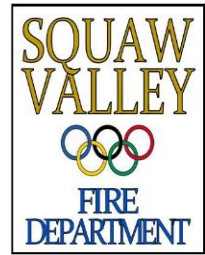




# SQUAW VALLEY PUBLIC SERVICE DISTRICT



## West Tank Recoating Project

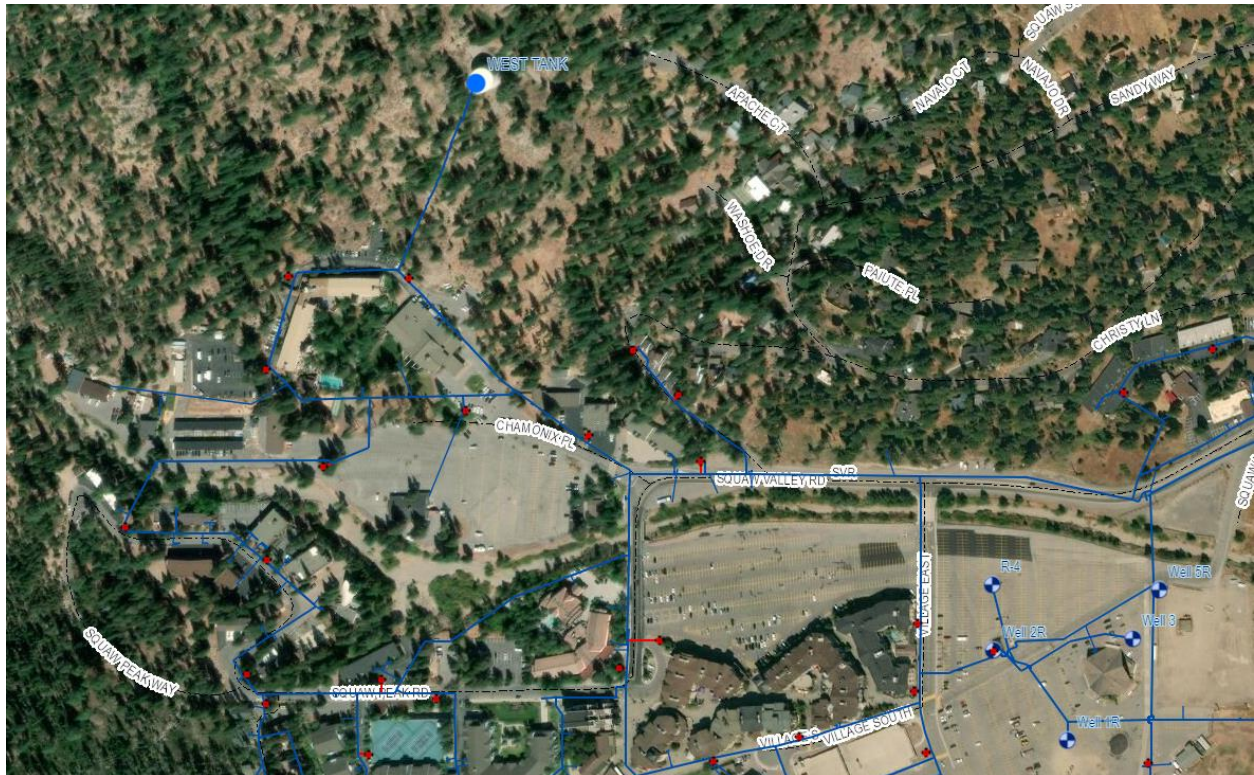
**DATE:** April 28, 2020

**TO:** District Board Members

**FROM:** Dave Hunt, District Engineer

**SUBJECT:** Professional Services Agreement with Farr West Engineering for Planning and Design Support

**BACKGROUND:** The West Tank is a 1.15 million gallon welded steel water storage tank that provides domestic and fire supply storage to approximately 75% of the District’s water service territory, and accounts for approximately 65% of the District’s total water supply storage capacity. It was constructed in 1990 and is located at the west end of the Valley at the end of Washoe Drive. Water supply to the West Tank is provided by Wells 1R, 2R, 3, and 5R.



Recent inspections of the tank in 2015 and 2019 have indicated that the internal coating system is failing and in need of replacement. Both internal and exterior coating systems for steel water storage tanks typically have a design life of up to 25 years. The West Tank coating dates back to the original construction of the tank and is now more than 30 years old. Recoating water storage tanks extends the useful life of the tank by protecting the metal surfaces from corrosion, and thus extending the design life of a tank as a whole. Recoating at required intervals (every 25 years) greatly increases the useful life of a water storage tank to more than 75 years before the need to replace.

The project will include:

- Sand blast and recoat the tank interior walls, floor, and roof structure;
- Installation of a climate control system (dehumidification) during the preparation and coating process;
- Pressure wash and recoat the exterior of the tank;
- Miscellaneous steel and welding repairs; and
- Temporary water supply and storage facilities.

**DISCUSSION:** The West Tank is an extremely critical asset in the District's water system as it provides domestic and fire supply storage to most of the Valley. The project will require the tank to be taken offline for the interior preparation and coating process which is expected to take 8-10 weeks. This creates a unique water supply situation during this time period. Careful planning and design of temporary water storage and supply facilities will be required to complete this project. These will likely include installing temporary piping and storage up at the tank site as well as a change in operating and pumping strategy to supplement storage for the West Tank Zone from the 500,000 gallon East Tank. In order to fully understand temporary water storage and supply improvements, the District's consultant will use our hydraulic water model to assess various water supply and storage scenarios. With the modeling information, District staff and our consultant will design the necessary temporary water storage and supply improvements.

To complete the project while minimizing the risk of reduced water storage capacity for a period of time, the project will be constructed in the late summer of 2020 when the water demands in the system are reduced. The exterior surface preparation and coating can be accomplished with the tank still on-line. The interior preparation and coating work can only be done with the tank drained. Based on this, and a good understanding of our system water demands, the exterior work would occur in August. The tank will be taken offline after Labor Day when occupancy and water demands in the Valley start to decrease. The interior work would extend through the end of October.

Recoating the West Tank is a highly technical project requiring a high level of planning and design considerations, as well as critical construction inspection

needs. Based on this, the District has put together a project team to assist in the planning, design, and construction inspection of the project that have extensive experience and a long track record of successful project implementation in this area. The project team includes:

- Farr West Engineering – Water modeling and design support
- Bay Area Coating Consultants – Coating specifications and construction inspection
- District staff - project and construction management, preparation of design documents, construction inspection for non-coating tasks.

In order to meet the construction schedule for the late summer of 2020, the following general schedule would apply:

Task	Time Frame
Planning and Water Modeling Tasks	April-May 2020
Design	May 2020
Bid Project	June 2020
Construct	August-October 2020

The current total project cost is approximately \$550,000 - \$600,000. The project will be funded from the Water FARF. The cost estimate is based on evaluation of a number of other local tank coating projects similar to the West Tank project. This total project cost includes approximately \$75,000 for planning, design, and construction inspection and \$475,000 - \$525,000 for construction. The construction cost estimate will continue to be refined through the design process. For comparison, a new water storage tank of this size would cost more than \$1.25 million.

Currently, staff is requesting that the Board approve a proposal from Farr West Engineering to provide water modeling and design support for the project. The proposal for inspection services by Bay Area Coating Consultants and the construction contract award will be presented at the June Board meeting.

- ALTERNATIVES:**
1. Approve the proposal from Farr West Engineering for water modeling and design support for the West Tank Recoating Project in an amount not to exceed \$23,203.00.
  2. Do not approve the proposal from Farr West Engineering for water modeling and design support for the West Tank Recoating Project.

**FISCAL/RESOURCE IMPACTS:** The West Tank Recoating Project will be funded through the Water FARF. The total project cost is estimated to be approximately \$550,000 - \$600,000, which includes design and permitting, staff time, and construction.

The FY20 budget includes \$20,000 for planning and design. The remaining budget will be accounted for in the FY21 budget.

**RECOMMENDATIONS:** 1. Staff recommends approval of the proposal from Farr West Engineering for water modeling and design support services and recommends the General Manager be authorized to execute a Professional Service Agreement with Farr West Engineering in an amount not to exceed \$23,203.00.

**ATTACHMENTS:**

- Farr West Engineering – Scope of Work West Tank Project Support Services (April 2020)

**DATE PREPARED:** April 23, 2020

## **EXHIBIT A SCOPE OF WORK**

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### **Squaw Valley Public Service District West Tank Project Support Services**

#### **INTRODUCTION**

Squaw Valley Public Service District (SVPSD) has requested Farr West Engineering (Farr West) to provide a scope of work (SOW) to provide support services for its West Tank Recoating Project. The West Tank is an existing 1.1 million-gallon welded steel water storage tank that requires a recoating of its interior and exterior surfaces. As such, the West Tank will be taken offline during recoating. Farr West will model several fire flow and operational scenarios with the West Tank offline to provide SVPSD with pertinent information in how the overall water system will respond without the West Tank during the fall demand period after Labor Day. Additionally, Farr West will prepare a small plan set of drawings and contract documents for SVPSD to utilize for bidding and construction of the project.

The phase and task breakdown for the project is designated as follows:

#### **Design Services**

- Task 1 – Project Management
- Task 2 – Modeling Support
- Task 3 – Design Support
- Task 4 – Contract Document Support

#### **DESIGN SERVICES**

##### **Task 1 – Project Management**

###### *Objective*

To plan, organize, direct, control, and communicate all relevant activities set forth in this SOW within the approved budget and schedule.

###### *Approach*

Farr West will routinely review project progress and communicate project status on a regular basis. Communication will be through email and telephone between SVPSD and Farr West staff. This task will include the following activities:

- Project administration includes scheduling maintenance, cost control, monthly invoicing, filing, resource allocation, and routine communications.
- Team coordination, including conference calls and internal meetings.
- Monitoring changes to the scope, budget, or schedule and developing change management strategies with SVPSD.

### ***Deliverables***

The following deliverables will be submitted under this task:

- Project schedule.
- Monthly invoices.

### ***Assumptions***

The following assumptions apply:

- Project-related issues will be identified, communicated, and resolved.
- SOW assumes a two (2) month duration.

## **Task 2 – Modeling Support**

### ***Objective***

Farr West will provide modeling results for different scenarios pertaining to the West Tank being taken offline. This will include modeling fire flow in the most affected areas of the system, modeling the fall seasonal demands, verifying water movement between Zone 1 and Zone 2, the effects of temporary storage on system pressures and fire flow, and different well operational scenarios.

### ***Approach***

The following approach applies:

- Setup of the two different seasonal scenarios that will be modeled. Fall system demands will be calculated and applied to the model.
- Verification of all affected system elements (e.g. tanks, PRVs, and wells) due to the West Tank being taken offline.
- Meet with SVPSD staff to ensure that model setup is accurate and reflects the desired system setup for the operational scenarios.
- Perform a fire flow analysis on each pressure zone in the system and provide maps showing available fire flow throughout the system.
- Perform an analysis of all possible operational scenarios to determine water movement from Zone 1 to Zone 2 and vice versa.
- Determine any system deficiencies that may be exacerbated by the West Tank being taken offline.
- Meet with SVPSD staff to present results of modeling effort.

### ***Deliverables***

The following will be delivered under this task:

- Fire flow maps of entire system
- Pressure maps of entire system

### ***Assumptions***

The following assumptions apply:

- Farr West will use the most up to date model of the SVPSD system.
- SVPSD will provide Farr West with updated system information as requested (e.g. PRV settings, tank levels, pump curves)
- SVPSD will provide Farr West with monthly system water usage for last 3 years (i.e. 2017-2019).
- SVPSD will provide Farr West with fire flow requirements.

### **Task 3 – Design Support**

#### ***Objective***

Farr West will prepare a design plan set of drawings depicting the West Tank site piping temporary configuration so the West Tank may be taken out of service for recoating.

#### ***Approach***

The following approach applies:

- Collect existing West Tank record drawings from SVPSD to utilize as attachments and reference within design plans.
- Coordinate with SVPSD to obtain their West Tank operational parameters to implement into temporary piping design.
- Design plan set shall include four (4) sheets: cover sheet, site plan sheet, piping schematic detail sheet, and standard detail sheet.
- Preparation and submittal of 90% design plans for SVPSD review and comment.
- Incorporate all SVPSD review comments.
- Preparation and submittal of 100% contract documents for SVPSD's use in construction bidding.
- Farr West and SVPSD to correspond via phone and Microsoft Teams for design meetings and questions.

#### ***Deliverables***

The following will be delivered under this task:

- 90% design plan set for review and comment.
- 100% Design plan set for bidding purposes.

### ***Assumptions***

The following assumptions apply:

- Existing West Tank record drawings will be utilized as reference within plan set and contract documents.

- SVPSD will develop a system operational strategy for the Project that will be included within the design plan set.
- Site piping design shall be schematic in nature only. Piping configuration requirements shall be identified by SVPSD.
- SVPSD shall identify temporary storage tank components: number of tanks, placement, and working clearance.
- SVPSD will perform, and fund, all permitting (State, local, environmental) and land acquisition (easements) efforts required for the Project.
- All deliverables will be made electronically, no hard-copy production of documents is included within this SOW.
- Four (4) telephone calls of 0.5 hours, and four (4) Microsoft Teams calls of 1.0 hours are included within this SOW.
- Not included within this SOW
  - Topographic survey to be performed, nor collected for design plans.
  - Corrosion protection, tank evaluation, and lead abatement.
  - Farr West trips to SVPSD.
  - Bidding, construction management, and project closeout efforts are not included within this SOW.

#### **Task 4 – Contract Documents**

##### ***Objective***

Develop contract documents, bid schedule, opinion of probable cost for SVPSD to utilize for contractor bidding related to the Project.

##### ***Approach***

This task will include the following activities:

- Coordination with SVPSD who will be preparing the Division 0 portion of the contract documents.
- Incorporating SVPSD prepared sections of the contract documents into each complete contract document submittal.
- Incorporating coating specifications received from SVPSD, provided by Bay Area Coating Consultants, that SVPSD wishes to utilize for the Project.
- Preparation of all remaining Divisions of contract documents.
- Preparation and submittal of 90% contract documents for SVPSD review and comment.
- A detailed opinion of probable cost will be provided based on unit prices for specific improvements. The estimate will be used as the basis to evaluate contractor bids.
- Preparation of a proposed construction schedule.
- Preparation and submittal of 100% contract documents for SVPSD’s use in construction bidding.



## ***Deliverables***

The following will be delivered under this task:

- 90% contract documents and opinion of probable cost for review and comment.
- 100% contract documents and opinion of probable cost for bidding purposes.

## ***Assumptions***

The following assumptions apply:

- The Project consists of interior and exterior recoating of the West Tank only.
- SVPSD is to prepare the following sections and provide to Farr West for inclusion in the contract documents: Division 0 and Summary of Work.
- Farr West will prepare the following sections: Bid Form, Division 1, Price and Payment Procedures, and all remaining, and required, technical specifications. A climate control specification shall be included.
- Specifications will be in the EJCDC and CSI format.
- SVPSD will perform, and fund, all permitting (State, local, environmental) and land acquisition (easements) efforts required for the Project.
- SVPSD will develop a system operational strategy for the Project that will be included within the contract documents.
- All deliverables will be made electronically, no hard-copy production of documents is included within this SOW.
- Not included within this SOW
  - Coordination with reputable tank coating contractors to evaluate constructability and scheduling factors that will impact the Project.
  - Research of improved anti-graffiti coating products.
  - Infrastructure, site-work (appurtenance repair or replacement), corrosion protection, tank evaluation, and lead abatement.
  - Farr West trips to SVPSD.
  - Bidding, construction management, and project closeout efforts.

**EXHIBIT B  
SCHEDULE**

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<b>Notice to Proceed:</b>	<b>April 29, 2020</b>
<b>Scenario Verification Meeting:</b>	<b>May 8, 2020</b>
<b>Modeling Completed:</b>	<b>May 22, 2020</b>
<b>Final Meeting with SVPSD:</b>	<b>May 27, 2020</b>
<b>Design Plans:</b>	<b>June 5, 2020</b>
<b>Contract Documents:</b>	<b>June 5, 2020</b>
<b>SVPSD Bidding:</b>	<b>June 2020</b>

**EXHIBIT C  
BUDGET**

Task 1	Project Management	\$2,106.00
Task 2	Modeling Support	\$8,896.00
Task 3	Design Support	\$7,696.00
Task 4	Contract Document Support	\$4,505.00
	<b>TOTAL:</b>	<b>\$23,203.00</b>

**EXHIBIT D**  
**2020 ENGINEER'S RATE SCHEDULE**

<b>Title</b>	<b>Hourly Rate</b>	<b>Title</b>	<b>Hourly Rate</b>
Principal Engineer	\$168	Building Inspector II	\$70
Senior Engineer II	\$158	Building Inspector I	\$65
Senior Engineer	\$148	Designer III	\$118
Engineer IV	\$138	Designer II	\$108
Engineer III	\$128	Designer I	\$98
Engineer II	\$118	GIS Analyst II	\$135
Engineer I	\$108	GIS Analyst I	\$120
Engineer in Training II	\$98	GIS Specialist	\$98
Engineer in Training I	\$90	GIS Technician	\$85
Senior Hydrogeologist	\$155	Water Rights Specialist III	\$150
Hydrogeologist II	\$115	Water Rights Specialist II	\$125
Hydrogeologist I	\$95	Water Rights Specialist I	\$110
Electrical Engineer	\$150	Water Rights Technician III	\$98
Construction Inspector III	\$110	Water Rights Technician II	\$90
Construction Inspector II	\$103	Water Rights Technician I	\$75
Construction Inspector I	\$95	Regulatory & Env. Specialist	\$95
Project Assistant	\$90	Professional Surveyor	\$135
Admin IV	\$95	Survey Technician II	\$95
Admin III	\$85	Survey Technician I	\$78
Admin II	\$75	1 Man Survey Crew	\$135
Admin I	\$60	2 Man Survey Crew	\$180
Intern	\$45	3 Man Survey Crew	\$250
		Utility Operator	\$118

Other Fees and Charges:

1. All direct project expenses, including subconsultants, will be billed at actual cost plus 15%.
2. An overtime surcharge of 25% will be applied to the hourly rates of non-salaried employees for authorized overtime work.
3. Different survey and construction inspection labor rates will apply on prevailing wage projects. Rates for prevailing wage projects will be provided on a case by case basis.

**Squaw Valley PSD  
West Tank Project Support Services  
Engineering Fee Estimate**

TASKS	Rate (\$/hr)	Principal Civil Engineer - M. Van Dyne	Principal Civil Engineer - L. Tipton	Engineer IV - M. Schultz	Engineer II - A. Stodtmeister	EIT II -	Administrator II - D. Blanton	Total Labor		Expenses	TOTAL
		\$168	\$168	\$138	\$118	\$98	\$75	Hours	(\$)	(\$)	(\$)
<b>1.0 Project Management</b>											
Project Coordination and Management		4	4	2				10	\$1,620		\$1,620
Monthly Reports/Progress Billings		2					2	4	\$486		\$486
	<b>Subtotal</b>	<b>6</b>	<b>4</b>	<b>2</b>			<b>2</b>	<b>14</b>	<b>\$2,106</b>		<b>\$2,106</b>
<b>2.0 Modeling Support</b>											
Scenario Setup (spring/fall scenarios)			2		10			12	\$1,516		\$1,516
Fire Flow Analysis					12			12	\$1,416		\$1,416
Operational Analysis			2		30			32	\$3,876		\$3,876
System Deficiencies			2		8			10	\$1,280		\$1,280
Presentation/Meeting			2		4			6	\$808		\$808
	<b>Subtotal</b>		<b>8</b>		<b>64</b>			<b>72</b>	<b>\$8,896</b>		<b>\$8,896</b>
<b>3.0 Design Support</b>											
Prepare 90% Design Plans		2		14		16		32	\$3,836		\$3,836
Prepare 100% Design Plans		1		10		10		21	\$2,528		\$2,528
Review Correspondence with SVPSD		3		6				9	\$1,332		\$1,332
	<b>Subtotal</b>	<b>6</b>		<b>30</b>		<b>26</b>		<b>62</b>	<b>\$7,696</b>		<b>\$7,696</b>
<b>4.0 Contract Document Support</b>											
Prepare 90% Contract Documents		1		8		8	2	19	\$2,206		\$2,206
Prepare Opinion of Probable Cost and Schedule		1		4		4		9	\$1,112		\$1,112
Prepare 100% Contract Documents		1		4		4	1	10	\$1,187		\$1,187
	<b>Subtotal</b>	<b>3</b>		<b>16</b>		<b>16</b>	<b>3</b>	<b>38</b>	<b>\$4,505</b>		<b>\$4,505</b>
	<b>TOTAL</b>	<b>15</b>	<b>12</b>	<b>48</b>	<b>64</b>	<b>42</b>	<b>5</b>	<b>186</b>	<b>\$23,203</b>		<b>\$23,203</b>