



ENGINEERING/OPERATIONAL COMMITTEE MEETING AGENDA
TRABUCO CANYON WATER DISTRICT
32003 DOVE CANYON DRIVE, TRABUCO CANYON, CA
ADMINISTRATION FACILITY, BOARDROOM
JULY 6, 2022 AT 7:00 AM

COMMITTEE MEMBERS

Stephen Dopudja, Committee Chair
Michael Safranski, Committee Member
Ed Mandich, Committee Member Alternate

DISTRICT STAFF

Fernando Paludi, General Manager
Michael Perea, District Secretary
Lorrie Lausten, District Engineer
Gary Kessler, Water System Superintendent
Oscar Ulloa, Wastewater Superintendent
Jason Stroud, Maintenance Superintendent

AGENDA NOTE:

Trabuco Canyon Water District (District) will make this Engineering/Operational Committee Meeting available by telephone audio as follows:

Telephone Audio: 1 (669) 900-6833

Access Code: 973-7562-7682

Persons desiring to monitor the Committee meeting agenda items may download the agenda and documents on the internet at www.tcwd.ca.gov. You may submit public comments by email to the Committee at mperea@tcwd.ca.gov. In order to be part of the record, emailed comments on meeting agenda items must be received by the District at the referenced e-mail address not later than 7:00 a.m. (PDT) on the day of the meeting.

CALL MEETING TO ORDER

VISITOR PARTICIPATION

Members of the public wishing to address the Committee regarding a particular item on the agenda are requested to submit public comments by email to the Committee at mperea@tcwd.ca.gov. The Committee Chair will call on the visitor following the Committee's discussion about the matter. Committees do not constitute a quorum of the Board of Directors and Committee Members cannot make decisions on matters. The Committee makes recommendations only to the Board of Directors. Members of the public will be given the opportunity to speak to the Committee prior to making a recommendation on the matter. For persons desiring to make verbal comments and utilizing a translator to present their comments into English reasonable time accommodations, consistent with State law, shall be provided. Please limit comments to three minutes.

ORAL COMMUNICATION

Members of the public who wish to make comment on matters not appearing on the agenda are requested to submit oral communication by email to the Committee at mperea@tcwd.ca.gov. Under the requirements of State Law, Directors cannot take action on items not identified on the agenda and will not make decisions on such matters. The Board President may direct District Staff to follow up on issues as may be deemed appropriate. For persons desiring to make verbal comments and utilizing a translator to present their comments into English reasonable time accommodations, consistent with State law, shall be provided. Please limit comments to three minutes.

COMMITTEE MEMBER COMMENTS

REPORT FROM THE GENERAL MANAGER

TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING AGENDA | JULY 6, 2022

ENGINEERING MATTERS

PRESENTER(S): FERNANDO PALUDI, GENERAL MANAGER
MICHAEL PEREA, ASSISTANT GENERAL MANAGER
LORRIE LAUSTEN, DISTRICT ENGINEER

ITEM 1: ENGINEERING/OPERATIONAL COMMITTEE MEETING RECAP

RECOMMENDED ACTION:

Approve the following Engineering/Operational Committee Meeting Recap(s) and recommend that the Board receive and file same (Consent Calendar).

1. June 1, 2022 Committee Meeting

ITEM 2: DESIGN SERVICES FOR GOLF CLUB SEWER LIFT STATION REPAIRS & IMPROVEMENTS

RECOMMENDED ACTION:

Recommend the Board of Directors authorize the General Manager to execute an agreement with JIG Consultants for the design of Golf Club Sewer Lift Station Improvements for \$87,000 with a contingency of \$8,700, for a not to exceed amount of \$95,700 (Action Calendar).

ITEM 3: SCADA UPGRADE PROJECT PHASE SIX AGREEMENT WITH TESCO CONTROLS

RECOMMENDED ACTION:

Recommend the Board of Directors authorize the General Manager to execute a contract for the Fiscal Year 2022-2023 SCADA Upgrades to TESCO Controls, Inc. in the not to exceed amount of \$960,000 (Action Calendar).

ITEM 4: DISCUSSION AND POSSIBLE ACTION(S) CONCERNING ROSE CANYON AND LANG WELLS

RECOMMENDED ACTION:

Committee to receive project status updates at time of the Committee Meeting.

ITEM 5: OTHER ENGINEERING AND OPERATIONS PROJECT UPDATES

1. OC Rescue Mission Service Relocation
2. Master Plan and Condition Assessment Update
3. South Orange County IRWM Grant Project
4. Other Projects

RECOMMENDED ACTION:

Committee to receive project status updates at time of the Committee Meeting.



**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING AGENDA | JULY 6, 2022**

OPERATIONAL MATTERS

**PRESENTER(S): GARY KESSLER, WATER SYSTEM SUPERINTENDENT
OSCAR ULLOA, WASTEWATER OPERATIONS SUPERINTENDENT
JASON STROUD, MAINTENANCE DEPARTMENT SUPERINTENDENT**

ITEM 6: WATER SYSTEM UPDATES

RECOMMENDED ACTION:

Committee to receive system status updates. No action required.

ITEM 7: WASTEWATER SYSTEM UPDATES

RECOMMENDED ACTION:

Committee to receive system status updates. No action required.

ITEM 8: MAINTENANCE DEPARTMENT UPDATES

RECOMMENDED ACTION:

Committee to receive system status updates. No action required.

REGULATORY AND OTHER MATTERS

ITEM 9: OTHER MATTERS/REPORTS

RECOMMENDED ACTION:

Hear Other Matters/Reports that may have arisen after the posting of the agenda.

ADJOURNMENT

AVAILABILITY OF AGENDA MATERIALS

Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the Trabuco Canyon Water District Board of Directors in connection with a matter subject to discussion or consideration at an open meeting of the Board of Directors are available for public inspection at the Trabuco Canyon Water District Administrative Facility, 32003 Dove Canyon Drive, Trabuco Canyon, California (District Administrative Facility) or will be posted online on the District's website located at www.tcwd.ca.gov. If such writings are distributed to members of the Board less than 72 hours prior to the meeting, they will be available online at www.tcwd.ca.gov at the same time as they are distributed to the Board Members, except that, if such writings are distributed immediately prior to or during the meeting, they will be posted online on the District's website located at www.tcwd.ca.gov.

COMPLIANCE WITH THE REQUIREMENTS OF CALIFORNIA GOVERNMENT CODE SECTION 54954.2

In compliance with California law and the Americans with Disabilities Act, if you need special disability-related modifications or accommodations, including auxiliary aids or services in order to participate in the meeting, or if you need the agenda provided in an alternative format, please contact the District Secretary at (949) 858-0277, at least 48 hours in advance of the scheduled Board meeting. Notification at least 48 hours prior to the meeting will assist the District in making reasonable arrangements to accommodate your request. The Board Meeting Room is wheelchair accessible.



**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | JULY 6, 2022**

ADMINISTRATIVE MATTERS

ITEM 1: ENGINEERING/OPERATIONAL COMMITTEE MEETING RECAP

RECOMMENDED ACTION:

Approve the following Engineering/Operational Committee Meeting Recap(s) and recommend that the Board receive and file same (Consent Calendar):

- 1. June 1, 2022 Committee Meeting*

CONTACTS (staff responsible): PALUDI/PEREA/SANGI



TRABUCO CANYON WATER DISTRICT ENGINEERING/OPERATIONAL COMMITTEE MEETING RECAP | JUNE 1, 2022

DIRECTORS PRESENT

Stephen Dopudja, Committee Chair
Mike Safranski, Committee Member

STAFF PRESENT

Fernando Paludi, General Manager
Michael Perea, Assistant General Manager
Lorrie Lausten, District Engineer
Karen Warner, Principal Accountant
Lisa Marie Sangi, Executive Assistant
Gary Kessler, Water Superintendent
Jason Stroud, Maintenance Superintendent
Oscar Ulloa, Wastewater Superintendent

PUBLIC PRESENT

None

CALL MEETING TO ORDER

Director Dopudja called the June 1, 2022 Engineering/Operational Committee Meeting to order at 7:00 AM.

VISITOR PARTICIPATION

No comments were received.

ORAL COMMUNICATION

No comments were received.

COMMITTEE MEMBER COMMENTS

Director Safranski briefly commented on an article published in the Orange County Register (OCR) concerning water district compensation. Discussion occurred concerning certain topics highlighted in the article and missed opportunities to contextualize the data. Mr. Paludi provided a brief summary of his response to OCR, and he reported that he extended an invitation to the author for a tour of the District's facilities.

REPORT FROM THE GENERAL MANAGER

Mr. Paludi reported that the Orange County Registrar of Voters will be using the District's Administration Facility Board Room for the June 2022 Primary Election beginning June 3rd.

ITEM 1: ENGINEERING/OPERATIONAL COMMITTEE MEETING RECAP

Mr. Paludi presented the Engineering/Operational Committee Meeting Recap for Committee review in accordance with the agenda.

RECOMMENDED ACTION

The Committee recommended that the Engineering/Operational Committee Meeting Recap(s) be forwarded to the Board of Directors for approval (Consent Calendar).

**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING RECAP | JUNE 1, 2022**

ITEM 2: DISCUSSION CONCERNING DIMENSION WATER TREATMENT PLANT OFFICE TRAILER IMPROVEMENT PROJECT

Mr. Paludi indicated that this matter was previously reviewed by the Committee, and he reported that the project has been updated based on Board feedback. Ms. Lausten provided a brief project update, and she highlighted the updated design modifications proposed in the technical memorandum prepared by JIG Consultants. Discussion occurred concerning trailer design options and interior configuration. Ms. Lausten indicated the next step would be to bid this project out and then return to the Committee. Director Dopudja expressed his appreciation for staff's efforts on the project and he commented that this process was good exercise.

RECOMMENDED ACTION:

There was no action taken.

ITEM 3: OTHER ENGINEERING AND OPERATIONS PROJECTS,

1. Golf Club Sewer Lift Station

Ms. Lausten provided a brief project status update, and she reviewed the completed tasks to date. Mr. Ulloa provided an update on the motor control center (MCC) improvements with the assistance from TESCO Controls and Hydrotech Electrical. Mr. Stroud reported that the damaged submersible pumps has been delivered to Evans Hydro for inspection and repair.

2. SCADA Upgrade-DWTP

Ms. Lausten provided a project update for the Committee, and she briefly reviewed the planned improvements at the Dimension Water Treatment Plant (DWTP) to be completed at the end of the month.

3. Saddle Crest Development

Mr. Paludi provided a brief update on this matter to the Committee, and he reviewed the District's primary concerns related to the completed onsite facilities. Discussion occurred concerning ongoing discussions with the developer related to outstanding issues and long-term expectations.

4. South Orange County IRWM Grant Project

Mr. Paludi reported that the South Orange County IRWM grant funding application period has started and that District staff plan to submit a project for the District's Dove Creek/Tick Creek Dry Season Recovery Facilities. Ms. Lausten provided a brief review of the proposed project scope and the environmental factors and considerations, and she reported the application period closes at the end of June. Discussion occurred concerning increasing capacity of the facilities and operating the facilities year round to provide additional non-domestic water supply

5. Other Projects

Mr. Paludi mentioned that District staff has not heard back from the Saddleback Meadows developer to date.

RECOMMENDED ACTION

The Committee received the status updates. There was no action taken.

ITEM 4: WATER SYSTEM UPDATES

Mr. Kessler reviewed the projects and repairs for May 2022, and he reported that Water Operations staff has completed the following tasks:

1. Repaired a two-inch water service line on Hamilton Trail in the Canyon Community.

**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING RECAP | JUNE 1, 2022**

2. Worked with the Meter department to relocate and rebuild two customers on Canyon Creek in the Canyon Community.
3. District Staff completed and successfully submitted the State Water Resources Control Board Electronic Annual Report.
4. Traveled to Sacramento to witness a SCADA field test system upgrade for the Dimension Water Treatment Plant.

Mr. Kessler reviewed the Monthly Water System Operations Summary with the Committee, and he reported that Irvine Ranch Water District (IRWD) has notified District staff that the V.P. Baker pipeline is scheduled to be online later that day. Mr. Kessler added that the DWTP is currently offline due to the IRWD repair, and that District staff is working with TESCO Controls to complete certain SCADA improvements during this period.

RECOMMENDED ACTION

The Committee received the status update. There was no action taken.

ITEM 5: WASTEWATER SYSTEM UPDATES

Mr. Ulloa reviewed the projects and repairs for May 2022, and he reported that Wastewater Operations staff had completed the following tasks:

1. Assisted the Dam and Safety Inspector at the Wastewater Treatment Plant (WWTP) Recycled Water Reservoir and Dove Lake reservoir.
2. Improved odor control for our sewer lift stations, by converting from chlorine to calcium nitrate.
3. Replaced a pump with assistance from the Maintenance department at the Tick Creek Dry Season Recovery.
4. Installed the mechanical checks and pump guide rails at the Golf Club lift station located in the Dove Canyon community.
5. Conducted the final phase of testing for the MCC at the Golf Club lift station with Tesco Controls.
6. Assisted the Maintenance department in the replacement of a blower at the WWTP.

Mr. Ulloa provided a review of the Monthly Non-Domestic Water System Summary report for May 2022, and he reported that the Tick Creek Dry Season Pump Station was offline for repairs. Discussion occurred concerning lower than normal recycled water production at Shadow Rock Detention Basin Facility and certain operational challenges at the facility. Discussion occurred concerning the District's diverse water source portfolio and strategic management to meet demands.

RECOMMENDED ACTION

The Committee received the status update. There was no action taken.

ITEM 6: MAINTENANCE DEPARTMENT UPDATES

Mr. Stroud reviewed the projects and repairs for May 2022, and he reported that Maintenance staff completed the following tasks:

1. Worked with TESCO Controls on the annual EMASS program
2. Assisted the Wastewater department at the Tick Creek dry season recovery
3. Assist the Water department with a small pipeline leak on Hamilton Trail, located in the Canyon Community
4. Installed new batteries at the Plano Lift Station and El Toro Sewer Lift Station emergency generators
5. Attended a pump class at Evans Hydro

**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING RECAP | JUNE 1, 2022**

6. Worked with the County Inspector to update the Districts CERS program (CA Environmental Protection Program) and get an updated EPA number for the HAZMAT handling.
7. Began weed abatement on TCWD properties
8. Removed a failed positive displacement blower from the Wastewater Treatment Plant blower room for repairs and replaced it with a spare.
9. Rebuilt an Ingersoll Rand air compressor pump
10. Vehicle maintenance on service truck #4 (oil change/inspection/toolbox install) and service truck #2 (factory recall on headlight wiring)
11. Warrantied batteries on the new Mobile Emergency Generator

Mr. Stroud reported that the recently purchased mobile generator has been serviced in accordance with the equipment warranty.

RECOMMENDED ACTION

The Committee received the status update. There was no action taken.

ITEM 7: OTHER MATTERS/REPORTS

Mr. Paludi provided a brief review of certain matters for discussion at the following Committee meeting, including a preliminary review of the District Facility Condition Assessment performed by Hazen and Sawyer.

RECOMMENDED ACTION

There was no action taken.

ADJOURNMENT

Director Dopudja adjourned the June 1, 2022 Engineering/Operational Committee Meeting at 8:24 AM.

DRAFT

**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | JULY 6, 2022**

ENGINEERING MATTERS

ITEM 2: DESIGN SERVICES FOR GOLF CLUB SEWER LIFT STATION REPAIRS & IMPROVEMENTS

Trabuco Canyon Water District (District) owns and operates the Golf Club Sewer Lift Station (SLS) in the Dove Canyon community adjacent to the golf club driving range. This station receives wastewater flows from majority of the community by way of Bell Canyon and Barneburg Sewer Lift Stations and gravity sewer flows, and then conveys the wastewater to the Robinson Ranch Wastewater Treatment Plant via a sewer force main on Hillrise. The station was constructed in the early 1990s and had undergone only minor improvements until Fiscal Year (FY) 2021-22, when a bypass was installed, the surge tank repaired, the force main partially replaced, and the motor control center replaced. Rental backup pump and associated equipment has been on-site since late 2021 due to lengthy pump procurement delays. Staff has now identified a series of critical repairs and improvements for the station that have been budgeted for completion in the F Y 2022-23 CIP. The improvements have also been identified in the completed Condition Assessment provided by Hazen and are summarized below:

Summary of Fiscal Year 22/23 Golf Club Sewer Lift Station Improvements	
Item	Description
1	Submersible Pumps, guide rails and elbows
2	Wet Well Assessment, Improvements and Coating
3	Dry Pit Piping Replacement and Flow Meter Installation
4	Surge Tank Replacement and Relocation
5	Security Wall and Gate
6	Electrical Improvements
7	Upgrade Ventilation System
8	Sewer Bypass Plan During Construction

On May 19, 2022, the Board of Director authorized the purchase of the three Cornell pumps and two guide rail systems/discharge elbows for a total amount of \$193,286.39. Due to the delay in procurement of equipment, Staff is currently working with JIG Consultants to purchase the surge tank and coordinate delivery before the pumps arrive in November/December. To expedite the improvements at the station, Staff is recommending JIG Consultants to complete the bid documents for the remaining project upgrades.

FUNDING SOURCE:

Capital Improvement Program

FISCAL IMPACT (PROJECT BUDGET):

\$600,000 in FY 2021-22 (complete)

\$870,000 in FY 2022-23 as described above

\$1,470,000 total CIP budget

ENVIRONMENTAL COMPLIANCE:

Notice of Exemption was filed with the County of Orange on November 1, 2021.

RECOMMENDED ACTION:

Recommend the Board of Directors authorize the General Manager to execute an agreement with JIG Consultants for design of Golf Club Sewer Lift Station Improvements for \$87,000 with a contingency of \$8,700, for a not to exceed amount of \$95,700 (Action Calendar).

EXHIBIT(S):

1. JIG Consultants Proposal

CONTACTS (staff responsible): LAUSTEN/PEREA



June 16, 2022

Lorrie Lausten, PE
District Engineer
Trabuco Canyon Water District
32003 Dove Canyon Drive
Rancho Santa Margarita, CA 92679

Subject: Proposal for Engineering Design Services
Golf Club Sewer Lift Station Improvements

Dear Lorrie:

JIG Consultants (JIG) is submitting this letter proposal for engineering services for the Golf Club Sewer Lift Station Improvements. Starting in September 2021, Trabuco Canyon Water District (TCWD) operated the Golf Club Sewer Lift Station in emergency mode as the two submersible pumps inside the wet well failed. TCWD utilized a spare submersible pump which operated in series with one immersible pump inside the dry pit. For emergency backup, a lift station bypass is currently in place.

TCWD contracted Tekdraulics to supply two Cornell submersible pumps. The lead time to obtain the pumps is 24 weeks. TCWD's intent is to complete the design of the Golf Club Sewer Lift Station Improvements, advertise the project for bid, and start construction before the scheduled arrival of the new submersible pumps.

The following are the proposed improvements to the Golf Club Sewer Lift Station which this design proposal is based on.

1. Develop a sewer bypass plan taking suction from the existing upstream manhole. The sewer bypass plan will take into account manhole invert elevations especially those tributary to the Golf Course Clubhouse. The sewer bypass plan will prevent sewage from overflowing into the clubhouse.
2. Remove and demolish the existing 300 gallon surge tank inside the dry pit and construct a replacement in front of the station. The surge tank will be constructed on a reinforced concrete pad and will connect to the existing 6" ductile iron bypass pipe. The existing surge controller and air compressor will be protected in place. The existing air piping, electrical and control conduits will be replaced. The surge controller to accept new equipment will be reprogrammed by the Contractor.
3. Develop a procedure for a preconstruction assessment to be performed by the Contractor on the existing wet well. The assessment will evaluate the condition of the existing concrete substrate and recommend improvements. At a minimum, the wet well will be sandblasted to remove the existing lining, the concrete substrate will be retrofitted (exposed rebars, soft concrete, etc.), and a new liner reapplied. The existing wet well hatch will also be replaced.

If the assessment discovers structural damage, the wet well may need repairs, up to and including demolition and replacement of the structure in its entirety. Since the wet well is 30 feet deep, and extends well below the footing of the pump station dry pit, a structural evaluation and geotechnical investigation will be required. The geotechnical investigations will characterize subsurface conditions and groundwater elevations. The structural engineer will evaluate how the new wet well, shoring, and excavation will affect the integrity of the structure's footings.

The geotechnical investigations and structural analysis/design are excluded from this proposal. If requested by TCWD, a separate proposal will be submitted for these services.

4. Install mechanical improvements inside wet well including two submersible pumps (TCWD supplied), mating bend, guide rails, lifting chain, and

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Office (714) 978.4407
Fax (714) 908.4654
www.jigconsultants.com

stainless steel discharge piping. Design does not include replacing existing level instruments, pressure gauges, or electrical improvements.

5. Remove and replace the short discharge spools between the wet well and the dry pit. The design will include restraining assembly against the existing structure.
6. Include additional conduits from the existing wet well to the dry pit for level instruments. Extend conduits to existing PLC.
7. Remove and dispose of ductile iron pipe and accessories inside the dry pit. Salvage and reuse plug valves, check valves, and immersible pumps. Reset immersible pumps and replace suction piping, discharge piping, and reinstall valves. Rearrange the discharge piping to accommodate a flow meter inside the dry pit. Flow meter readings shall be incorporated into the station PLC using available input. Integration of new flow meter will be provided by the Contractor.
8. Upgrade ventilation system inside the dry pit with higher capacity exhaust fans and ventilators.
9. Construct wrought iron fence and gate in front of the lift station with perforated metal panels to screen the sewer lift station and new surge tank from the golf and clubhouse parking lot.

The following design items are excluded from this proposal:

- ▶ Site improvements not included above
- ▶ Demolition and construction of masonry walls
- ▶ Odor control improvements
- ▶ HVAC improvements
- ▶ Geotechnical investigations
- ▶ Structural design/assessment for demolition and construction of replacement wet well, if required
- ▶ Replacing the emergency generator
- ▶ Electrical improvements not mentioned above
- ▶ Control and instruments not mentioned above
- ▶ Permitting with outside agencies
- ▶ Construction administration, management, or inspection services
- ▶ Topographic survey

JIG will perform the following as the project Scope of Work.

SCOPE OF WORK

Task 1 – Project Management and Meetings

1. JIG will provide project management throughout the engineering design of the Golf Club Sewer Lift Station Improvements. The Project Manager will attend a kick-off meeting which will be followed by a site visit. The Project Manager will also attend one Draft submittal review meeting.

Task 2 – Collect Record Drawings and Information from Client

1. Collect and review available record drawings of the lift station, the force main, and the Golf Clubhouse, the operating information available for all equipment, and all other information available from TCWD.
2. Contact utility companies and perform utility research.

Task 3 – Assist TCWD on Coordination with Homeowner’s Association and Golf Clubhouse Management

1. Perform as-needed work to assist TCWD on coordinating with the homeowner’s association and the Golf Clubhouse Management.

Task 4 – Prepare Construction Plans, Specifications and Cost Estimate (PSE)

1. Prepare construction drawings with sufficient details to construct the Golf Club Sewer Lift Station Improvements. The construction drawings will include the following sheets:

Sheet No.	Dwg. No.	Sheet Description
1	G-01	Title Sheet
2	G-02	Location and Vicinity Map, General Notes, Sheet Index
3	D-01	Site Demolition Plan
4	D-02	Wet Well Demolition Plan and Section
5	D-03	Dry Pit Demolition Plan and Sections
6	D-04	Dry Pit Demolition Details
7	C-01	Sewer Bypass Plan and Details
8	C-02	Site Plan, Fence Details and Elevations
9	M-01	Surge Tank Mechanical Plan, Sections and Details
10	M-02	Wet Well Relining Plan and Details
11	M-03	Dry Pit Mechanical Plan, Section and Details
12	M-04	HVAC Plan, Section and Details
13	M-05	Miscellaneous Mechanical Details
14	M-06	Miscellaneous Mechanical Details

2. Prepare technical specifications to supplement the construction drawings. The technical specifications will include front end documents which will be supplied by TCWD.
3. Prepare construction cost estimates of the work.
4. Submit the PSE for Draft Submittal to TCWD. Draft submittal will include one full size copy of the plans, three 11 x 17 copies of the plans, and one bound copy of the specifications.
5. Receive comments and revise the PSE for final. Final submittal will include one full size copy of the plans, three 11 x 17 copies of the plans, and one bound copy of the specifications. Final submittal will also include a USB drive with pdf and AutoCAD files of the construction plans and Microsoft Word documents for the technical specifications.

Task 5 – Assistance with Bid Phase Services

1. Perform administration support for bid phase services including answering Contractor questions, attending pre-bid meeting, and preparing one project addenda.
2. Prepare conformed plans and specifications and submit to TCWD.

FEE SUMMARY

JIG will complete the above Scope of Work for a total fee of **\$87,000**. A breakdown of the fee is presented in the attached Fee Proposal.

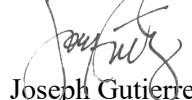
SCHEDULE

The project will be completed based on the Project Schedule included in this proposal.

We appreciate this opportunity to work with TCWD. If you have questions regarding this proposal, please do not hesitate to contact our office.

Sincerely,

JIG CONSULTANTS


Joseph Gutierrez, PE, PMP
President / Project Manager

Enc.

TRABUCO CANYON WATER DISTRICT
 Proposal for Engineering Design Services of Golf Club Sewer Lift Station Improvements
Fee Proposal

Task	Description	Project Mgr.		Project Engineer		Civil Designer		Admin		Subtotal	Direct Costs	Total Fee
		Hrly Rate	\$180	Hrly Rate	\$160	Hrly Rate	\$125	Hrly Rate	\$80			
		Hours	Fee	Hours	Fee	Hours	Fee	Hours	Fee			
1	Project Management and Meetings	32	\$5,760	0	\$0	0	\$0	0	\$0	\$5,760	\$30	\$5,790
2	Collect Record Drawings and Information from Client											
	Collect Information from TCWD and Review	2	\$360	8	\$1,280	8	\$1,000	0	\$0	\$2,640	\$0	\$2,640
	Complete Utility Research	0	\$0	0	\$0	8	\$1,000	8	\$640	\$1,640	\$100	\$1,740
3	Assist TCWD on Coordination with HOA	8	\$1,440	0	\$0	4	\$500	4	\$320	\$2,260	\$0	\$2,260
4	Prepare Construction Plans, Specifications, and Estimates	51	\$9,180	110	\$17,600	320	\$40,000	20	\$1,600	\$68,380	\$250	\$68,630
5	Assistance with Bid Phase Services	4	\$720	8	\$1,280	24	\$3,000	8	\$640	\$5,640	\$300	\$5,940
TOTAL (TASKS 1 to 5)		97	\$17,460	126	\$20,160	364	\$45,500	40	\$3,200	\$86,320	\$680	\$87,000

**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | JULY 6, 2022**

ENGINEERING MATTERS

ITEM 3: SCADA UPGRADE PROJECT PHASE SIX AGREEMENT WITH TESCO CONTROLS

The District's Supervisory Control and Data Acquisition (SCADA) System is a critical system used for the daily operation and monitoring of facilities in the water, wastewater, and recycled water systems. The SCADA system includes alarms, remote monitoring and controls, and data logging of the District's various facilities including the water and wastewater treatment plants, pump stations, sewage lift stations, and reservoirs. The SCADA system consists of various telemetry, programmable logic computers, PCs, radios, controllers, and antennas of various heights and types. The SCADA system continuously monitors the District's facilities and reports alarm conditions to the operators on a twenty-four hour per day basis every day.

The hardware and software have reached the end of its service and Staff have implemented a phased approach to update the District's SCADA System, as summarized below:

1. Phase 1 - SCADA System Assessment Study (Completed December 2017).
2. Phase 2 - Wide Area Network Improvements and Hardware Replacement (Completed January 2019).
3. Phase 3 - Radio Frequency system Analysis and Field Study (Exhibit 1), Software Platform Evaluation and Selection and Purchasing of the Remote PLC Hardware (Completed June 2020).
4. Phase 4- Consolidation of the existing SCADA platforms, Implementation of a high-speed radio backbone network throughout the water/wastewater system, Upgrade of the existing main control panel PLC and HMI at the Trabuco Creek Groundwater Treatment Facility (TCGWTF) (Completed July 2021).
5. Phase 5 - Upgrade Remote Sites/DWTP and PLC's, Install new SCADA Software and Hardware (In Progress)
6. Phase 6 - Upgrade Remaining Remote Sites, WWTP and PLC's (To be Completed June 2023).

The attached proposal (Exhibit 1) is for the final phase of the upgrade. This phase will include hardware and software upgrades to the WWTP and remote sites and bring all sites onto the high-speed network (Exhibit 2).

FUNDING SOURCE:

Capital Improvement Program

FISCAL IMPACT (PROJECT BUDGET):

Phase 1:	\$45,000
Phase 2:	\$200,000
Phase 3:	\$400,000
Phase 4:	\$600,000
Phase 5:	\$1,000,000
Phase 6:	<u>\$980,000</u>
Total:	\$3,225,000

COSTS TO DATE

Phase 1:	\$ 44,777 - Study (TESCO/Beavens)
Phase 2:	\$ 182,520 - WAN Improvements/Hardware/Licensing/Programming/Virtualization (TESCO/Beavens)
Phase 3:	\$ 386,840 – Radio Frequency Study, Software Evaluation and Purchase of Remote Site PLC's (TESCO)
Phase 4:	\$ 594,708 – Consolidation of SCADA Platforms, Implementation of high-speed backbone and upgrade of TCGWTF (TESCO/Hydrotech Electrical)
Phase 5:	\$998,500-Hardware/Software upgrades at 17 Remote sites and DWTP

ENVIRONMENTAL COMPLIANCE:

Notice of Exemption

**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | JULY 6, 2022**

RECOMMENDED ACTION:

Recommend the Board of Directors authorize the General Manager to execute a contract for the Fiscal Year 2022-2023 SCADA Upgrades to TESCO Controls, Inc. in the not to exceed amount of \$960,000 (Action Calendar).

EXHIBIT(S):

1. TESCO Fiscal Year 2022-2023 SCADA Improvements Proposal
2. SCADA Radio Network

CONTACTS (staff responsible): PALUDI/LAUSTEN/PEREA

To: Trabuco Canyon Water District
Attn: Lorrie Lausten
Re: Fiscal Year 2022-2023 Improvements
SCADA & Remaining Remote Site Upgrades

Quote Date: 6/27/2022
Quote No.: 22F183Q01

Dear Lorrie:

Thank you for your continued interest in TESCO products, services, and solutions. We are pleased to quote the following scope of work pertaining to the above-referenced project.

Scope of Work

This quote is inclusive of the **Fiscal Year 2022-2023 Improvements** and next phase of system-wide upgrades to be implemented for Trabuco Canyon Water District (District). The upgrades will consist of turnkey solutions to construct an entirely new SCADA system and integrate the new Modicon M340 PLCs (*pre-purchased by the District*) and MDS Orbit radios at the seven (7) remaining 450/900MHz subnetwork sites. A *Site Index* is provided below to indicate the sites specific to this phase of upgrades.

With regard to the SCADA system upgrade, TESCO will provision the hardware and software required to architect a new Ignition-based system for monitoring and control of all thirty-two (32) sites comprising the District's water/wastewater network. The new Ignition SCADA system will replace the existing Wonderware InTouch and Intellution FIX32 applications hosted at the Dimension Water Filtration Plant (WFP) and Wastewater Treatment Plant (WWTP). TESCO will build the new SCADA system in a redundant configuration with the primary node at the Dimension WFP and the secondary/backup node at the WWTP.

The hardware, software, and configurations of this new SCADA system will follow NIST 800 and ISA 62443 cybersecurity guidelines and align with current industry standards; ultimately providing the District with a secure, robust, and reliable system that is also adaptable for future utilization. The hardware will include rackmount host servers, data storage devices, workstation computers, and the equipment required for SCADA network connectivity, separation, and security, consistent with industry best practices.

TESCO will utilize the newly furnished SCADA hardware and software to construct a virtualized architecture to improve the system's ability to backup critical applications/files, recover from equipment failures/faults, and efficiently manage computing loads/resources. Additionally, a segment of the SCADA architecture will include a Demilitarized Zone (DMZ), which will be configured to establish secure remote operator access to the SCADA system. To adhere with modern cybersecurity best practices, a dedicated host server (*separate from the control system hypervisors*) will reside in the DMZ and be secured through a firewall to ensure only access of credentialed and authorized users is permitted.

The new virtualized infrastructure will require specific software packages (*VMware and Veeam*) for development of the Virtual Machines (VMS) to reside on the host servers (*hypervisors*), as well as for performance of routine backups to these VMs. Prior to development and implementation of the new Ignition SCADA application and the built-in alarm notification module, TESCO will first conduct a technical workshop with the District's operations staff to define the standards and functional requirements related to monitoring and control of the water/wastewater system.

In addition to implementing a new SCADA system, TESCO will complete the PLC and radio upgrades required of the seven (7) remote sites quoted herein. The upgrades of these remaining remote sites will be executed in the same approach as the current FY 2021/22 phase (*Project No. T-46178X7*), utilizing the services of an Electrical Subcontractor for the related installation work.

Following completion of the newly architected SCADA system and integration of all the upgraded remote sites, TESCO will perform startup and testing services to verify proper functionality. Refer to the *Scope of Supply* below for a complete listing of the materials and services to be provided by TESCO on this project.

Scope of Supply

Item	Qty	Description
DIMENSION WATER FILTRATION PLANT (PRIMARY NODE)		
1	1	<p>Core SCADA Hardware & Software to include:</p> <ul style="list-style-type: none"> ▪ Dell PowerEdge R450 Server (Control System Hypervisor) ▪ QNAP 4-Bay Network Attached Storage <ul style="list-style-type: none"> ▫ (4) 4TB Hard Drives ▪ Cisco Network Router ▪ Cisco Layer 2 Managed Switch ▪ Dell OptiPlex 3000 Thin Client <ul style="list-style-type: none"> ▫ 27" Monitor ▫ Keyboard & Mouse ▪ Microsoft Windows Server 2019 Core & Client Access Licensing ▪ Microsoft Office Pro 2019 ▪ McAfee Antivirus ▪ VMware vSphere Essentials ▪ Veeam Backup & Replication ▪ Inductive Automation <ul style="list-style-type: none"> ▫ Ignition Platform <ul style="list-style-type: none"> — OPC UA Server Module — Core Drivers ▫ Vision Module ▫ Tag Historian Module ▫ Reporting Module ▫ Alarm Notification Module <ul style="list-style-type: none"> — SMS/Text — Voice Calls <p>Please Note: The District's existing server and network rack cabinet located at the Dimension WFP will be utilized for housing the new rack-style SCADA hardware quoted herein. Additionally, there is an existing UPS system at this location that will provide the backup power to this new SCADA equipment in the event of a primary/utility power failure.</p>
2	1	<p>DMZ SCADA Hardware & Software (Remote Access) to include:</p> <ul style="list-style-type: none"> ▪ Dell PowerEdge R450 Server (DMZ Hypervisor) ▪ Palo Alto Firewall Appliance ▪ Cisco Managed Switch ▪ Sierra Wireless Modem (SMS/Text Alarm Notification) ▪ Grandstream VoIP Modem (Voice Call Alarm Notification) ▪ Microsoft Windows Server 2019 Core Licensing ▪ VMware ESXi ▪ Inductive Automation <ul style="list-style-type: none"> ▫ Ignition Gateway (Read Only)
WASTEWATER TREATMENT PLANT (SECONDARY/BACKUP NODE)		
3	1	<p>SCADA Hardware & Software to include:</p>

Item	Qty	Description
		<ul style="list-style-type: none"> ▪ Dell PowerEdge R450 Server (Control System Hypervisor) ▪ QNAP 4-Bay Network Attached Storage <ul style="list-style-type: none"> ▫ (4) 4TB Hard Drives ▪ Palo Alto Firewall Appliance ▪ Cisco Network Router ▪ Cisco Layer 2 Managed Switch ▪ Sierra Wireless Modem (SMS/Text Alarm Notification) ▪ Grandstream VoIP Modem (Voice Call Alarm Notification) ▪ Dell OptiPlex 3000 Thin Client <ul style="list-style-type: none"> ▫ 27" Monitor ▫ Keyboard & Mouse ▪ Microsoft Windows Server 2019 Core & Client Access Licensing ▪ Microsoft Office Pro 2019 ▪ McAfee Antivirus ▪ VMware vSphere Essentials ▪ Veeam Backup & Replication ▪ Inductive Automation <ul style="list-style-type: none"> ▫ Ignition Platform <ul style="list-style-type: none"> — OPC UA Server Module — Core Drivers ▫ Vision Module ▫ Tag Historian Module ▫ Reporting Module ▫ Alarm Notification Module <ul style="list-style-type: none"> — SMS/Text — Voice Calls <p><i>Please Note: The District's existing server and network rack cabinet located at the WWTP will be utilized for housing the new rack-style SCADA hardware quoted herein. Additionally, there is an existing UPS system at this location that will provide the backup power to this new SCADA equipment in the event of a primary/utility power failure.</i></p>
MAIN OFFICE (VIEW NODE)		
4	1	<p>SCADA Hardware to include:</p> <ul style="list-style-type: none"> ▪ Palo Alto Firewall Appliance ▪ (2) Dell OptiPlex 3000 Thin Clients <ul style="list-style-type: none"> ▫ 27" Monitor ▫ Keyboard & Mouse
REMOTE SITES		
5	1	<p>Canyon Creek Pump Station PLC/RTU Control Panel (New) to include:</p> <ul style="list-style-type: none"> ▪ Wall-Mount NEMA 12 Galvanized Steel Enclosure ▪ 120VAC Simplex Receptacle ▪ Surge Protection Device ▪ 1000VA UPS with (2) 24VDC Batteries ▪ 24VDC Power Supply ▪ <u>Space Provisions</u> for Modicon M340 PLC (<i>previously purchased by TCWD under PO No. 200217 // T-46178X5</i>) ▪ Siemens 8-Port Managed Ethernet Switch ▪ (2) MDS Orbit ECR 900MHz Radios

Item	Qty	Description
		<ul style="list-style-type: none"> ▫ Omni & Yagi Directional Antennas ▫ Lightning Arrestors ▫ Pole Mounting, Weatherproofing, & Grounding Kits ▫ Coaxial Pigtail & Feedline Cables as required ▫ Ethernet Patch Cables as required ▪ DIN Rails, Terminal Blocks, Circuit Breakers, Fuses, Relays, Wires, Ground Bus Bar, & Nameplates/Labels as required
6	1	<p>Crystal Canyon SBR Plant PLC/RTU Panel Section (Retrofit) to include:</p> <ul style="list-style-type: none"> ▪ Siemens 8-Port Managed Ethernet Switch ▪ Communications Protocol Converter ▪ MDS Orbit ECR 900MHz Radio <ul style="list-style-type: none"> ▫ Yagi Directional Antenna ▫ Lightning Arrestor ▫ Pole Mounting, Weatherproofing, & Grounding Kits ▫ Coaxial Pigtail & Feedline Cables as required ▫ Ethernet Patch Cables as required <p><i>Please Note: The communications equipment listed above (with the exception of the antenna and feedline cable) will be mounted within the existing PLC control panel located at this site. The existing Modicon Momentum PLC will remain in operation and provide the required data points for monitoring within the new Ignition SCADA application.</i></p>
7	1	<p>O'Neil Lift Station PLC/RTU Panel Section (Retrofit) to include:</p> <ul style="list-style-type: none"> ▪ Preassembled Back-Panel (<i>fitted to existing enclosure</i>) ▪ 120VAC Simplex Receptacle ▪ Surge Protection Device ▪ 1000VA UPS with (2) 24VDC Batteries ▪ 24VDC Power Supply ▪ <u>Space Provisions</u> for Modicon M340 PLC (<i>previously purchased by TCWD under PO No. 200217 // T-46178X5</i>) ▪ Siemens 8-Port Managed Ethernet Switch ▪ MDS Orbit ECR 450MHz Radio <ul style="list-style-type: none"> ▫ Yagi Directional Antenna ▫ Lightning Arrestor ▫ Pole Mounting, Weatherproofing, & Grounding Kits ▫ Coaxial Pigtail & Feedline Cables as required ▫ Ethernet Patch Cables as required ▪ DIN Rails, Terminal Blocks, Circuit Breakers, Fuses, Relays, Wires, Ground Bus Bar, & Nameplates/Labels as required ▪ Cover Plate with Mounting Studs (<i>existing OIT removal</i>)
8	1	<p>Plano Pump Station & Lift Station PLC/RTU Control Panel (New) to include:</p> <ul style="list-style-type: none"> ▪ Wall-Mount NEMA 12 Galvanized Steel Enclosure ▪ 120VAC Simplex Receptacle ▪ Surge Protection Device ▪ 1000VA UPS with (2) 24VDC Batteries ▪ 24VDC Power Supply ▪ <u>Space Provisions</u> for Modicon M340 PLC (<i>previously purchased by</i>

Item	Qty	Description
		<p><i>TCWD under PO No. 200217 // T-46178X5)</i></p> <ul style="list-style-type: none"> ▪ Siemens 8-Port Managed Ethernet Switch ▪ MDS Orbit ECR 450MHz Radio <ul style="list-style-type: none"> ▫ Yagi Directional Antenna ▫ Lightning Arrestor ▫ Pole Mounting, Weatherproofing, & Grounding Kits ▫ Coaxial Pigtail & Feedline Cables as required ▫ Ethernet Patch Cables as required ▪ DIN Rails, Terminal Blocks, Circuit Breakers, Fuses, Relays, Wires, Ground Bus Bar, & Nameplates/Labels as required
9	1	<p>Rose Canyon Pump Station PLC/RTU Control Panel (New) to include:</p> <ul style="list-style-type: none"> ▪ Wall-Mount NEMA 12 Galvanized Steel Enclosure ▪ 120VAC Simplex Receptacle ▪ Surge Protection Device ▪ 1000VA UPS with (2) 24VDC Batteries ▪ 24VDC Power Supply ▪ <u>Space Provisions</u> for Modicon M340 PLC (<i>previously purchased by TCWD under PO No. 200217 // T-46178X5)</i> ▪ Siemens 8-Port Managed Ethernet Switch ▪ MDS Orbit ECR 900MHz Radio <ul style="list-style-type: none"> ▫ Yagi Directional Antenna ▫ Lightning Arrestor ▫ Pole Mounting, Weatherproofing, & Grounding Kits ▫ Coaxial Pigtail & Feedline Cables as required ▫ Ethernet Patch Cables as required ▪ DIN Rails, Terminal Blocks, Circuit Breakers, Fuses, Relays, Wires, Ground Bus Bar, & Nameplates/Labels as required
10	1	<p>Shadow Rock Urban Water Pump Station PLC/RTU Panel Section (Retrofit) to include:</p> <ul style="list-style-type: none"> ▪ Preassembled Back-Panel (<i>fitted to existing enclosure</i>) ▪ 120VAC Simplex Receptacle ▪ Surge Protection Device ▪ 1000VA UPS with (2) 24VDC Batteries ▪ 24VDC Power Supply ▪ <u>Space Provisions</u> for Modicon M340 PLC (<i>previously purchased by TCWD under PO No. 200217 // T-46178X5)</i> ▪ Siemens 8-Port Managed Ethernet Switch ▪ MDS Orbit ECR 900MHz Radio <ul style="list-style-type: none"> ▫ Yagi Directional Antenna ▫ Lightning Arrestor ▫ Pole Mounting, Weatherproofing, & Grounding Kits ▫ Coaxial Pigtail & Feedline Cables as required ▫ Ethernet Patch Cables as required ▪ DIN Rails, Terminal Blocks, Circuit Breakers, Fuses, Relays, Wires, Ground Bus Bar, & Nameplates/Labels as required ▪ Cover Plate with Mounting Studs (<i>existing OIT removal</i>)
11	1	<p>Via Allegre Lift Station PLC/RTU Panel Section (Retrofit) to include:</p> <ul style="list-style-type: none"> ▪ Preassembled Back-Panel (<i>fitted to existing enclosure</i>) ▪ 120VAC Simplex Receptacle

Item	Qty	Description
		<ul style="list-style-type: none"> ▪ Surge Protection Device ▪ 1000VA UPS with (2) 24VDC Batteries ▪ 24VDC Power Supply ▪ <u>Space Provisions</u> for Modicon M340 PLC (<i>previously purchased by TCWD under PO No. 200217 // T-46178X5</i>) ▪ Siemens 8-Port Managed Ethernet Switch ▪ MDS Orbit ECR 450MHz Radio <ul style="list-style-type: none"> ▫ Yagi Directional Antenna ▫ Lightning Arrestor ▫ Pole Mounting, Weatherproofing, & Grounding Kits ▫ Coaxial Pigtail & Feedline Cables as required ▫ Ethernet Patch Cables as required ▪ DIN Rails, Terminal Blocks, Circuit Breakers, Fuses, Relays, Wires, Ground Bus Bar, & Nameplates/Labels as required ▪ Cover Plate with Mounting Studs (<i>existing OIT removal</i>)
TESCO SERVICES		
12	Lot	<p>Professional Services to include:</p> <ul style="list-style-type: none"> ▪ <u>Project Management</u> <ul style="list-style-type: none"> ▫ project initiation, contract administration, schedule of values, decision & submittal logs, project scheduling & coordination, planning & resource loading, and payment applications & billings ▫ manage the coordination between the District and the Electrical Subcontractor performing the PLC/RTU control panel installations ▪ <u>Engineering</u> <ul style="list-style-type: none"> ▫ preliminary field investigation of the sites listed in the <i>Site Index</i> below to identify the dimensional constraints associated with the new panel installs and component retrofits ▫ develop a project transition plan to determine the removal, installation, and cutover/commissioning requirements of the new equipment to minimize site shutdown time ▫ develop a site upgrade and integration schedule based on control relationships and interdependencies between sites that must be maintained ▫ engineered bill of materials, engineered shop drawings, equipment schematics, engineered submittals, technical data, as-built documentation, O&M manuals, and project records ▪ <u>Manufacturing</u> <ul style="list-style-type: none"> ▫ fabrication, assembly, equipment wiring, and factory testing ▪ <u>PLC Programming</u> <ul style="list-style-type: none"> ▫ conduct a technical workshop with the District as required to define PLC programming standards and the process control requirements of each site upgrade ▫ program the new Modicon M340 PLCs according to each site's process control requirements and incorporate any control logic modifications and new standards defined through the technical workshop

Item	Qty	Description
		<ul style="list-style-type: none"> ▫ coordinate with the SCADA Programmer regarding the PLC register to SCADA tag assignments as the upgraded sites are integrated into the new Ignition SCADA application ▫ verify the new M340 PLC programs for each site are fully functional and properly execute the local process controls before decommissioning the existing RUGID PLCs ▪ <u>SCADA Programming</u> <ul style="list-style-type: none"> ▫ conduct a technical workshop with the District to define the configuration standards of the new Ignition SCADA system as it relates to functional (<i>monitoring/control</i>) requirements, screen layouts/graphics, application navigation, and user access/permissions ▫ based on the standards defined through the technical workshop, configure and develop the following Ignition SCADA system functions for monitoring and control of the District’s complete water/wastewater system: <ul style="list-style-type: none"> — overview and individual process area graphics/screens — tag database — control setpoints — trends and historical data — reporting — local display of alarms and voice call/text messaging notification schedule ▫ configure the following SCADA hardware required for hosting/accessing the new Ignition system and storing VM backups and historical data: <ul style="list-style-type: none"> — Primary & Secondary Control System Host Servers — DMZ & Remote Access Server — Workstation Computers (Thin Clients) — Network Attached Storage Devices ▫ configure the SCADA server hypervisors, operating systems, and VMs as required of the new virtualized Ignition architecture ▫ configure the Veeam software to execute regularly scheduled backups of the SCADA VMs hosted on the control system hypervisors ▫ develop the Antivirus Server VMs as required for management of security threat detection and prevention throughout the SCADA network ▫ develop the Windows Update Server VMs as required for management of periodic operating system updates, patches, and fixes on the SCADA network ▫ configure user credentials and permissions for secure local/remote access to the SCADA system, as required of cybersecurity best practices ▫ configure the communication driver(s) required to enable data exchange between the Ignition SCADA system and the District’s applicable water/wastewater sites ▫ test and verify the new SCADA hardware and software functions properly and correctly responds to operator

Item	Qty	Description
		<ul style="list-style-type: none"> inputs <ul style="list-style-type: none"> ▫ onsite training and demonstration to address the following aspects of the new SCADA system: <ul style="list-style-type: none"> — general usage of the Ignition application — management of the DMZ and remote access — overview of the new hardware and virtualized architecture ▪ <u>Networking/Communications/Telemetry</u> <ul style="list-style-type: none"> ▫ configure the new SCADA network switches and routers as required to manage the hardware/software connections and establish the proper separation from the Process Control System (PCS) network ▫ configure the SCADA network firewalls as required to provide secure remote access to the Ignition application and adhere with cybersecurity best practices ▫ communications testing and functional verification of the SCADA network hardware ▫ provide a documented SCADA network overview diagram representative of the new Ignition SCADA system architecture ▫ configure the new MDS Orbit radios at each remote site listed herein as required of the 450MHz and 900MHz subnetworks ▫ configure the new managed Ethernet switches at each remote site as required of local communications ▫ testing and alignment of the new radio antennas to ensure reliable communication links are established ▪ <u>Field Service/Product Startup</u> <ul style="list-style-type: none"> ▫ assist the Electrical Subcontractor as required during the installation of the upgraded PLC and radio components at the remote sites listed herein ▫ product quality review, verification of installation, parameter/configuration adjustments as required, software upload/download as required, instrument/device signal spanning, function checks, and startup
ELECTRICAL TRADE INSTALLATION WORK		
13	Lot	<p>Electrical Subcontractor Services to include:</p> <ul style="list-style-type: none"> ▪ removal of the existing PLC/RTU enclosures and back-panels to be replaced as listed in the <i>Scope of Supply</i> above <ul style="list-style-type: none"> ▫ tag and remove the field wires from the existing terminal blocks as required ▪ installation of the new larger PLC/RTU enclosures and preassembled back-panels at the sites receiving replacements <ul style="list-style-type: none"> ▫ re-terminate the field wires to the terminal blocks of the new enclosures/preassembled back-panels as required ▪ modify the existing conduit runs and strut hardware as required to accommodate the new larger PLC/RTU enclosures ▪ removal of the existing RUGID OITs at the applicable sites listed herein and installation of prefabricated cover plates ▪ installation of the new radio antennas and feedline cables along the

Item	Qty	Description
		existing site masts/poles (antenna heights and azimuth/directional alignment requirements based on the TESCO-performed radio study, T-46178X3)
		TOTAL (Items 1-13, including applicable sales tax):
		\$960,000.00

Price Schedule

SCADA Upgrade

- Hardware & Software\$250,000.00
- TESCO Services\$400,000.00

Remote Site Upgrades

- Hardware\$80,000.00
- TESCO Services\$140,000.00
- Electrical Installation\$90,000.00

GRAND TOTAL: \$960,000.00

Site Index

The following ten (10) sites will be addressed under Trabuco Canyon Water District’s Fiscal Year 2022-2023 Improvements:

Site Name	Site Location (GPS Coordinates: Degrees° / Minutes' / Seconds'')	
	Latitude	Longitude
SCADA Upgrades		
Dimension Water Filtration Plant	33° 39' 41.22'' N	117° 40' 10.61'' W
Wastewater Treatment Plant	33° 38' 43.14'' N	117° 33' 41.93'' W
Main Office	33° 38' 28.39'' N	117° 34' 24.03'' W
Remote Site Upgrades		
Canyon Creek Pump Station	33° 40' 31.69'' N	117° 36' 18.05'' W
Crystal Canyon SBR Plant	33° 40' 24.70'' N	117° 36' 02.70'' W
O’Neil Lift Station	33° 38' 55.56'' N	117° 36' 02.78'' W
Plano Pump Station & Lift Station	33° 39' 00.77'' N	117° 34' 37.29'' W
Rose Canyon Pump Station	33° 40' 25.23'' N	117° 34' 49.99'' W
Shadow Rock Urban Water Pump Station	33° 39' 42.04'' N	117° 33' 53.41'' W
Via Allegre Lift Station	33° 38' 35.05'' N	117° 34' 39.17'' W
Total Site Count: 10		

Project Clarifications

- Unless otherwise indicated by the Scope of Work above, the following is **not** included within this quotation:
 - Instrumentation mounting components, brackets, stanchions, sunshields, etc.
 - Local control stations and/or field mounted disconnects.
 - Instrumentation, devices, components, or equipment not specifically identified in the above quotation.
 - Fiber optic patch panels, cable, splicing or terminations.
 - Any 3rd party testing, harmonic testing/analysis, protective device coordination study, short-circuit analysis, or Arc-Flash Risk Assessment (AFRA) services.
 - Electrical interconnection diagrams for equipment not furnished by TESCO.
 - ISA process control loop diagrams.

- Signal loop diagrams for equipment not furnished by TESCO.

Terms & Conditions

- Quote is firm for 30 days unless otherwise stated.
- Intellectual Property and Confidentiality Notice: The scope of work and price quotation shall not be construed as a formal design or recommendations on design for the related project. All content contained within this quotation is the intellectual property under the proprietorship of Tesco Controls, Inc. and is subject to applicable copyright laws. Such intellectual property shall not be duplicated, replicated, copied, or shared without explicit written consent from Tesco Controls, Inc., as it contains confidential information and work product developed exclusively for use by Tesco Controls, Inc.
- Submittals: Initial equipment submittal(s) to be provided approximately **12-16** weeks after receipt of purchase order, written notice of intent, or notice to proceed; however, generation of submittal(s) will be contingent on supply-chain availability and variability for material components which may impact material item selections affecting submittal lead-times, therefore lead-times are subject to change without notice.
- Delivery: Initial shipment(s) anticipated to commence approximately **26-32** weeks minimum after submittal approval; however, delivery schedule(s) will be contingent on supply-chain availability and variability for material components, therefore, lead-times are subject to change without notice.
- Lead-Time & Supply Chain Impacts: Due to the supply chain impacts imposed by the pandemic, all quoted lead-times are subject to change without notice.
- Unless otherwise stated above, price does not include any sales tax, use tax, or applicable fees; please apply any taxes and/or fees as appropriate. Please note that all invoices will include sales tax where applicable.
- TESCO price is FOB factory, full freight allowed.
- TESCO warranties against defect in design, workmanship, and materials for a period of one year from date of installation and does not exceed 18 months from the date of shipment from the factory.
- TESCO carries liability insurance, with full workers' compensation coverage.
- Terms are net 30 days on approved credit accounts.
- Interest will be applied to all past due invoices.
- All merchandise sold is subject to lien laws.
- Final retention to be paid within 10 days after the project notice of completion.

Please feel free to contact us at (916) 395-8800 to discuss any questions or comments you may have regarding this quotation.

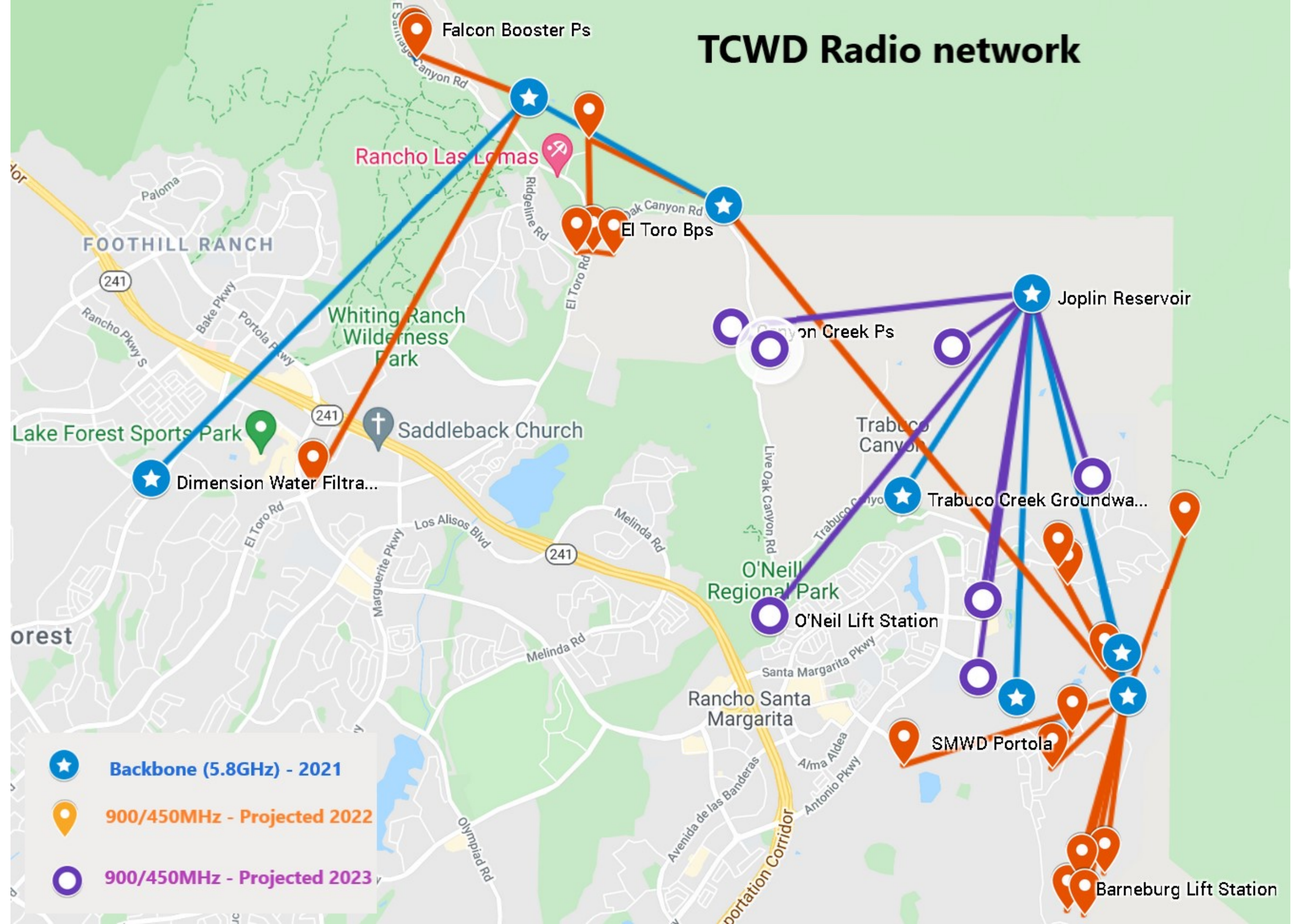
Sincerely,




TESCO CONTROLS, INC.



John Wright
Technical Sales Supervisor
jwright@tescocontrols.com

TCWD Radio network



-  **Backbone (5.8GHz) - 2021**
-  **900/450MHz - Projected 2022**
-  **900/450MHz - Projected 2023**

**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | JULY 6, 2022**

ENGINEERING MATTERS

ITEM 4: DISCUSSION AND POSSIBLE ACTION(S) CONCERNING ROSE AND LANG WELLS

Trabuco Canyon Water District (District) owns and operates Rose Canyon and Lang Wells Groundwater Treatment Facility (Facility) located on Rose Canyon Rd. in Trabuco Canyon. The Facility consists of Rose Canyon Well (41' deep), Lang Well (39' deep), a two-stage filtration system, a chlorine contact tank and finished water pump station that pumps into the distribution system. The wells are seasonal and last produced water in August 2019.

In 2021, Water Operations took the facility offline to inspect the wells and perform maintenance. Staff requested the attached proposals for cleaning out debris and brushing/swabbing the wells to return them to service (Exhibit 1). Since that time, Hazen & Sawyer (Hazen) has completed a study to determine what overall improvements are needed to the facility to improve production and efficiency without making the existing wells deeper or adding new well(s) (Exhibit 2).

Staff does not currently have the recommendations in the Hazen technical memorandum planned for the Capital Improvement Program. Given the significant estimated costs of these improvements, staff is recommending cleaning the wells to return them to service in the event of a wetter than normal water year, while weighing the Hazen recommendations against other long-term options to increase reliable production of the facility.

More information may be provided at the time of the meeting.

FUNDING SOURCE:

General Fund

FISCAL IMPACT (PROJECT BUDGET):

TBD

ENVIRONMENTAL COMPLIANCE:

Notice of Exemption

RECOMMENDED ACTION:

Committee to receive project status updates at time of the Committee Meeting.

EXHIBIT(S):

1. Well Cleaning Proposals
2. Hazen Technical Memorandum

CONTACTS (staff responsible): LAUSTEN/PEREA



Office
1717 W. Park Ave.
Redlands, CA. 92373
909-390-2833
www.graniteconstruction.com

9/29/2021

Trabuco Canyon Water District
Jason Straud
32003 Dove Canyon Drive
Trabuco Canyon , CA 92679

RE: Fishing Efforts, Line Swab, Bailing

Dear Jason Straud ,

We are pleased to present our project estimate for the referenced work to be provided at Lang Well .

Shop Prep, Build Fishing Tools, Load and Unload tooling

Mobilize crane, support truck and welder to the site. Rig up make attempts to fish out what appears to be submersible pump schroud, cable guard and other misc items. Single line swab the screened sections of the well. Bail fill until refuge is meet, sample and dispose of fill materials. Demobilize all crew and equipment to Layne's facility.

Hourly rates provided is portal to portal. Prevailing wage rates apply for all onsite work. In the event additional hours are required outside what is estimated, the district will be notified prior to additional work being performed

Assumes crane and equipment will set up outside the well location. Any traffic control or permits required will be provided by others

The attached estimate is valid for 30 days and is subject to Layne Terms and Conditions.

Thank you for choosing Layne Christensen Company and giving us the opportunity to be your water resources solution provider.

Sincerely,

Ricky Trujillo
Account Manager
909-957-7782



Office
1717 W. Park Ave.
Redlands, CA. 92373
909-390-2833
www.graniteconstruction.com

9/29/2021

Well Rehabilitation or Repair Notice:

Liability Notice:

Water well rehabilitation or well repair may require the use of strong chemical agents and/or mechanical techniques that impart higher than normal stresses on the well. This is necessary to effectively repair the well casing or disperse and distribute the chemicals to breakdown any mineral build up, bio-fouling or encrustation. Layne will use standard industry practices available to repair or rehabilitate the well; however, it is possible due to poor construction practices, poor construction materials, pre-existing conditions, etc. that damage may occur. Impairment is very unlikely, and rarely occurs, but should such events such as gas production, increased sand production, reduced capacity, casing damage, surface subsidence, water quality changes or complete well failure occur, Layne Christensen will not be held liable for any damage due to these repair or rehabilitation processes.

Ricky Trujillo
Account Manager
909-957-7782

TERMS AND CONDITIONS

LIABILITY OF CONTRACTOR: Contractor shall not be liable for any bodily injury, death, or injury to or destruction of tangible property except as the same may have been caused by the negligence of Contractor. In no event shall Contractor be liable for any delays or special, indirect, incidental or consequential damages. Purchaser agrees that the total limit of Contractor's liability (whether based on negligence, warranty, strict liability or otherwise) hereunder, shall not exceed the aggregate amount due Contractor for services rendered under this contract. All claims, including claims for negligence or any other cause whatsoever, shall be deemed waived unless made in writing and received by Contractor within one (1) year after Contractor's completion of work hereunder.

INSURANCE: Contractor shall provide workers' compensation insurance, public liability and property damage insurance covering its employees and operation. Purchaser, at its option, may maintain such insurance as will protect it against claims arising out of the work.

REIMBURSABLE COST: In addition to the hourly charge provided on the face of this contract, Purchaser will reimburse Contractor for travel and living expenses necessarily incurred by the Contractor in the performance of the work, minor incidental expenses such as overnight mail, telephone and petty cash expenditures necessarily incurred, cost of removal of all debris if so directed by Purchaser, sales, consumer, use and similar taxes required by law and the cost of permits and all licenses necessary for the execution of the work. The foregoing costs shall be billed at actual cost plus fifteen percent (15%) unless otherwise agreed upon.

PRICE ADJUSTMENT: Any cost estimates or time frames stated herein are subject to equitable adjustment in the event of differing or unforeseeable conditions, changes in applicable laws after the date of this contract, unforeseeable delays or difficulties caused by acts of God, Purchaser or any third parties. Prices of goods acquired by Contractor from others shall be adjusted to reflect Contractor's price in effect at time of shipment. The price of Contractor's goods will be adjusted to the price in effect at time of shipment in accordance with Contractor's current escalation policies or as specifically covered in this contract.

TERMS: Thirty (30) days net from date of invoice. For extended projects, Contractor shall submit invoices on a monthly basis for any and all work completed and materials or equipment provided during the previous month. Past due invoices shall be subject to a delinquency charge of one and one-half percent (1-1/2%) per month (eighteen percent (18%) per annum) unless a lower charge is required under applicable law, in which case the lower rate shall apply. Purchaser agrees to pay all collection fees, attorneys' fees and costs incurred in the collection of any past due amounts arising out of this contract. Contractor shall have the right to immediately terminate this contract without further liability if Purchaser fails to make timely payment or otherwise materially breaches this contract.

MATERIAL SHORTAGES AND COST INCREASES: If any portion of materials or equipment which Contractor is required to furnish becomes unavailable, either temporarily or permanently, through causes beyond the control and without the fault of Contractor, then in the case of temporary unavailability any completion time frames shall be extended for such period of time as Contractor shall be delayed by such above-described unavailability, and in the case of permanent unavailability Contractor shall be excused from the requirement of furnishing such materials or equipment. Purchaser agrees to pay Contractor any increase in cost between the cost of the materials or equipment which have become permanently unavailable and the cost of the closest substitute which is then reasonably available.

DELAYS: If Contractor is delayed at any time in the progress of work by labor disputes, fire, unusual delays in transportation, unavoidable casualties, weather, or any cause beyond Contractor's reasonable control, then any completion time frames shall be extended by a reasonable period of time, at least equal to the period of delay.

CHANGED CONDITIONS: The discovery of any hazardous waste, substances, pollutants, contaminants, underground obstructions or utilities on or in the job site which were not brought to the attention of Contractor prior to the date of this contract will constitute a materially different site condition entitling Contractor, at its sole discretion to immediately terminate this contract without further liability.

ESCALATION: This contract is made with the understanding that Contractor will be able to begin and continuously proceed with its work on or before the proposed start date on the reverse side hereof. In the event Contractor is unable to commence its work on or before said date because the project is not ready for Contractor's work, Contractor will charge Purchaser the amount of increase in Contractor's cost attributable to such delay, plus Contractor's normal overhead percentage.

GUARANTEE AND LIABILITY: Contractor warrants that its labor supplied hereunder shall be free from defect and shall conform to the standard of care in effect in its industry at the time of performance of such labor for a period of twelve (12) months after substantial completion of Contractor's work. Contractor agrees, to the extent it is permitted, to pass on any warranties provided by the manufacturers of materials and/or equipment furnished under this contract. Contractor itself provides no warranty, express, implied or otherwise, on any such materials or equipment. Contractor will not be responsible for: work done, material or equipment furnished or repairs or alterations made by others.

For any breach hereunder, Contractor shall be liable only for the value of the installation work or, if it wrongfully fails to install, then its liability is limited to the difference between the contract price herein, and the value of other similar installation work. If Contractor's breach damages any materials or equipment furnished hereunder, Contractor shall only be liable for the value of such materials or equipment. Under no circumstances will Contractor be liable for consequential, special or indirect damages, including without limitation, any crop loss or damage, damage to other equipment, structures or property, nor for any other similar or dissimilar damages or losses whether due to delay, failure to furnish or install, delay in installation, defective material or equipment, defective workmanship, defective installation, delay in replacing, nor for any cause or breach whatsoever. In any event, Contractor's total liability towards Purchaser for alleged faulty performance or nonperformance under this contract shall be limited to the total contract price. No materials, equipment or services contracted herein carries any guarantee not mentioned in this contract. THE ABOVE WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED.

TITLE AND OWNERSHIP: In case of default on Purchaser's part, Contractor shall have the right to enter the premises upon which any material or equipment furnished herein have been installed and retake such goods not then paid for and pursue any further remedy provided by law, including recovery of attorneys' fees and any deficiency to the maximum extent and in the manner provided by law. Such materials and equipment shall retain their character as personal property of Contractor until payment in full is received by Contractor, regardless of their mode of attachment. Unless prior specific written instructions are received to the contrary, surplus and replaced materials and equipment resulting from repair or installation work shall become the property of Contractor.

DELIVERY: Shipment schedules and dates, expressed or implied, are contingent on normal conditions. Contractor will not be responsible for any delays in shipment or completion caused by factors beyond its control such as, but not limited to, suppliers' failures, accidents, work stoppages or operation of or changes in the law. Shipments will be made as promptly as Contractor's ability to obtain materials and/or equipment and scheduling will permit. No delay in shipments or variances from shipping schedule shall be cause of cancellation or any claim for damage. Any changes in layout or design requested after acceptance of this contract will be made at Purchaser's additional cost. Any such change and/or time taken to supply engineering data or to approve drawings will automatically extend shipping schedules. Equipment will be shipped "knocked down" to the extent Contractor considers necessary, with small parts stripped from equipment and crated. On and after delivery to the carrier for transportation to the Purchaser's site, Purchaser shall be responsible for all loss or damage to materials or equipment due to any cause, including but not limited to loss or damage resulting from casualty.

INDEMNIFICATION: Purchaser agrees to indemnify and hold Contractor, its directors, officers, stockholders, employees, agents and subcontractors, harmless from and against any and all claims, demands, causes of action (including third party claims, demands or causes of action for contribution or indemnification), liability and costs (including attorneys' fees and other costs of defense) asserted and/or filed by Purchaser or any third party(ies), including without limitation Purchaser's employees, and arising out of or as a result of: (i) the presence of Contractor or its subcontractors at the job site, (ii) the work performed by Contractor or its subcontractors, or (iii) any negligent act or omission of Purchaser, its employees, agents, consultants, other contractors or any person or entity under Purchaser's control; except to the extent that such claims, demands, causes of action, liabilities or costs are caused by the negligence of Contractor or its subcontractors.

INTERPRETATION: This contract shall be governed by and construed in accordance with the laws of the state of the job site location. If any term, provision or condition contained herein shall, to any extent, be invalid or unenforceable, pursuant to state law or otherwise, the remainder of the terms, provisions and conditions herein (or the application of such term, provision, or condition to persons or circumstances other than those in respect of which it is invalid or unenforceable) shall not be affected thereby, and each term, provision and condition of this contract shall be valid and enforceable to the fullest extent permitted by law.

ASSIGNMENT & SUBLETTING: Purchaser shall not have the right to transfer or assign its rights and/or obligations under this contract to any third party, related or unrelated, without the express written consent of Contractor. Contractor shall have the right to transfer, assign or sublet all or any portion of its rights or obligations hereunder, but such transfer, assignment or subletting shall not relieve Contractor from its full obligations to Purchaser unless such transfer, assignment or subletting is pursuant to the sale of Contractor, or the division of Contractor responsible for this contract, to a third party.

MISCELLANEOUS: The terms and conditions set forth herein constitute the entire understanding of the parties relating to the work to be performed, and materials and equipment to be provided, by Contractor for the Purchaser. All previous proposals, offers, and other communications relative to the provisions of the subject work, oral or written, are hereby superseded, except to the extent that they have been expressly incorporated herein. Any modifications or revisions of any provisions herein or any additional provisions contained in any purchase order, acknowledgment, or other form of the Purchaser are hereby expressly objected to by Contractor and shall not operate to modify this contract. This contract shall take effect upon acceptance and execution by both parties.



Office
1717 W. Park Ave.
Redlands, CA. 92373
909-390-2833
www.graniteconstruction.com

9/29/2021

Trabuco Canyon Water District
Jason Straud
32003 Dove Canyon Drive
Trabuco Canyon , CA 92679

RE: Fishing Efforts, Line Swab, Bailing

Dear Jason Straud ,

We are pleased to present our project estimate for the referenced work to be provided at Rose Well .

Shop Prep, Build Fishing Tools, Load and Unload tooling

Mobilize crane, support truck and welder to the site. Rig up make attempts to fish out material. Single line swab the screened sections of the well. Bail fill until refuge is meet, sample and dispose of fill materials. Demobilize all crew and equipment to Layne's facility.

Hourly rates provided is portal to portal. Prevailing wage rates apply for all onsite work. In the event additional hours are required outside what is estimated, the district will be notified prior to additional work being performed

Assumes crane and equipment will set up outside the well location. Any traffic control or permits required will be provided by others

The attached estimate is valid for 30 days and is subject to Layne Terms and Conditions.

Thank you for choosing Layne Christensen Company and giving us the opportunity to be your water resources solution provider.

Sincerely,

Ricky Trujillo
Account Manager
909-957-7782



Office
1717 W. Park Ave.
Redlands, CA. 92373
909-390-2833
www.graniteconstruction.com

9/29/2021

Well Rehabilitation or Repair Notice:

Liability Notice:

Water well rehabilitation or well repair may require the use of strong chemical agents and/or mechanical techniques that impart higher than normal stresses on the well. This is necessary to effectively repair the well casing or disperse and distribute the chemicals to breakdown any mineral build up, bio-fouling or encrustation. Layne will use standard industry practices available to repair or rehabilitate the well; however, it is possible due to poor construction practices, poor construction materials, pre-existing conditions, etc. that damage may occur. Impairment is very unlikely, and rarely occurs, but should such events such as gas production, increased sand production, reduced capacity, casing damage, surface subsidence, water quality changes or complete well failure occur, Layne Christensen will not be held liable for any damage due to these repair or rehabilitation processes.

Ricky Trujillo
Account Manager
909-957-7782

TERMS AND CONDITIONS

LIABILITY OF CONTRACTOR: Contractor shall not be liable for any bodily injury, death, or injury to or destruction of tangible property except as the same may have been caused by the negligence of Contractor. In no event shall Contractor be liable for any delays or special, indirect, incidental or consequential damages. Purchaser agrees that the total limit of Contractor's liability (whether based on negligence, warranty, strict liability or otherwise) hereunder, shall not exceed the aggregate amount due Contractor for services rendered under this contract. All claims, including claims for negligence or any other cause whatsoever, shall be deemed waived unless made in writing and received by Contractor within one (1) year after Contractor's completion of work hereunder.

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TITLE AND OWNERSHIP: In case of default on Purchaser's part, Contractor shall have the right to enter the premises upon which any material or equipment furnished herein have been installed and retake such goods not then paid for and pursue any further remedy provided by law, including recovery of attorneys' fees and any deficiency to the maximum extent and in the manner provided by law. Such materials and equipment shall retain their character as personal property of Contractor until payment in full is received by Contractor, regardless of their mode of attachment. Unless prior specific written instructions are received to the contrary, surplus and replaced materials and equipment resulting from repair or installation work shall become the property of Contractor.

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Hazen *Technical Memorandum*

March 18, 2022

To: Lorrie Lausten, PE, (Trabuco Canyon Water District)

From: Tori Yokoyama, PE (Hazen and Sawyer)
Steve Conner, PE (Hazen and Sawyer)
Kent O'Brien (Hazen and Sawyer)

Rose Canyon and Lang Wells

Preliminary Study and Cost Estimate Technical Memorandum

Introduction

The purpose of this study is to identify the improvements needed on the Rose Canyon and Lang Wells, with the intent of putting the wells back into service and operating the groundwater treatment facility.

1. Background

The Rose Canyon and Lang Wells Groundwater Treatment Facility is located at Trabuco Canyon Road and Rose Canyon Road, adjacent to Trabuco Canyon Creek. A site plan of the facilities is shown in Figure 1-1. The main process facilities include:

- Rose Canyon Well
- Lang Well
- Two-stage filtration system
- Chlorine contact tank
- Finished water pumps to the distribution system

Based on a site visit on 1/27/22 and discussions with TCWD staff, the existing submersible pumps are inadequate for several reasons. They are not set at a deep enough elevation to maximize the capture of local shallow groundwater. In addition, they have insufficient total dynamic head to pump through the existing treatment system and into the chlorine contact tank. Neither well has a pump to waste connection, which is needed for maintenance and required by California well standards.

The following additional data was reviewed in preparing this assessment and recommendation:

- Facility As-Built (October 2009)
- Well Inspection Reports (March 2021)
- Monthly and annual production data from TCWD

The following sections describe the needed improvements at the Rose Canyon and Lang Wells and the associated costs.

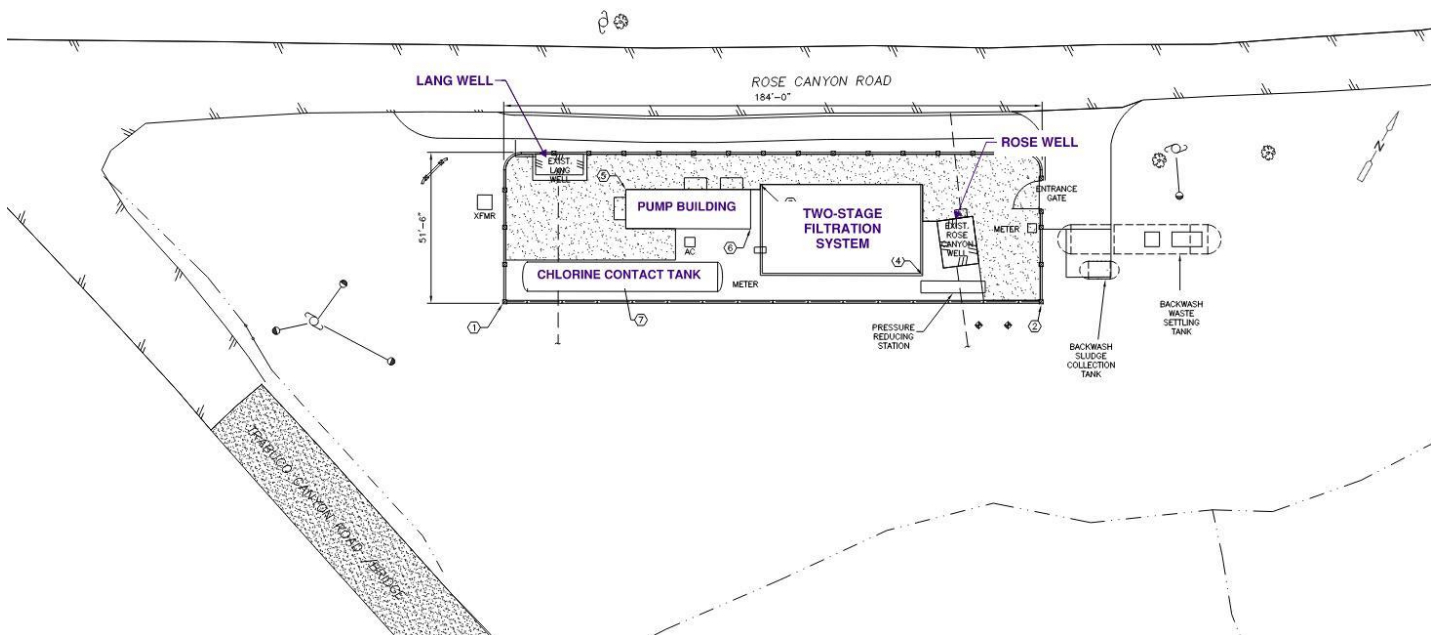


Figure 1-1: Site Plan

2. Facility Improvements

2.1 Well Rehabilitation

Well rehabilitation must be performed for each well. Well rehabilitation will include removing debris, brushing, bailing, surging, and pumping. The specifications will include requirements for monitoring removed material, sand content testing, and record keeping verifying that well production has been restored to the extent feasible. Well rehabilitation must occur when water levels are high to allow for pumping and removal of accumulated material.

As part of well rehabilitation, pumping tests must be performed. Based on our analysis of historical pumping records, the Rose Canyon Well pumped at a maximum rate of 600 gpm and the Lang Well produced a maximum rate of 300 gpm from 2011 production data. However, neither of these flow rates were sustained, and the cause of the flow reduction or lack of pump function is unknown. A pumping test at each well is required to ensure that the new pumps are appropriately sized and configured. This must be performed when water levels are high to allow for maximum pumping rates.

It is recommended to conduct both a 6-hour step-test and 24-hour pumping test at each well. During the step-test the pump is operated at three successively increasing flow rates for a total of 6 hours of pumping. The pumping characteristics of the well under the three different flow rates are used to determine the maximum pumping rate for the subsequent constant rate 24-hour pumping test. The results of the 24-hour pumping test are used to design the new production pumps and identify constraints related to water elevation in the well and sand entrainment.

2.2 Well Pump Installation

The Rose Canyon and Lang Wells must be equipped with new vertical turbine well pumps. Based on the existing wells and the hydraulic profile shown on the as-builts, the design parameters for the new pumps shall be:

- Rose Canyon Well
 - Vertical Turbine Pump
 - Max Design Flow: 500 gpm
 - Min Design Flow: 100 gpm
 - TDH: 110 ft
 - NPSHa: 20 ft
 - Well Depth: 41 ft
 - Well Casing Diameter: 24"
 - Motor: New electric motor (20 hp max), utilize existing VFD
 - Note, the existing motor VFD is 20 hp, so the new pump should be designed for 20 hp maximum.

- Lang Well
 - Vertical Turbine Pump
 - Max Design Flow: 500 gpm
 - Min Design Flow: 100 gpm
 - TDH: 110 ft
 - NPSHa: 20 ft
 - Well Depth: 39 ft
 - Well Casing Diameter: 14”
 - Motor: New electric motor, utilize existing VFD
 - Note, the existing motor VFD is 20 hp, so the new pump should be designed for 20 hp maximum.



Figure 2-1: Rose Well



Figure 2-2: Lang Well

2.3 Other Facility Improvements

Based on discussions with TCWD staff, additional improvements are needed at the facility.

The wells do not currently have a provision to “pump-to-waste” for a preset time period to flush the well before sending the water through the treatment system. Pump to waste piping should be provided that includes new pipe that would be installed from the well to an air gap location outside the block wall where it can discharge into the creek.

The 39,000 gallon chlorine contact tank also needs provisions so it can be drained. A port should be added to the tank for a temporary hose connection so it can be drained for maintenance.



Figure 2-3: Chlorine Contact Tank

2.4 Data to be Collected

The depth to water in the wells will vary considerably between the wet and dry season. As the water levels decline, the pumping rate in each well may require reduction to prevent air-entrainment and pump cavitation.

Understanding the seasonal fluctuations of the water level is important for the purpose of a pump design and for use in calculating the pumping rates from each well as water level changes. Water level data should be collected every two weeks starting in April 2022 and throughout the spring until low water levels during the mid-summer. Twice monthly water level measurements at each well should be collected again in October 2022 and continue through January 2023.

3. Schedule

The overall project schedule is estimated to be approximately 18 months:

- Design: 5 months
- Bidding/Award: 3 months
- Construction: 12 months

Note, the construction duration is not all “active construction” but also includes procurement time for long lead time items like the well pumps.

4. Cost Estimate

A cost estimate of the proposed improvements can be found in Appendix A. A basis of cost estimate memo is also included. The total cost estimated for the proposed improvements is \$1.3 M.

Appendix A: Cost Estimate

Hazen *Memorandum*

March 15, 2022

To: Hazen Design Team

From: Chris Portner, PE, CEP

Re: Trabuco Canyon Water District

Rose Canyon and Lang Wells

Preliminary Study Estimate

1. Introduction

This memorandum is a supplement to the cost estimate that corresponds to the Preliminary Study Estimate submitted to the client in March 2022. The project work is to be performed in Orange County, California. This estimate is for well rehabilitation, replacement of well pumps, modification of chlorine contact tank and modification of existing piping.

The probable construction cost for the project is \$1.3M. The estimate serves for budget authorization and alternative analysis and is considered to be an AACE Class 5 level. Class 5 has a typical accuracy range of -50% on the low side and +100% on the high side. A 40% design contingency has been added to the estimate based on current status of the design documents, the nature of the project and the estimate classification.

2. Estimate Basis

Estimate costs are derived from the following:

1. Draft Preliminary Study, dated March 2022
2. Record Drawings – Groundwater Treatment Facility, dated October 2009
3. Discussions with Design Team

3. Planning Basis

Base Assumptions are the following

1. Construction NTP is assumed to be third quarter 2023
2. Construction Duration is assumed to be 12 months.
3. The project is assumed to be procured as a single prime contract through a traditional design/bid/build process.

20136-001

4. Cost Basis

1. Wage rates utilized are based on prevailing wages published for Orange County current to June 30, 2022.
2. A 40-hour work week is assumed, no shift, weekend or other premium time is provided.
3. Wherever possible, equipment rates are based on current published rental rates as listed in the AED Blue Book, supplemented by RS Mean's data, the AED Green Book, and local rental suppliers.
4. Crews, equipment, and productivity used for work items are based mostly on standards specific to each trade. Some information was supplemented by RS Mean's data modified where necessary by estimator judgment.
5. The following item costs were based upon vendor quotes:
 - None

5. Itemized Estimate Notes

Estimated scope is as follows:

1. Well Rehab
 - Inspect, clean and test existing well (2)
2. Well Pump Replacement
 - Furnish/install well pump, 20 hp (2)
3. Pump to Waste
 - Furnish/install 6-inch diameter DIP, 1 per well
 - Assume 4-ft cover
 - Assume pipe discharges through abovegrade goose neck
4. Chlorine Contact Tank
 - Furnish/install flanged connection, isolation valve and quick connect fitting, 4-inch diameter
 - Allow for cutting/repair of tank
5. Electrical and Controls
 - Allow for miscellaneous conduit/wire to connect new pumps to existing power and controls

6. Below the Line Adders

The following adders were used:

Below the Line Adders	
Item	%
Small Tools Allowance	2
Subcontractor Overhead and Profit	25
Prime Contractor Mark-Up on Subcontractor	5
General Conditions (Div01)	15
Contractor Overhead	10
Contractor Profit	10
Annual labor escalation to mid-point of construction	3.5
Annual material escalation to mid-point of construction	5
Insurance and Bonding	3
Contingency	40
Design	20
Construction Management	15

These factors are generally in-line with recent estimated projects in this location and of this size and conform to the AACE Class of each scope.

7. Other Assumptions

Additional assumptions to the estimate include:

1. No hazardous materials are present onsite
2. High groundwater will not impact any excavations
3. Excavated material is assumed suitable for backfill
4. Chlorine contact tank is handed to contractor drained and cleaned
5. No new electrical infrastructure is required except for conduit/conductors to get from new pump to existing infrastructure

8. Exclusions

The following items are specifically excluded from the scope of this estimate:

1. Hazardous material abatement
2. Dewatering
3. Piles

9. Exceptions

None taken.

10. Risks and Opportunities

Some risk items and opportunities need to be considered in the process of reviewing estimated costs. These are the following:

1. Installing buried works carries the risk of encountering unexpected utilities, structures or artifacts which could delay the job.
2. The current pandemic has disrupted supply chains for both labor and materials. There has been a recent increase in the cost of raw materials for nearly all construction materials. The price increase has not been even across the board and varies locally. Additional schedule impacts may be felt by the project as sourcing materials has also been difficult recently. Expected bid prices have come in higher than expected as Contractor's have increased margins to deal with the uncertainty related to commodity pricing and the inability of vendors to provide price guarantees beyond 1 to 2 days in most cases.

11. Estimate Quality Assurance

Estimate review has been ongoing. No second party review has been undertaken.

12. Estimating Team

Oversight to the estimating team is provided by Tori Yokoyama, P.E. The principal or lead estimator is Chris Portner, P.E, CEP. All estimate reviews have been internally reviewed by the Design and Estimating Teams.



Trabuco Canyon Water District
Rose Canyon and Lang Wells
Preliminary Study
Estimate Summary - Work Breakdown Structure (WBS)

Date: 3/15/2022

Description	Total
Well Rehab	\$ 47,290
Well Pump	\$ 326,526
Pump to Waste	\$ 25,080
Chlorine Contact Tank	\$ 14,428
Electrical and Controls	\$ 28,644
Subtotal:	\$ 441,969
Small Tools (Applied on Labor) 2.0% on \$ 46,264	\$ 925
Direct Costs Subtotal:	\$ 442,894
General Conditions 15.0% on \$ 442,894	\$ 66,434
Indirect Costs Subtotal:	\$ 66,434
Direct and Indirect Costs Total:	\$ 509,328
Add-On / Mark-Up	
Labor Escalation at 3.5% annually 5.9% on \$ 96,090	\$ 5,670
Material/Equipment Escalation at 5% annually 8.5% on \$ 413,236	\$ 35,007
Subtotal:	\$ 550,005
Value of Subcontracted Work assumed at 10% \$ 55,001	
Subcontractor Overhead, Profit and Fee 25.0% on \$ 55,001	\$ 13,750
Subtotal:	\$ 563,756
Prime Contractor Overhead 10.0% on \$ 495,005	\$ 49,500
Subtotal:	\$ 613,256
Prime Contractor Profit 10.0% on \$ 544,505	\$ 54,451
Subtotal:	\$ 667,707
Prime Profit on Subcontracted Work 5.0% on \$ 68,751	\$ 3,438
Subtotal:	\$ 671,144
Bond and Insurance 3.0%	\$ 20,134
Subtotal:	\$ 691,278
Design Contingency 40.0%	\$ 276,511
Subtotal:	\$ 967,790
Total (rounded):	\$ 968,000
Design 20.0%	\$ 193,600
Construction Management 15.0%	\$ 145,200
Total (rounded):	\$ 1,307,000

Location	CSI Div.	CSI Div. Name	Description	Quantity	Unit	Notes	Labor Unit Cost	Equipment Unit Cost	Material Unit Cost	Total Unit Cost	Total Amount
			Well Rehab				\$0.00	\$0.00		\$ -	\$ -
Well Rehab	Div 02	Existing Conditions	Rehab Rose Canyon well	1	ls	Per previous costs	\$0.00	\$0.00	\$20,554.34	\$ 20,554	\$ 20,554
Well Rehab	Div 02	Existing Conditions	Rehab Lang well	1	ls	Per previous costs	\$0.00	\$0.00	\$26,735.61	\$ 26,736	\$ 26,736
							\$0.00	\$0.00		\$ -	\$ -
			Well Pump Replacement				\$0.00	\$0.00		\$ -	\$ -
Well Pump	Div 43	Process Gas and Liquid H	Furnish/install well pump	2	ea	20-hp	\$8,138.97	\$3,025.73	\$150,000.00	\$ 161,165	\$ 322,329
Well Pump	Div 43	Process Gas and Liquid H	Testing	4	cd		\$1,049.22	\$0.00		\$ 1,049	\$ 4,197
							\$0.00	\$0.00		\$ -	\$ -
			Pump to Waste				\$0.00	\$0.00		\$ -	\$ -
			<i>First line</i>				\$0.00	\$0.00		\$ -	\$ -
Pump to Was	Div 31	Earthwork	Excavation	20	cy		\$46.08	\$22.33		\$ 68	\$ 1,394
Pump to Was	Div 31	Earthwork	Trench box	1	wk		\$0.00	\$0.00	\$250.00	\$ 250	\$ 250
Pump to Was	Div 31	Earthwork	Gravel Bedding	4	cy		\$92.16	\$44.66	\$35.00	\$ 172	\$ 636
Pump to Was	Div 31	Earthwork	Backfill (reuse)	20	cy		\$46.08	\$22.33		\$ 68	\$ 1,394
Pump to Was	Div 31	Earthwork	Disposal of soil	0	cy		\$6.07	\$4.92	\$5.00	\$ 16	\$ -
							\$0.00	\$0.00		\$ -	\$ -
Pump to Was	Div 33	Utilities	6-inch diameter duct	40	lf	DIP	\$10.51	\$0.00	\$58.38	\$ 69	\$ 2,756
Pump to Was	Div 33	Utilities	90-elbow	6	ea		\$131.36	\$0.00	\$304.41	\$ 436	\$ 2,615
Pump to Was	Div 33	Utilities	Tee	1	ea		\$197.82	\$0.00	\$621.33	\$ 819	\$ 819
							\$0.00	\$0.00		\$ -	\$ -
			<i>Second line</i>				\$0.00	\$0.00		\$ -	\$ -
Pump to Was	Div 31	Earthwork	Excavation	31	cy		\$46.08	\$22.33		\$ 68	\$ 2,090
Pump to Was	Div 31	Earthwork	Trench box	1	wk		\$0.00	\$0.00	\$250.00	\$ 250	\$ 250
Pump to Was	Div 31	Earthwork	Gravel Bedding	6	cy		\$92.16	\$44.66	\$35.00	\$ 172	\$ 955
Pump to Was	Div 31	Earthwork	Backfill (reuse)	31	cy		\$46.08	\$22.33		\$ 68	\$ 2,090
Pump to Was	Div 31	Earthwork	Disposal of soil	0	cy		\$6.07	\$4.92	\$5.00	\$ 16	\$ -
							\$0.00	\$0.00		\$ -	\$ -
Pump to Was	Div 33	Utilities	6-inch diameter duct	60	lf	DIP	\$10.51	\$0.00	\$58.38	\$ 69	\$ 4,133
Pump to Was	Div 33	Utilities	90-elbow	6	ea		\$131.36	\$0.00	\$304.41	\$ 436	\$ 2,615
Pump to Was	Div 33	Utilities	Tee	1	ea		\$197.82	\$0.00	\$621.33	\$ 819	\$ 819
							\$0.00	\$0.00		\$ -	\$ -
Pump to Was	Div 33	Utilities	Testing	2	cd		\$1,132.30	\$0.00		\$ 1,132	\$ 2,265
							\$0.00	\$0.00		\$ -	\$ -
			Chlorine Contact Tank				\$0.00	\$0.00		\$ -	\$ -
Chlorine Cont	Div 40	Process Interconnections	Furnish/install flanged connectio	1	ea	4-inch	\$367.73	\$0.58	\$32.26	\$ 401	\$ 401
Chlorine Cont	Div 40	Process Interconnections	Furnish/install ball valve	1	ea	4-inch	\$420.37	\$0.00	\$1,431.95	\$ 1,852	\$ 1,852
Chlorine Cont	Div 40	Process Interconnections	Furnish/install quick connect	1	ea	4-inch	\$280.24	\$0.00	\$125.00	\$ 405	\$ 405
Chlorine Cont	Div 40	Process Interconnections	Cutting/repairing tank	1	ea		\$5,044.39	\$0.00	\$5,044.39	\$ 10,089	\$ 10,089
							\$0.00	\$0.00		\$ -	\$ -
Chlorine Cont	Div 40	Process Interconnections	Testing	1	cd		\$1,681.46	\$0.00		\$ 1,681	\$ 1,681
							\$0.00	\$0.00		\$ -	\$ -
			Electrical and Controls				\$0.00	\$0.00		\$ -	\$ -
Electrical and	Div 26	Electrical	Miscellaneous electrical	5	cd		\$1,432.20	\$0.00	\$4,296.61	\$ 5,729	\$ 28,644
							\$0.00	\$0.00		\$ -	\$ -
							\$0.00	\$0.00		\$ -	\$ -

**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | JULY 6, 2022**

ENGINEERING MATTERS

ITEM 5: OTHER ENGINEERING AND OPERATIONS PROJECT UPDATES

1. OC Rescue Mission Service relocation
2. Master Plan and Condition Assessment Update
3. South Orange County IRWM Grant Project
4. Other Projects

RECOMMENDED ACTION:

Committee to receive project status updates at time of the Committee Meeting.

EXHIBIT(S):

1. OC rescue Mission Construction Photos
2. OC rescue Mission Easement and Quit Claim
3. Master Plan and Condition Assessment Project Schedule

CONTACTS (staff responsible): PALUDI/PEREA/LAUSTEN

Orange County Rescue Mission Service Relocation

Trabuco Canyon Water District
July 6, 2022 E&O Committee





Abandoned Connection inside Pumping Plant Yard & Paving



New 8" Connection



New Valve (Hot Tap) & Paving in El Toro Rd



New DCDA and Domestic/Irrigation Meters

**FREE RECORDING REQUESTED
BY AND RETURN TO:**

**TRABUCO CANYON WATER DISTRICT
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679
Attention: District Secretary**

**ASSESSOR PARCEL NO: 856-111-23 AND 24
PORTION OF LOT 3, 4, AND 5
SECTION 4, T65, R4W, SBM**

(Space above for Recorder's use only)

Exempt from recording fee pursuant to Gov. Code §6103.

Exempt from documentary transfer tax pursuant to Rev. and Tax. Code §11922.

**GRANT OF EASEMENT
TO THE
TRABUCO CANYON WATER DISTRICT
BY
Orange County Rescue Mission, Inc.**

FOR VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, **Orange County Rescue Mission**, a California nonprofit mutual benefit corporation ("Grantor") hereby grants and conveys to **TRABUCO CANYON WATER DISTRICT**, a County water district formed and existing pursuant to Water Code Sections **30000** and following ("Grantee"), and its successors and assigns, a perpetual non-exclusive easement and right-of-way for water purposes. This easement shall include, but not by way limitation, the right to install, construct, reconstruct, remove and replace, renew, inspect, maintain, repair, improve, and relocate water pipeline or pipelines, together with incidental appurtenances, connections and structures in, over, under, upon, along, through and across the respective portions of the real property hereinafter described and depicted.

Said easement shall lie in, over, under, upon, along, through and across that certain real property situated in Unincorporated Territory, Orange County, described in Exhibit "A" and depicted in Exhibit "B", both of which are attached hereto and by this reference incorporated herein (the "Easement Area"), together with the right to enter upon and to pass and repass over and along the Easement Area for the construction, reconstruction, operation, and maintenance of the facilities to be constructed in the Easement Area by Grantee or its successors and assigns, its officers, agents and employees and by persons under contract with Grantee or its successors and assigns.

It is understood and agreed that the easement and rights-of-way acquired herein are acquired subject to the rights of the Grantor, and its successors and assigns, and any other parties holding easement rights over the Easement Area, to use the surface of the Easement Area to the extent that such use is compatible with the full and free exercise of said easement and rights-of-way by the Grantee, provided, however, that no streets, alleys, roadways, fences, block walls, landscaping, trees, or other structures or other improvements shall be constructed upon, over, and along the Easement Area without first obtaining the prior written consent of the Grantee.

Whenever Grantee, in the exercise of its rights hereunder, makes any repair or replacement which requires the uncovering of its facilities, Grantee shall replace any asphaltic or concrete pavement which may be removed, lost or damaged in connection with making of any such repair or replacement. Grantee shall not be responsible to any person for any damage to any grass, trees, shrubs, sidewalks, ornamental pavement, or structural facilities which may be removed, lost, or damaged in connection with the making of any such repairs or replacements.

No earth, dirt, fill or any other material shall be deposited, placed or maintained on or over the surface of the Easement Area, nor shall any earth be removed from the cover of said pipeline or pipelines and incidental facilities without first obtaining the prior written consent of Grantee.

The Grantor and persons or concerns executing this Grant of Easement represent and warrant to Grantee that Grantor is the owner in fee title of the herein described property, or has the right to make this conveyance, and that it has advised the Grantee in writing of any and all outstanding easements, encumbrances, or deeds of trust.

Grantee shall have the right to use gates in all of Grantor's fences which presently or hereafter cross the easement, and to remove, trim, cut, and clear away any trees and brush whenever in Grantee's reasonable judgment the same shall be necessary for the convenient and safe exercise of the rights granted hereby.

This Grant of Easement and the provisions contained herein shall be binding upon Grantor, Grantee, and their respective successors and assigns.

IN WITNESS WHEREOF, Grantor executed this Grant of Easement as evidenced by Grantor's signature below.

Dated this _____ day of _____, 2022

_____,
a California nonprofit mutual benefit corporation (Grantor)

By: _____

Title: _____

By: _____

Title: _____

NOTE: Signatures must be notarized

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of _____)

On _____, before me, _____,
(insert name and title of the officer)

Notary Public, personally appeared _____,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s)
is/are subscribed to the within instrument and acknowledged to me that he/she/they executed
the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the
instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the
instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the
foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of _____)

On _____, before me, _____,
(insert name and title of the officer)

Notary Public, personally appeared _____,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s)
is/are subscribed to the within instrument and acknowledged to me that he/she/they executed
the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the
instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the
instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the
foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

**CERTIFICATE OF ACCEPTANCE
TRABUCO CANYON WATER DISTRICT**

This is to certify that the interest in the real property conveyed by that certain GRANT OF EASEMENT dated _____, 2022 from ORANGE COUNTY RESCUE MISSION, INC., a California nonprofit mutual benefit corporation, to TRABUCO CANYON WATER DISTRICT, a County water district, is hereby accepted by the undersigned officer on behalf of the Board of Directors, pursuant to authority conferred by Resolution No. 99-894 of the Board of Directors, adopted on June 16, 1999, and the TRABUCO CANYON WATER DISTRICT consents to recordation thereof by its duly authorized officer.

Dated this _____ day of _____, 2022

Michael Perea
District Secretary
Trabuco Canyon Water District

EXHIBIT "A"

THAT CERTAIN PARCEL OF LAND IN THE CITY OF LAKE FOREST, COUNTY OF ORANGE, STATE OF CALIFORNIA LYING WITHIN THE BOUNDARY AS SHOWN ON RECORD OF SURVEY MAP RECORDED ON AUGUST 31, 1962, IN BOOK 49, PAGE 44 OF RECORD OF SURVEYS OF SAID COUNTY, MORE PARTICULARLY DESCRIBED AS A STRIP OF LAND 20.00 FEET WIDE THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS:

COMMENCING (POC) AT THE NORTHWESTERLY CORNER OF THAT PARCEL OF LAND SHOWN ON SAID RECORD OF SURVEY, SAID CORNER BEING ON THE CENTERLINE OF EL TORO ROAD (40.00 FEET HALF WIDTH); THENCE S 16°17'20" W A DISTANCE OF 51.41 FEET ALONG SAID CENTERLINE; THENCE S82°11'14"E A DISTANCE OF 40.44 FEET TO THE WESTERLY RIGHT OF WAY LINE OF EL TORO AS SHOWN ON SAID RECORD OF SURVEY ALSO BEING THE **TRUE POINT OF BEGINNING (TPOB)**; THENCE S82°11'14"E A DISTANCE OF 264.25 FEET; THENCE S71°56'19"E A DISTANCE OF 95.44 FEET; THENCE S87°03'59"E A DISTANCE OF 232.96 FEET; THENCE S60°26'28"e A DISTANCE OF 60.37 FEET; THENCE N63°43'17"E A DISTANCE OF 96.20 FEET TO THE NORTHERLY BOUNDARY LINE OF SAID RECORD OF SURVEY

EXCEPT THAT PORTION LYING WITHIN EL TORO ROAD RIGHT OF WAY.

THE SIDELINES OF SAID STRIP OF LAND TO BE SHORTENED OR LENGTHENED TO TERMINATE AT SAID NORTHERLY BOUNDARY LINE AND AT SAID WESTERLY RIGHT OF WAY LINE.

CONTAINING 15,750 SQUARE FEET, MORE OR LESS.

SUBJECT TO COVENANTS, CONDITIONS AND RESTRICTIONS, IF ANY.

MORE PARTICULARLY SHOWN ON EXHIBIT "B" ATTACHED HERETO AND BY THIS REFERENCE MADE A PART HEREOF.

DEREK J. MCGREGOR, PLS

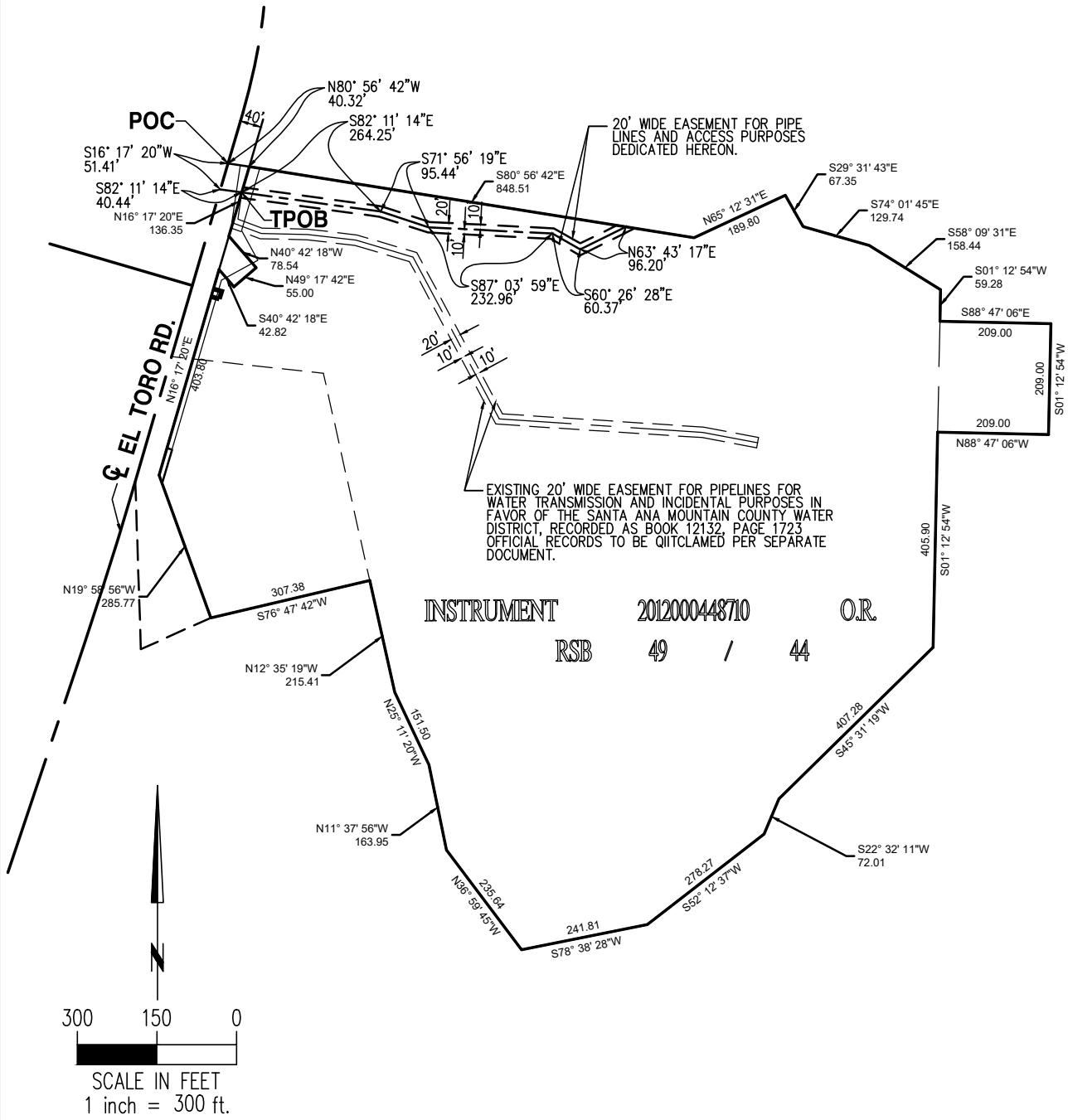
June 22, 2022

DATE

J:\JOBS\728-49 TCWD_St Michael's Abbey\DWG\Legal\728-49_Exhibit B-OC Rescue_Pipelines and Access Esmt.dwg, Sheet 1, 6/14/2022 4:25:59 PM, DWG To PDF.pc3

EXHIBIT "B"

SKETCH TO ACCOMPANY LEGAL DESCRIPTION



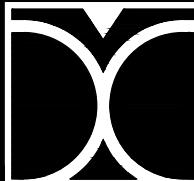
ABBREVIATIONS:

POC POINT OF COMMENCEMENT
TPOB TRUE POINT OF BEGINNING

DEREK J MCGREGOR, PLS DATE

06.14.2022
06.02.2022
05.03.2022

OC RESCUE
Pipe Lines And Access Easement
City Of Lake Forest, California



DMC ENGINEERING
CIVIL ■ SURVEYING ■ PLANNING ■ CONSTRUCTION
Tel: (949) 753-9393
18 Technology Drive, Suite 100, Irvine, California 92618
E-Mail: dmc@dmceng.com ■ www.dmceng.com

DATE: 05.03.2022
DRAFTED: DJG
CHECKED: DJM
SHEET: 1 OF 1

**FREE RECORDING REQUESTED
BY AND RETURN TO:**

**TRABUCO CANYON WATER DISTRICT
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679
Attention: District Secretary**

**ASSESSOR PARCEL NO: 856-111-23 AND 24
PORTION OF LOT 3, 4, AND 5
SECTION 4, T65, R4W, SBM**

(Space above for Recorder's use only)

Exempt from recording fee pursuant to Gov. Code §6103.
Exempt from documentary transfer tax pursuant to Rev. and Tax. Code §11922.

**QUITCLAIM OF EASEMENT
TO THE
ORANGE COUNTY RESCUE MISSION, INC.
BY
Trabuco Canyon Water District**

FOR VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, TRABUCO CANYON WATER DISTRICT, a County Water District organized under and existing pursuant to Section 30000 et seq. of the California Water Code, does hereby REMISE, RELEASE, AND FOREVER QUITCLAIM to ORANGE COUNTY RESCUE MISSION, INC.

All RIGHT, TITLE and INTEREST in the real property located in the City of Lake Forest, County of Orange, State of California, as more particularly described on Exhibit "A" and depicted on Exhibit "B", attached hereto and by this reference made a part hereof.

The rights hereby quitclaimed are to clear title for the benefit of Orange County Rescue Mission, Inc.

Dated: _____, 2022

TRABUCO CANYON WATER DISTRICT,
A County Water District
By: _____
Name: Michael Perea
Title: District Secretary

A Notary Public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)
County of _____)

On _____, before me, _____,
(insert name and title of the officer)

Notary Public, personally appeared _____,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s)
is/are subscribed to the within instrument and acknowledged to me that he/she/they executed
the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the
instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the
instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the
foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

(Seal)

EXHIBIT "A"

THAT CERTAIN PARCEL OF LAND IN THE CITY OF LAKE FOREST, COUNTY OF ORANGE, STATE OF CALIFORNIA LYING WITHIN THE BOUNDARY SHOWN ON RECORD OF SURVEY MAP RECORDED ON AUGUST 31, 1962, IN BOOK 49, PAGE 44 OF RECORD OF SURVEYS OF SAID COUNTY, MORE PARTICULARLY DESCRIBED AS A STRIP OF LAND 20.00 FEET WIDE DESCRIBED AS FOLLOWS:

A 20' WIDE STRIP OF LAND FOR PIPELINE AND WATER TRANSMISSION AND INCIDENTAL PURPOSES IN FAVOR OF SANTA ANA MOUNTAIN COUNTY WATER DISTRICT, RECORDED IN BOOK 12132, PAGE 1723, OFFICIAL RECORDS OF SAID COUNTY

MORE PARTICULARLY SHOWN ON EXHIBIT B ATTACHED HERETO AND BY THIS REFERENCE MADE A PART HEREOF.

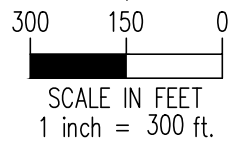
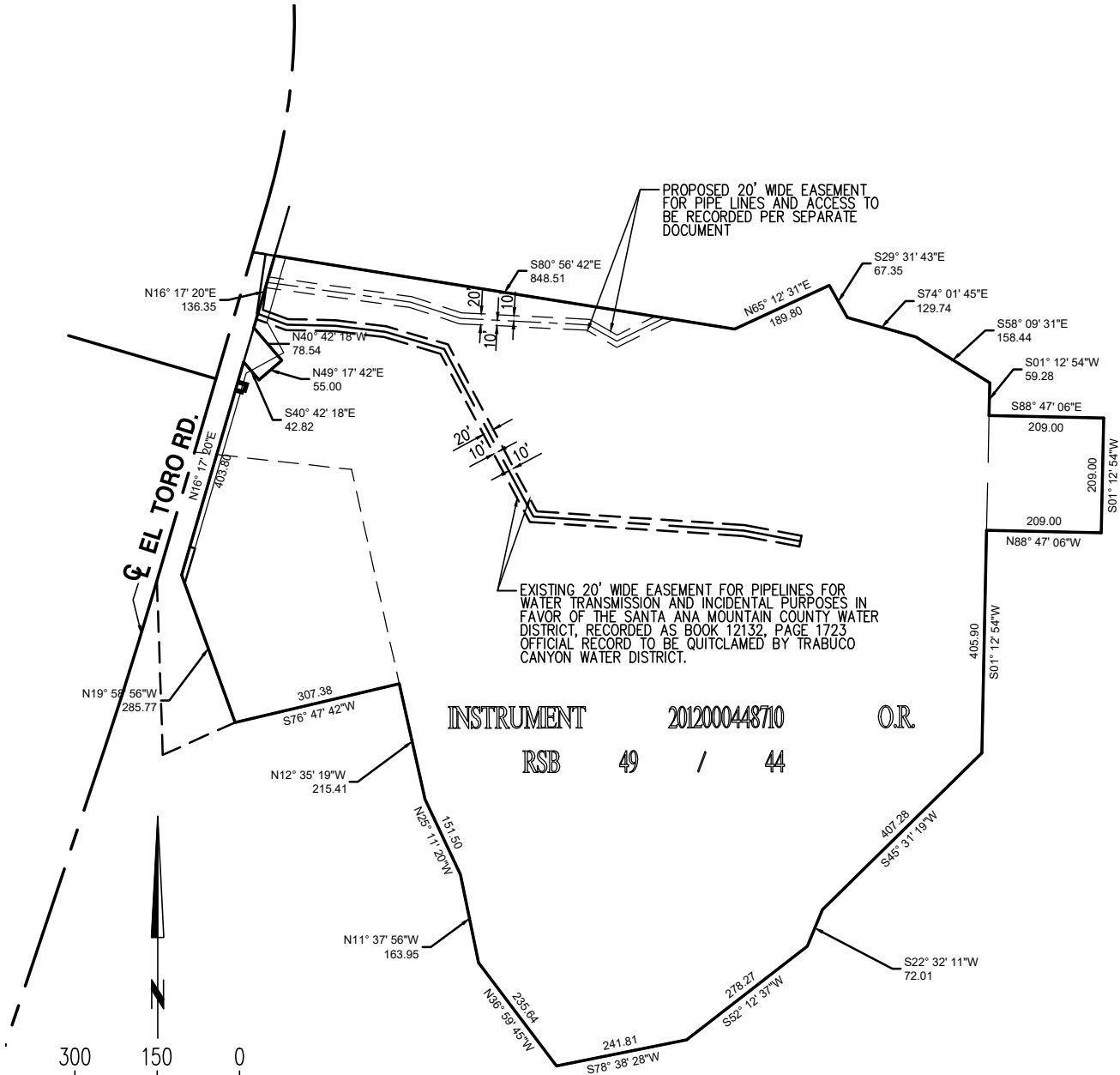
DEREK J. MCGREGOR, PLS

DATE

J:\JOBS\728-49 TCWD_St Michael's Abbey\DWG\Legal\728-49_Exhibit B-OC Rescue_Quitclaimed Esmt.dwg, Sheet 1, 6/14/2022 4:24:28 PM,
 DWG To PDF.pc3

EXHIBIT "B"

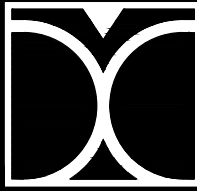
SKETCH TO ACCOMPANY LEGAL DESCRIPTION



DEREK J MCGREGOR, PLS DATE

06.14.2022
05.03.2022

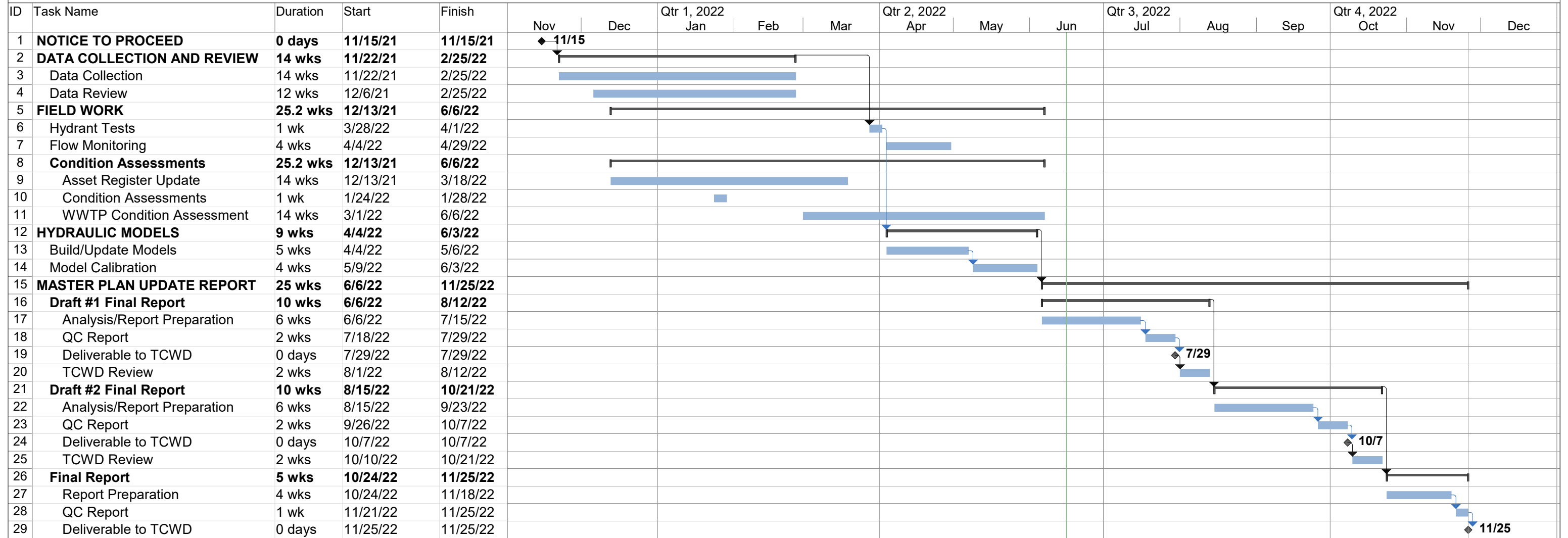
OC RESCUE
Easement Quitclaim
City Of Lake Forest, California



DMC ENGINEERING
 CIVIL ■ SURVEYING ■ PLANNING ■ CONSTRUCTION
 Tel: (949) 753-9393
 18 Technology Drive, Suite 100, Irvine, California 92618
 E-Mail: dmc@dmceng.com ♦ www.dmceng.com

DATE: 05.03.2022
DRAFTED: DJG
CHECKED: DJM
SHEET: 1 OF 1

Trabuco Canyon Water District
Master Plan and Condition Assessment Study
Project Schedule



**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | JULY 6, 2022**

OPERATIONAL MATTERS

ITEM 6: WATER SYSTEM UPDATES

The following is a brief report of the water system for **June 2022**.

Projects and Repairs

Water Operations staff performed and/or completed the following tasks and projects:

1. Worked with Tesco Controls and Hydrotech Electric on the Dimension Water Treatment Plant SCADA upgrades.
2. Worked with GCI Construction to install a new water service line to the OC Rescue Mission.
3. Continued to work with Cartigraph on the new CMMS program and visited the Laguna Beach Water District to view its operation.
4. Performed maintenance on the Trabuco PRV, as well as the Rose Altitude Valve, which are located in the Canyon Community.
5. Performed weed abatement and general site cleanup at Dimension Water Treatment Plant, Trabuco Tanks and Robinson Ranch.

Monthly Water System Operations Summary

The Monthly Water System Operations Summary is attached for the Committee's review. Any anomalies will be presented at the time of the Engineering/Operational Committee Meeting.

RECOMMENDED ACTION:

Committee to receive system status updates. No action required.

EXHIBITS

1. Monthly Water System Operations Summary

CONTACTS (staff responsible): PALUDI/KESSLER

**TRABUCO CANYON WATER DISTRICT
MONTHLY WATER SYSTEM OPERATIONS SUMMARY**

2022													
DIMENSION WTP													
	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	TOTAL
SAC METER AC/FT	138	151	51	0	0								340
BACKWASH AC/FT	4	4	1	0	0								9
FLUSHWATER AC/FT	6	7	2	0	0								15
WTP EFFLUENT AC/FT	141	151	47	0	0								339
WELLS													
TRABUCO CREEK GWTF	0	0	0	0	0								0
US WELL AC/FT	0	0	0	0	0								0
AMP WATER													
SMWD AC/FT	0	0	27	57	75								159
IRWD AC/FT	3	0	80	117	123								323
TOTAL SUPPLY													
AC/FT	144	151	154	174	198								821
CFS DAILY AVERAGE	2.3	2.7	2.6	2.9	3.2								2.7
AC/FT PER DAY	4.6	5.4	5.0	5.8	6.4								5.4
OPERATIONS in GAL.													
WTP DOMESTIC	38,672	31,715	11,070	374	0								81,831
WWTP DOM	710	750	1,181	1,655	1,758								6,054
OPERATIONS (AF)													
SUPPLEMENT TO RW	0	0	0	0	0								0
LOSSES in GAL.													
FLUSHING (gal.)	0	0	170,000	0	0								170,000
SEWER CLEANING (gal.)	5,000	5,000	5,000	5,000	5,000								25,000
LINE BREAKS (gal.)	100,000	50,000	0	300,000	25,000								475,000
SYSTEM DEMAND **													
CFS DAILY AVERAGE	2.3	2.6	2.6	2.9	3.2								2.7
AC/FT PER DAY	4.6	5.4	5.0	5.8	6.4								5.4
RESERVOIR STORAGE													
MONTHLY AVG (MG)	8.8	9.0	8.9	8.8	9.0								9
DAYS OF STORAGE	3	4	4	3	4								4
ZONES (AF)													
RIDGELINE PS	130	140	43	0	0								313
EL TORO P.S.	3	0	80	117	123								323
TOPANGA	2	2	2	2	3								11
FALCON	0.4	0.5	0.6	0.7	0.9								3
ROSE PRV/ OAKS	3	2	4	3	4								16
CANYON CREEK	0.2	0.5	0.3	0.3	0.3								2
ROSE P.S.	0.4	0.2	0.2	0.1	0.1								1
ROBINSON RANCH	32	39	42	43	43								199
DOVE CANYON	59	62	70	70	81								342
PORTOLA HILLS	10	10	10	11	12								53

* Usage estimated new meter installed

** Excludes Operational use, losses, and supplement to Recycled Water Reservoir (RW)

**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | JULY 6, 2022**

OPERATIONAL MATTERS

ITEM 7: WASTEWATER SYSTEM UPDATES

The following is a brief report of the wastewater system for **June 2022**.

Projects and Repairs

Wastewater Operations staff performed and/or completed the following tasks and projects:

1. Installed a temporary pump at Dove Lake to supplement the reclaim reservoir.
2. Adjusted wastewater plant operations to comply with Southern California Edison, Time of Use program.
3. Installed a low flow, circulating pump to maintain chlorine residual during time of use.
4. Cleaned the Bell Canyon Lift Station wet well, located in Dove Canyon Community.
5. Removed a 12-inch corroded section of pipe from the chlorine contact chamber Wastewater Treatment Plant.
6. Conducted the Fats, Oil, Grease (F.O.G.) interceptor inspections.

Sewer System Management Plan (SSMP) Report

The purpose of the program is to communicate on a regular basis with the public on the development, implementation, and performance of TCWD’s SSMP. Status updates on the work and type of work performed on the sewer system will be provided, including sewer line and manhole cleaning, system repairs, lift station cleaning, and updates from satellite facilities:

Sewer System Management Plan (SSMP) Monthly Update	
Total Sewer Line, Feet*	210,495
Total Sewer Line Cleaned (Ft) – Month	16,000
Total Sewer Line Cleaned (Ft) – Cleaning Cycle	137,695
Cleaning Cycle Period (Mos.) [Start date: 8/9/21]	11
Total Sewer Line Cleaned, %	65%
The Oaks at Trabuco – Pumping Frequency for the Month	13
O’Neill Park Sewer System Status	Ok
O’Neill Park Sewer System Repairs	None
SSMP Quarterly Report – <i>Next Quarterly Report</i>	2Q 2022
SSMP Program Audit – <i>Next Audit Report**</i>	February 2023

**This amount includes the OC Parks-owned O’Neill Park sewer system the District is contracted to clean.*

***Periodic internal audits shall be conducted, at a minimum every two years, with reports kept on file. The audit shall focus on evaluating the effectiveness of the SSMP and TCWD’s compliance with the mandatory elements of TCWD’s SSMP:*

Monthly Recycled Water System Operations Summary

The Monthly Recycled Water System Operations Summary is attached for the Committee’s review. Any anomalies will be presented at the time of the Engineering/Operational Committee Meeting.

RECOMMENDED ACTION:

Committee to receive system status updates. No action required.

EXHIBITS

1. Monthly Recycled Water System Operations Summary
2. SSMP Quarterly Report

CONTACTS (staff responsible): PALUDI/PEREA/ULLOA

TRABUCO CANYON WATER DISTRICT | NON-DOMESTIC WATER SYSTEM SUMMARY - 2022

RECYCLED WATER SUPPLY															
	MAX	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	TOTAL	FIVE YEAR AVG
WWTP Reclaimed Water Production, AF	78.3	49.9	42.6	44.1	44.6	44.1								225.3	534.4
Reclaimed Reservoir Level, FT	1274.5	1,273.8	1,274.2	1,270.5	1,268.0	1,263.5								-	-
Reclaimed Reservoir Free Board, FT	25.5	0.7	0.3	4.0	6.5	4.5								-	-
Reclaimed Reservoir Storage, AF	145.5	138.6	140.5	122.8	108.9	84.8								-	-
Supplemental Domestic Water Added, AF	N/A	0.0	0.0	0.0	0.0	0.0								0.0	44.5

RECYCLED WATER SYSTEM DEMAND															
NON DOMESTIC WATER USER	ALLOC. AF	8% JAN	17% FEB	25% MAR	33% APR	42% MAY	50% JUN	58% JUL	67% AUG	75% SEP	83% OCT	92% NOV	100% DEC	TOTAL	ALLOC. %
Dahlia Court	8.2	0.2	0.2	0.2	0.2	0.2								0.9	10.6%
Dove Canyon Golf Course	106.7	5.8	13.3	21.1	26.3	34.9								101.4	95.1%
Dove Canyon Master Association	279.3	13.0	5.0	14.0	21.7	28.0								81.6	29.2%
Robinson Ranch	80.2	0.8	1.0	1.2	1.7	2.4								7.0	8.7%
Trabuco Highlands	159.7	1.2	2.3	5.0	6.9	9.8								25.2	15.8%
City of RSM	0.1	0.01	0.0	0.00	0.00	0.00								0.01	6.9%
Construction Water	N/A	0.0	0.0	0.0	0.0	0.0								0.0	N/A
Sakaida Nursery	1.1	0.0	0.0	0.0	0.0	0.0								0.0	0.0%
SMWD	N/A	0.0	0.0	0.0	0.0	0.0								0.0	N/A
TY Nursery	17.9	0.0	0.0	20.8	0.1	0.0								20.9	116.7%
TOTAL, AF	653.2	21.1	21.7	62.2	56.8	75.2								237.0	36.3%
PERCENTAGE OF NDW ALLOCATION/YEAR		3.2%	6.6%	16.1%	24.8%	36.3%									
TOTAL ANNUAL AVG. NDW AVAILABLE**	774.36														

URBAN RUNOFF CAPTURE AND REUSE															
DISTRICT FACILITY		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	FIVE YEAR AVG
Shadow Rock Detention Basin Production		0.01	0.01	0.03	0.01	0.01								0.07	14.2
Dove Tick Creek Production*	<i>Dry Season</i>	7.4	7.1	1.1	4.6	2.4								22.6	58.8
	TCWD Portion	7.4	7.1	1.1	2.3	1.2								19.1	-
	SMWD Portion	0.0	0.0	0.0	2.3	1.2								3.5	-
Dove Lake Water Pumped		0.0	0.0	0.0	0.0	0.0								0.0	185.8
Dove Lake Free Board, Ft		3.9	3.1	1.2	0.8	0.8								-	-
Dove Lake Storage, AF		161.0	165.0	176.3	177.3	177.3								-	-
Total Rainfall, In.		0.0	0.5	1.5	0.01	0.0								2.0	14.7

* SMWD share of Dove/Tick Pump Station Dry Season Water is 50% of production.

** Based on 5-Year Average Reclaimed Water Reservoir Base Supply & Recycled Water Production

TRABUCO CANYON WATER DISTRICT
Sewer System Management Plan (SSMP) Quarterly Report

Report Date: June 1, 2022
Report Period: Second Quarter 2022 - March to June 2022
Prepared By: Oscar Ulloa, Wastewater Operations Superintendent

District Sub-Section	Santiago/Portola Hills			Dove Canyon			Rancho Cielo/Walden			Robinson Ranch/Trabuco Highlands		
	Total Amount	Amount Completed	% Completed	Total Amount	Amount Completed	% Completed	Total Amount	Amount Completed	% Completed	Total Amount	Amount Completed	% Completed
Sewer Line Cleaned, Feet	44,625	44,625	100%	64,135	64,135	100%	29,865	29,895	100%	59,170	0	0%
Manholes, Inspected/Cleaned	205	205	100%	212	212	100%	124	124	100%	236	0	0%
Manholes Needing Repair	0	0	0%	0	0	0%	0	0	0%	0	0	0%
Wet Wells, Inspected/Cleaned	2	2	100%	3	3	100%	1	1	100%	2	2	100%
Lift Stations, Inspected/Maintained	2	2	100%	3	3	100%	1	1	100%	2	2	100%
Grease Interceptors Inspected	2	2	100%	2	2	100%	10	10	100%	n/a	n/a	n/a

Note: All Sewage Lift stations are inspected 3-4 times a week

Contract Services	O'Neill Park/OCFA		
	Total Amount	Amount Completed	% Completed
Sewer Line Cleaned, Feet	12,700	12,700	100%
Manholes, Inspected/Cleaned	95	95	100%
Manholes Needing Repair	0	0	0%
Wet Wells, Inspected/Cleaned	1	1	100%
Lift Stations, Inspected/Maintained	1	1	100%
Grease Interceptors Inspected	0	0	0%

**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | JULY 6, 2022**

OPERATIONAL MATTERS

ITEM 8: MAINTENANCE DEPARTMENT UPDATES

The following is a brief report of the wastewater system for **June 2022**.

Projects and Repairs

Maintenance staff performed and/or completed the following tasks and projects:

1. Attended an Ignition Software tour at the City of Orange.
2. Swapped out a failed air blower at the Wastewater Treatment Plant blower room.
3. Worked with Flo-Services at the Dimension Water Treatment Plant on the backwash sump pump.
4. Quarterly Basic Inspection Terminals (BIT) inspections were performed.
5. Heritage Lift Station emergency generator cooling system replaced (water pump, radiator, coolant, hoses).
6. Worked with the Sanitation Department on the Xylem rental pump for Dove Lake.
7. Went to the City of Laguna Beach for Cartograph Software Tour.
8. Performed preventative maintenance on the F650 dump truck.

RECOMMENDED ACTION:

Committee to receive system status updates. No action required.

EXHIBITS

None

CONTACTS (staff responsible): PALUDI/STROUD

**TRABUCO CANYON WATER DISTRICT
ENGINEERING/OPERATIONAL COMMITTEE MEETING | JULY 6, 2022**

REGULATORY AND OTHER MATTERS

ITEM 9: OTHER MATTERS/REPORTS

Other Matters/Reports from the General Manager and/or District staff may be provided at the time of the Engineering/Operational Committee Meeting.

RECOMMENDED ACTION:

Hear Other Matters/Reports that may have arisen after the posting of the agenda.

EXHIBITS

None

CONTACTS (staff responsible): PALUDI