- Notice to Proceed with the work under this Allowance Task will be issued by February 1, 2017.

**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 \$239,824.

**DETAILED PROJECT COMPENSATION**

Original Professional Services Fee	\$185,724
Amendment One-Recharge Capacity Assessment at Heroes Park Site	
HDR Project Administration	\$5,308
Direct Expenses (Reimbursables)	\$100
Clear Creek Associates (Subconsultant)	\$46,192
Owner's Allowance	<u>\$2,500</u>
Total Additional Fee	\$54,100
<b>Total Not To Exceed</b>	<b>\$239,824</b>