

City of Goodyear

Vadose Zone Injection Well Engineering Design Contract


Carollo Engineers, Inc.

City of Goodyear Council Meeting: 15-5646
August 24, 2015






Recommendation

- Approve the \$620,004.00 contract for the **Engineering Design and Construction Administration Services Contract** with Carollo Engineers, Inc. for the Vadose Zone Injection Well Project of the Goodyear Water Reclamation Facility (GWRF), and authorize the Purchase Order to be issued.
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Historical Note

- The current Soil Aquifer Treatment (SAT) site was identified as the future City Center location and was decommissioned in 2008
 - All reclaimed water was sent to Palo Verde Nuclear Power Generating Station – Free of charge
 - The City does not currently have a permanent recharge solution
 - Recharge via Vadose Injection Wells proposed as new recharge permanent solution
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Recharge Update

- The SAT site was quickly and temporarily re-commissioned June 10, 2014 and is recharging all of the City's reclaimed water produced at the Goodyear Water Reclamation Facility - ~\$720,000 of value generated annually.
- Carryover Impact Fee CIP funding was reallocated and transferred for this project **\$2,400,000** - FY14
- The City was successful in receiving a **\$300,000** grant from the United States Bureau of Reclamation - FY14
- Water Resources Operating Budget was approved for **\$135,000** for permit fees – FY14
- Total Budget of **\$2,835,000** available for the Vadose Injection Well project – FY14



Completed Work

- Developed a hydrologic model
 1. Determine the most ideal locations for the vadose zone injection wells for existing City owned or controlled lands near the reclaimed water backbone infrastructure and obtain necessary permits. - **Completed**
 2. Arizona Department of Environmental Quality issued Aquifer Protection Permit - **Completed**
 3. Arizona Department of Water Resources issued Underground Storage Facility Permit – **Completed**



Completed Work

- Hydrologic Model also used for other related work
 1. Renew the City's Designation of Assured Water Supply permit with ADWR before December 31st, 2014 – **Completed.**
 2. Quantify the total physical water that could be delivered from the Adaman Water District - **Completed**
 3. Increase the legal withdrawal authority within two City water production wells – **Permit being evaluated.**



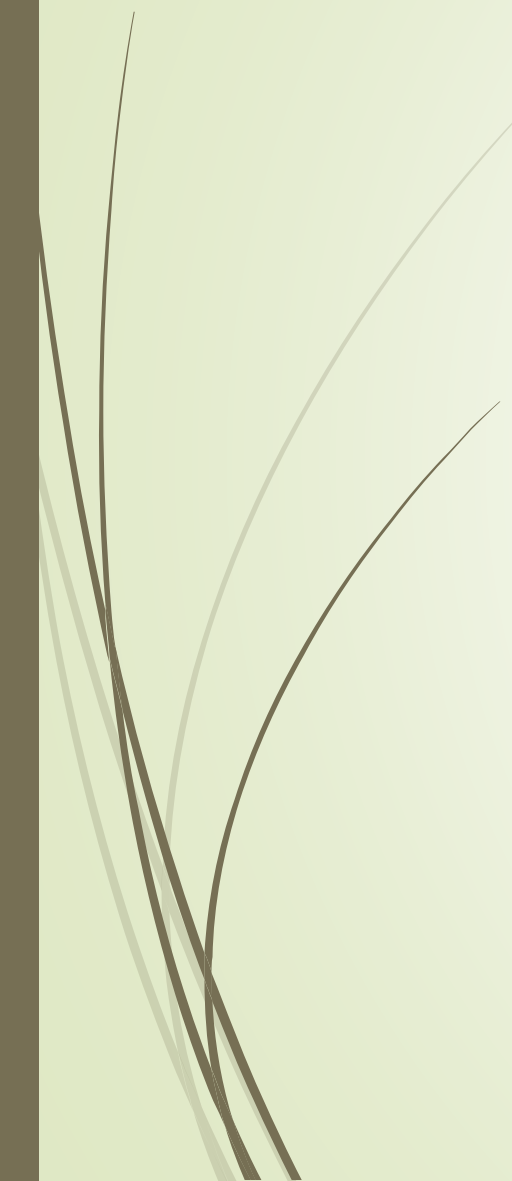
Proposed Work



1. Complete any necessary environmental assessments.
2. Based on the best proposed hydrologic model locations begin the design of the necessary infrastructure for recharging reclaimed water supplies.



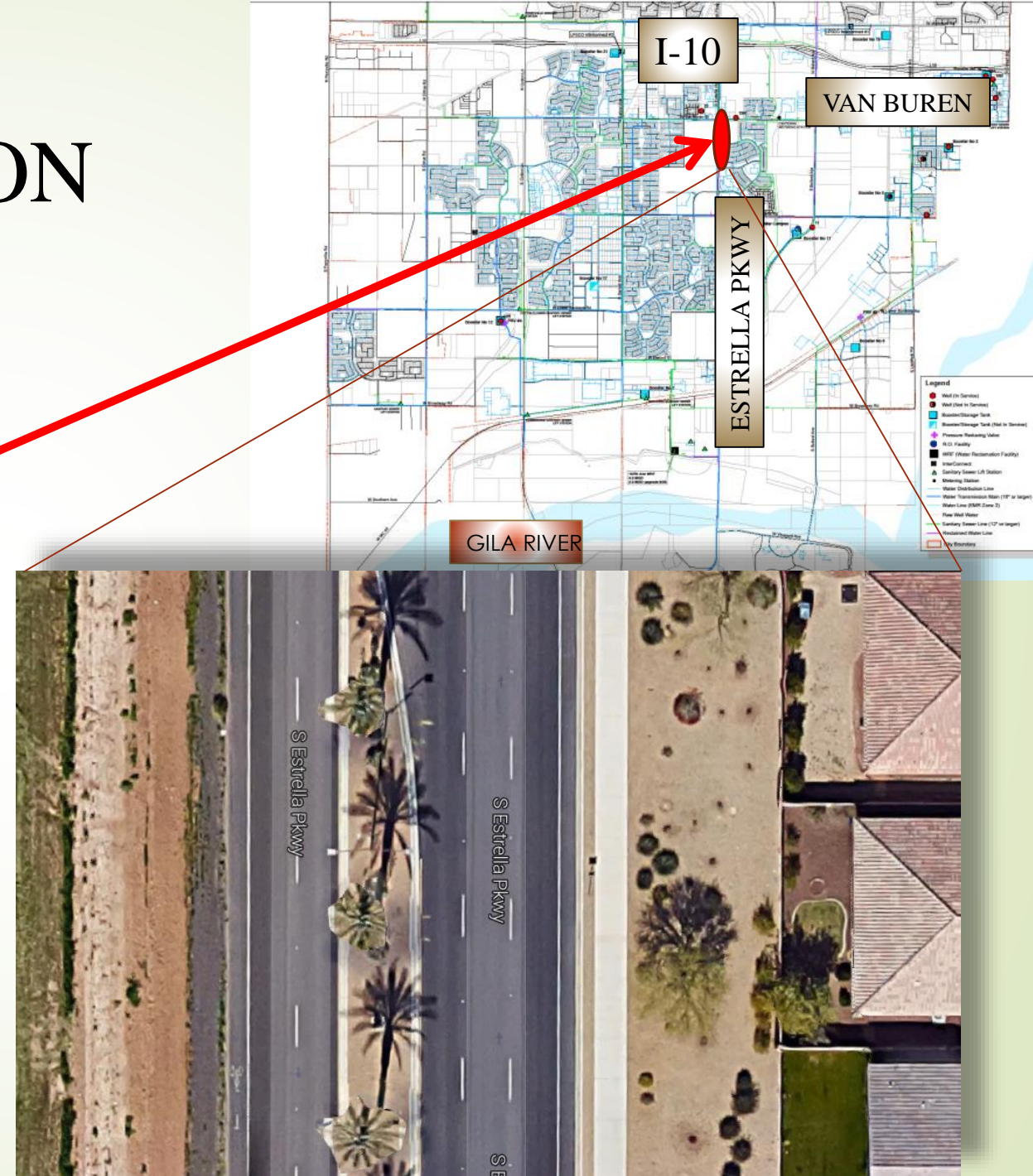
City Benefits

- Vadose injection wells do not need huge tracks of land.
 - The reclaimed water would recharge and replenish the same aquifer that is currently being pumped for the City's entire water demands.
 - Reclaimed water has and can continue to be used to meet replenishment obligations.
 - Reclaimed water has significant water and financial value.
 - Reclaimed water can be stored underground and used in times of water supply shortages.
 - Class A + reclaimed water have better water quality characteristics compared to poor quality groundwater.
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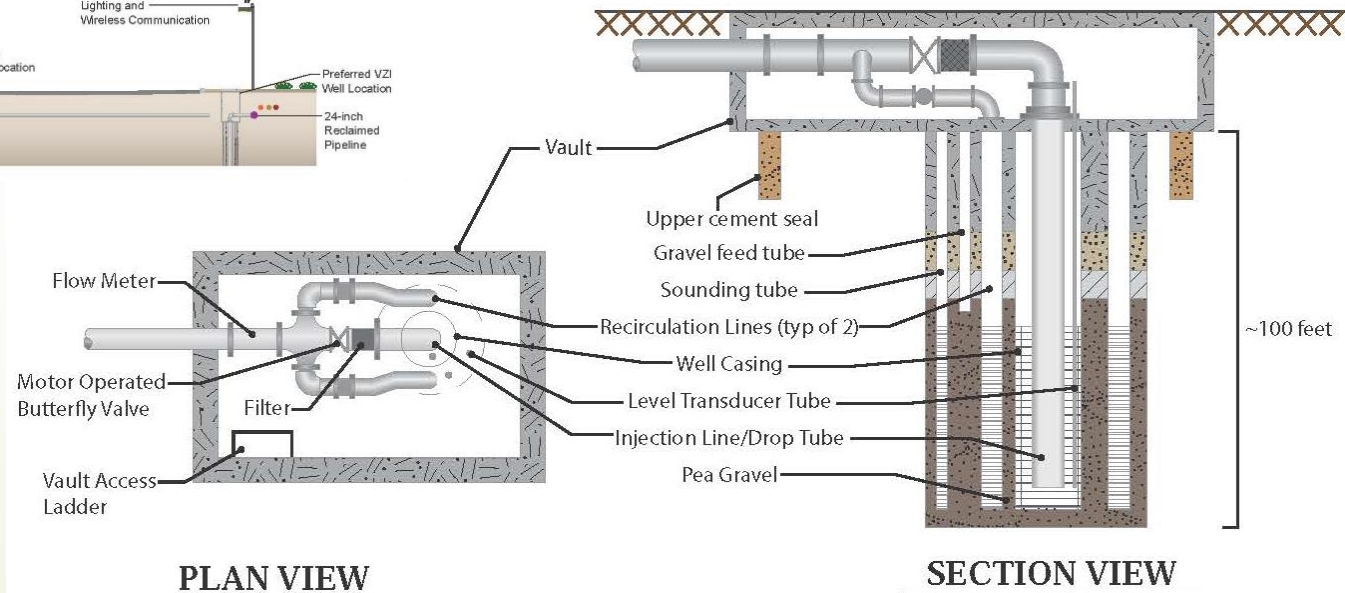
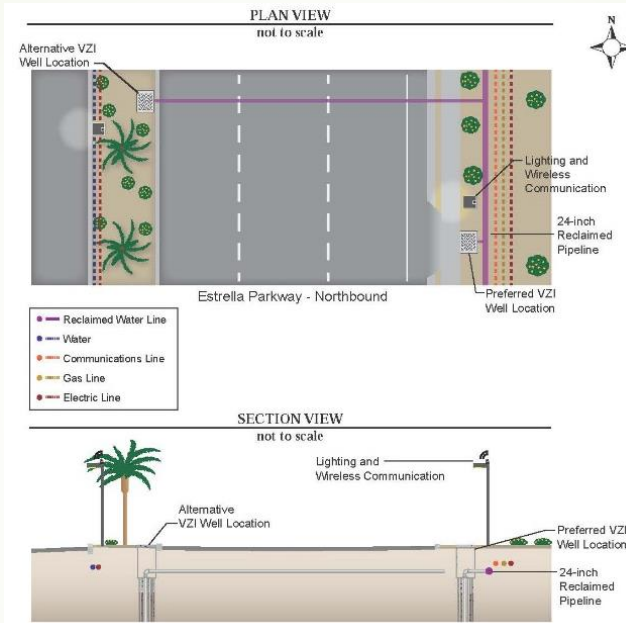
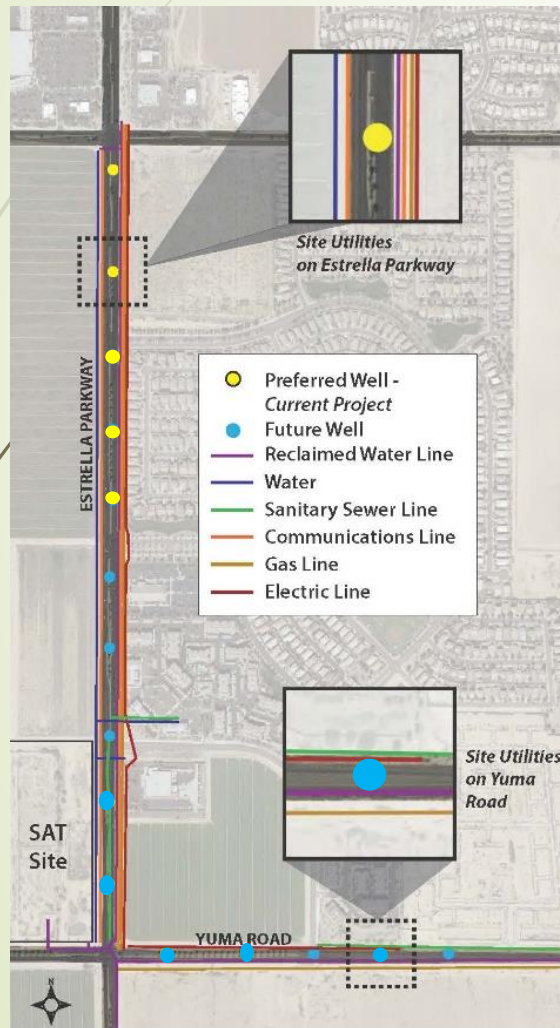
PROJECT LOCATION

Vadose Zone Wells Site

- Estrella Parkway & Van Buren
- Project Site Selected Based on:
 - Favorable Hydrogeology
 - Yields best chance for higher recharge rate



PROPOSED VADOSE WELL DESIGN



INJECTION WELLS IN GOODYEAR





Discussion