

# City of San Marcos Water Resources Project

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## CHANGE IN SERVICES

### BASIC SERVICES

Plummer Associates, Inc. (Plummer) understands that the City of San Marcos (CLIENT) is a participant in the Alliance Regional Water Authority (ARWA) project to bring groundwater to the CLIENT and other participants to meet future water demands. CLIENT has retained the services of Plummer to evaluate the changes that will be required within its system and to design the improvements needed at the Surface Water Treatment Plant to make effective use of this new supply. The improvements at the Surface Water Treatment Plant will be jointly funded by CLIENT and the Guadalupe-Blanco River Authority (GBRA) since GBRA will receive water via the ARWA pipeline and distribute it to its customers.

During the Preliminary Engineering Phase for the improvements at the Surface Water Treatment Plant, several changes in scope were identified as being desirable. These changes are as follows:

1. Provide additional emergency generator capacity to power the entire plant.
2. Include a surge tank on the GBRA system to protect against hydraulic transients.
3. Add a fourth pump for the City of San Marcos.
4. Provide for an expansion to the electrical building to house the new, larger VFDs.
5. Update the SCADA controls for both pump stations.
6. Conduct a vibration analysis of the wetwell structure.
7. Include permanent piping from the booster pump stations to the ARWA line so that water can be fed back to ARWA.

### ADDITIONAL SERVICES

#### 1. Preliminary Engineering Services

1.1 Evaluate the existing backup generator and associated utilization equipment and provide sizing recommendation for an additional backup generator and appurtenances as necessary to power all WTP treatment equipment and provide firm capacity for both GBRA and San Marcos high service pump stations. Three options will be evaluated:

- Adding an automatic transfer switch and an additional backup generator sized for three GBRA HSPS pumps and one San Marcos HSPS pump.
- Paralleling Switch Gear and an additional backup generator sized for three GBRA HSPS pumps and one San Marcos HSPS pump.
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1.2 Based on the results of the hydraulic transient (aka. surge) analysis for the GBRA Treated Water Delivery System (TWDS) pipeline completed under the original scope of

the project, develop sizing and siting recommendations for a hydropneumatic tank and associated appurtenances and piping connections at the HSPS.

- 1.3 Based on the evaluation of required improvements to the electrical building, recommend dimensions for a building expansion to accommodate four variable frequency drives (VFDs) and one San Marcos high service pump.
- 1.4 Conduct a preliminary structural evaluation of the wet well to accommodate the weight of the proposed GBRA and San Marcos pumps and motors.
- 1.5 Conduct a preliminary evaluation of the existing PLC (RTU) panels located in the GBRA and San Marcos Electrical rooms and their connection with existing SCADA software located in the water plant control room.
- 1.6 Conduct preliminary engineering for the design of a permanent pipeline connection between the booster pump station discharge line and the ARWA feed line such that water can be fed back to ARWA from the San Marcos WTP.
- 1.7 Attend two additional progress meeting with CLIENT and GBRA staff.

## **2. Design, Bidding Assistance, and Construction Administration Services**

As incremental additions to, but performed in accordance with, the original scope of services, provide design, bidding assistance, and construction administration services for the following items:

- 2.1 Expansion of the electrical building to accommodate the electrical gear required for the new and replacement pumps (including VFDs), along with the associated HVAC requirements. Building will match the look of the existing electrical building.
- 2.2 Addition of a second backup diesel generator and electrical paralleling gear required to power the WTP equipment and provide firm capacity for both high service pump stations.
- 2.3 Addition of a hydropneumatic tank and associated appurtenances and piping for surge control.
- 2.4 Subcontract with a specialty firm to perform field vibration testing to identify the natural frequency of the existing pumps and evaluate whether the natural frequency of the heavier equipment may be excited by the pump rotating speed. It is assumed that no additional structural improvements will be required as a result of the vibration analysis. If structural improvement of the wet well is required, additional design services will be necessary.
- 2.5 Addition of new GBRA-side VFD Input/Output (I/O) points to the existing Rockwell Automation CompactLogix PLC located in the GBRA Electrical Room. New I/O cards will be added to the existing CompactLogix PLC as required to accommodate all new field I/O.
- 2.6 Addition of new San Marcos-side VFD I/O points to the existing Rockwell Automation SLC PLC located in the San Marcos Electrical Room, assuming the existing SLC is able to accept new I/O.
- 2.7 Design an additional high service pump for the City of San Marcos and connect it to the discharge header.
- 2.8 Design approximately 800 linear feet of 16-inch line to connect the booster pump discharge headers to the ARWA feed pipe in order to allow backfeeding ARWA.

2.9 Attend up to four additional progress meetings during design to receive CLIENT and GBRA staff.

**COMPENSATION**

Compensation shall be Lump Sum. Invoices will reflect percent complete on the various tasks as identified below.

	Initial Contract	CIS #1	Total
Water Mater Plan Update	\$ 176,150	\$ 0	\$ 176,150
Preliminary Engineering Services	\$ 102,800	\$ 25,300	\$ 128,100
Design Services	\$ 170,450	\$ 192,090	\$ 362,540
Bidding Assistance	\$ 28,000	\$ 4,410	\$ 32,410
Construction Administration	\$ 179,190	\$ 38,373	\$ 217,563
<b>Total Contract</b>	<b>\$ 656,590</b>	<b>\$ 260,173</b>	<b>\$ 916,763</b>