Public Works Agency
Alameda County

COUNTY OF ALAMEDA
PUBLIC WORKS AGENCY

ADDENDUM No. 1

to

RFP/Q No. Castlewood 2023-1

for

OPERATION AND MAINTENANCE SERVICES OF SEWER AND WATER SYSTEMS IN THE ALAMEDA COUNTY SERVICE AREA (CSA) R-1967-1 CASTLEWOOD

This RFP/Q Addendum has been electronically issued to potential bidders via e-mail. E-mail addresses used are those in the County's Small Local Emerging Business (SLEB) Vendor Database or from other sources. If you have registered or are certified as a SLEB, please ensure that the complete and accurate e-mail address is noted and kept updated in the SLEB Vendor Database. This RFP/Q Addendum will also be posted on the GSA Contracting Opportunities website located at Alameda County Current Contracting Opportunities.

PLEASE NOTE THAT BID RESPONSES ARE NOW DUE ON JANUARY 5, 2024 BY 5:00 P.M.

County of Alameda, Public Works Agency
RFP/Q No. Castlewood 2023-1, Addendum No. 1

The following Section(s) has/have been modified or revised as shown below. Changes made to the original RFP/Q document are in **bold** print and highlighted, and deletions made have a ~~strike through~~.

Page 5 of the RFP/Q, Section I.D (SPECIFIC REQUIREMENTS/SCOPE), Item 1a(1), is revised as follows:

General Services for water and sewer systems: ~~Qualified staff shall be onsite a minimum of three days (6 hour minimum per day) per week to monitor, inspect, and maintain the system. The remaining 4 days per week the Contractor will be available for call-out as necessary~~. **Routine maintenance will be based on a weekly/monthly schedule pre-approved by the County, and paid on a time and materials basis**. In the event that the Contractor is not on-site when an emergency condition arises, the Contractor will respond or will engage services of one of the sub-contractors, listed in the Contractor's proposal, to respond to the emergency call-out.

ACPWA Responses to Questions Received

Q1: What are the maintenance records like for the system?

A1: The Contractor can use any format that it chooses for maintenance records so long as it complies with the requirements of the State Water Resources Control Board.

Q2: Do you have a detailed map of the water distribution system to review?

A2: Water distribution system and sanitary sewer collection system maps have been included in this addendum.

Q3: Are the generator rentals on an as needed basis or are they dedicated generators?

A3: The generator rentals are dedicated to the Vally Pump Station and Mid-Level Pump Station, respectively.

VENDOR BID LIST

OPERATION AND MAINTENANCE SERVICES OF SEWER AND WATER SYSTEMS IN THE ALAMEDA COUNTY SERVICE AREA (CSA) R-1967-1 CASTLEWOOD

This Vendor Bid List is being provided for informational purposes to assist bidders in making contact with other businesses as needed to develop local small and emerging business subcontracting relationships to meet the requirements of the Small Local Emerging Business (SLEB) Program.

This RFP/Q is being issued to all vendors on the Vendor Bid List; the following revised vendor bid list includes contact information for each vendor attendee at the Networking/Bidders Conferences.

Business Name	Contact Name	Contact Phone	Address	City	State	Email
Coleman Engineering	Christian Miranda	916-548-0001	1223 Pleasant Grove Blvd, Suite 100	Roseville	CA	christian@coleman-eng.com
Coleman Engineering	Michael Magee	530-249-8594	1223 Pleasant Grove Blvd, Suite 100	Roseville	CA	michael@coleman-eng.com
Rain for Rent	Garrett Johnson	925-250-5647	PO Box 2248	Bakersfield	CA	gjohnson@rainforrent.com
Rain for Rent	Riley Dyche	925-679-2803 x 4504	PO Box 2248	Bakersfield	CA	rdyche@rainforrent.com
99 North Construction & Plumbing	Denis Climov	415-650-6503	4651 Melody Drive	Concord	CA	climovdenis@icloud.com

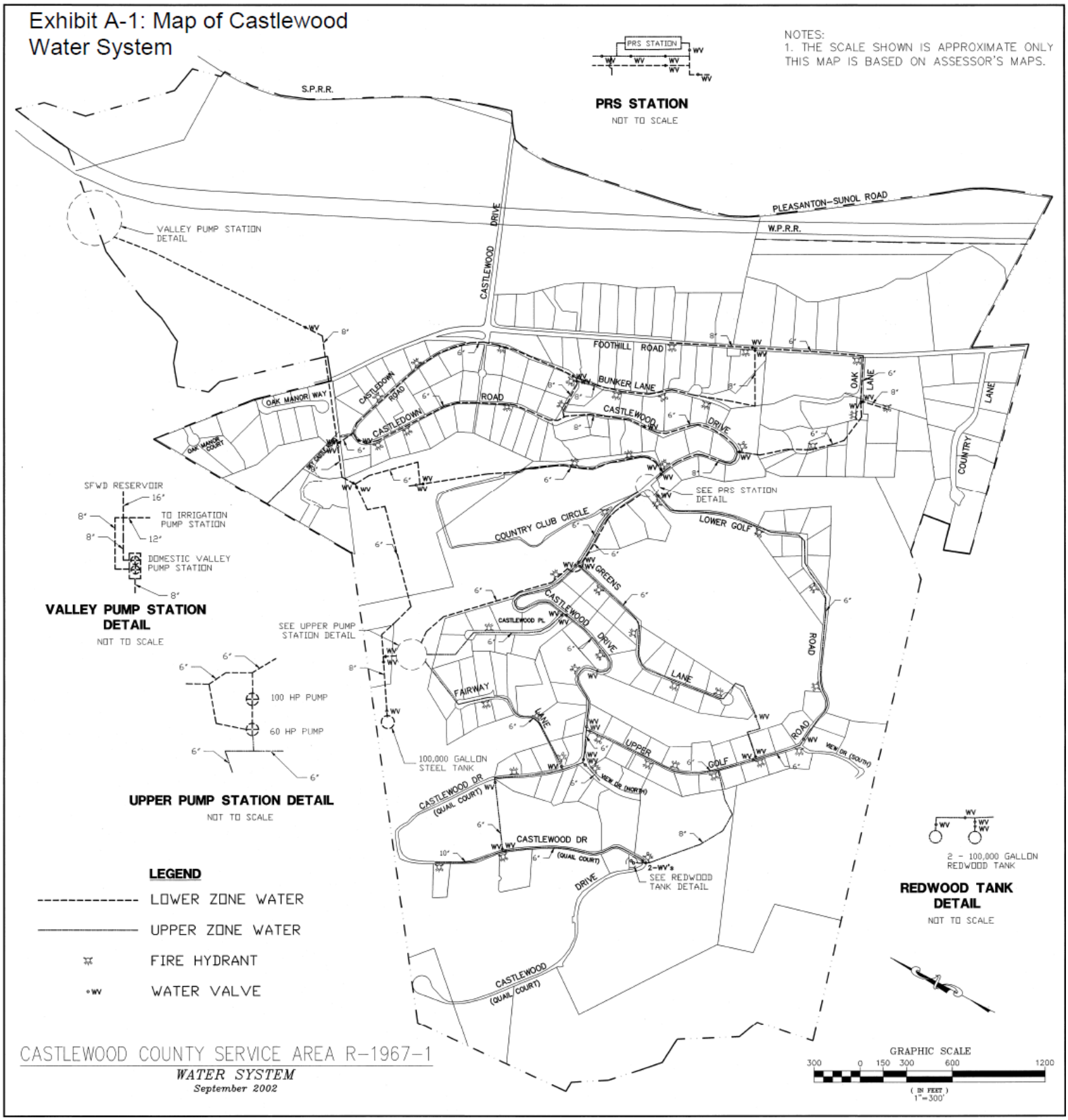
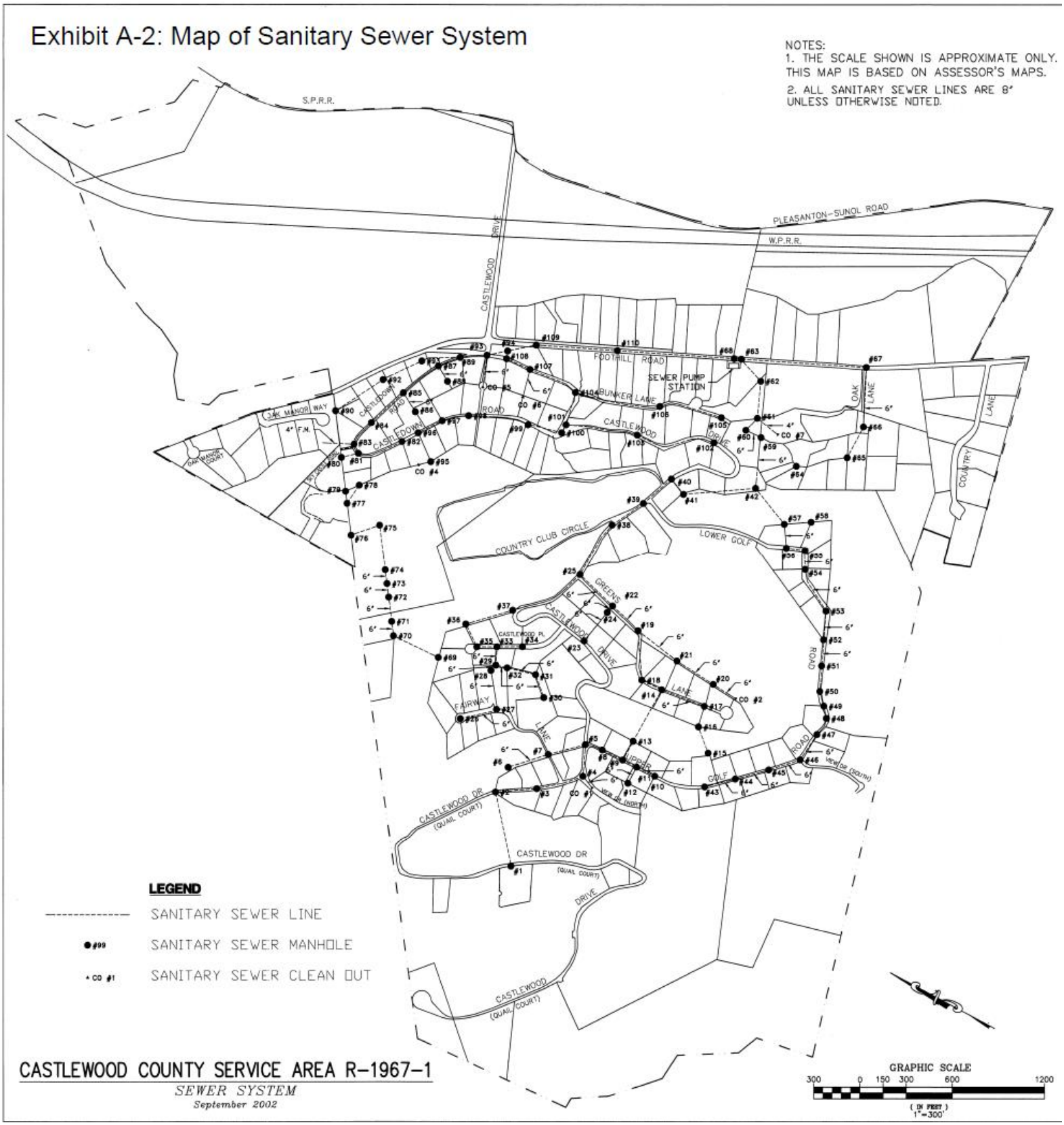


Exhibit A-1: Map of Castlewood Water System
NOTES:
1. THE SCALE SHOWN IS APPROXIMATE ONLY THIS MAP IS BASED ON ASSESSOR'S MAPS.
PRS STATION
NOT TO SCALE
S.P.R.R.
PLEASANTON-SUNOL ROAD
W.P.R.R.
VALLEY PUMP STATION DETAIL
CASTLEWOOD DRIVE
FOOTHILL ROAD
BUNKER LANE
OAK MANOR WAY
OAK MANOR COURT
CASTLEDOWN ROAD
OAK LANE
COUNTRY LANE
SFWD RESERVOIR
16"
TO IRRIGATION PUMP STATION
12"
DOMESTIC VALLEY PUMP STATION
8"
VALLEY PUMP STATION DETAIL
NOT TO SCALE
SEE PRS STATION DETAIL
COUNTRY CLUB CIRCLE
LOWER GOLF ROAD
CASTLEWOOD DRIVE
CASTLEWOOD PL
SEE UPPER PUMP STATION DETAIL
FAIRWAY LANE
UPPER GOLF ROAD
100 HP PUMP
60 HP PUMP
100,000 GALLON STEEL TANK
UPPER PUMP STATION DETAIL
NOT TO SCALE
CASTLEWOOD DR (QUAIL COURT)
VIEW DR (NORTH)
VIEW DR (SOUTH)
2-WV's SEE REDWOOD TANK DETAIL
2 - 100,000 GALLON REDWOOD TANK
REDWOOD TANK DETAIL
NOT TO SCALE
LEGEND
LOWER ZONE WATER
UPPER ZONE WATER
FIRE HYDRANT
WATER VALVE
CASTLEWOOD COUNTY SERVICE AREA R-1967-1
WATER SYSTEM
September 2002
GRAPHIC SCALE
300 0 150 300 600 1200
(IN FEET)
1"=300'

Exhibit A-2: Map of Sanitary Sewer System



CASTLEWOOD COUNTY SERVICE AREA R-1967-1
SEWER SYSTEM
September 2002

Description of Existing Water System

SECTION 2 DESCRIPTION OF EXISTING SYSTEM

2.1 BACKGROUND

Water supplies in the Pleasanton Area have involved a number of public and private entities since the late 1800's. In 1898, the Spring Valley Water Company (SVWC) constructed wells in the Bernal Well Field located in the City of Pleasanton and conveyed water to the City and County of San Francisco. In 1930, the City and County of San Francisco acquired water rights from the SVWC and in 1960 the City of Pleasanton acquired those rights from San Francisco. With Pleasanton's acquisition, San Francisco ceased its operation of wells in the area except for those servicing the Castlewood County Service Area (CSA). As part of a 1911 Water Rights agreement between Phoebe Hearst and the SVWC, and a 1929 Water Rights agreement between the Castlewood Country Club (Club) and the SVWC, water delivery continues today to the CSA.

2.2 SUPPLY SOURCE SYSTEM

Information Only. Out of Scope for this RFP (Castlewood 2023-1)

The CSA's sole source of water is from the Pleasanton Well Fields owned and operated by the San Francisco Public Utilities Commission (SFPUC). The supply system consists of two pump stations and a level control tank located along Valley Avenue, and a 400,000 gallon underground concrete reservoir (Valley Reservoir) located just off the Club's Valley Golf Course (Figure 2-1)

Figure 2-1 SFPUC's Pleasanton Well Field Overview

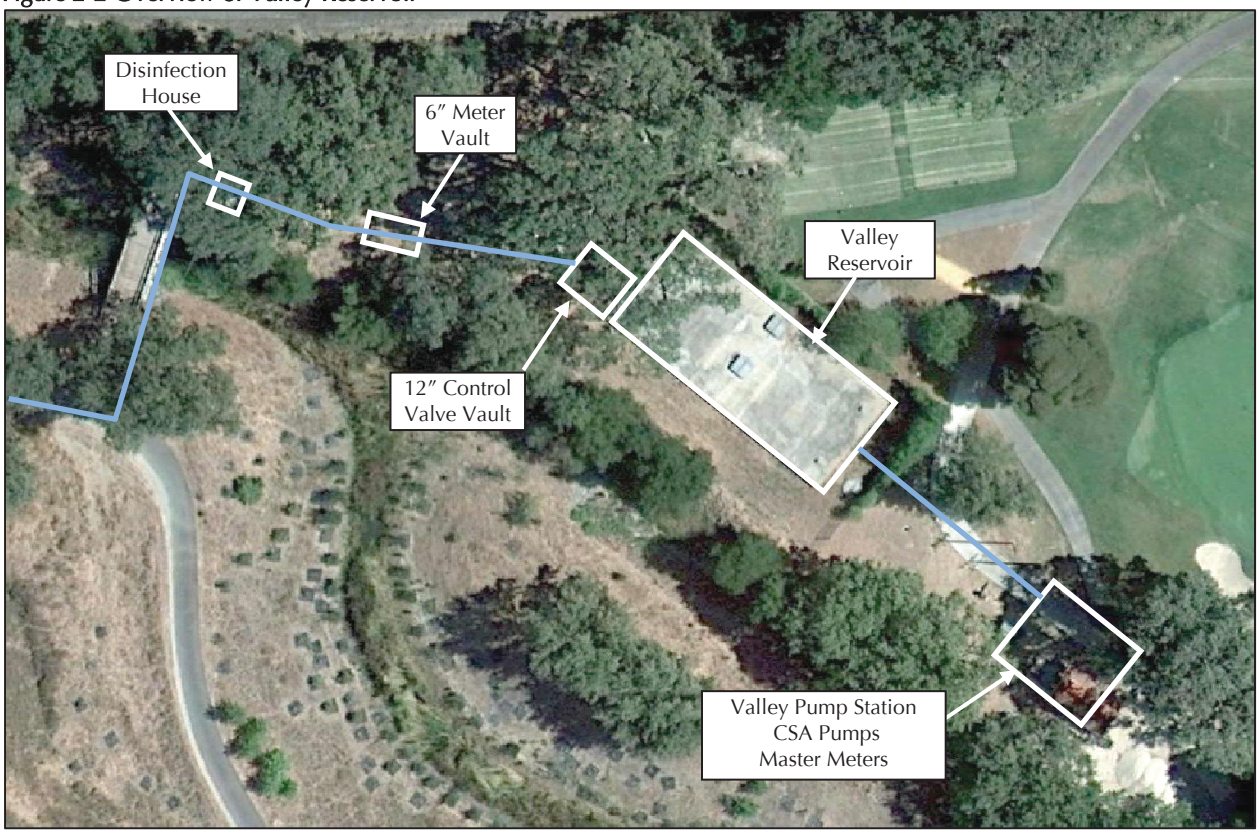
The well system consists of a north and south pump station located along Valley Avenue, each housing a 900 gpm submersible pump. The system normally operates automaically to maintain the storage in the Valley Reservoir which is gravity fed from the 3,000 gallon level control/head

tank located between the north and south pump stations. The pumps supply the control tank and the level controls within the control tank signal the pumps to operate.

Approximately 7,000 LF of 8 to 24 inch water main, located along Valley Avenue and parallel to Interstate I-680, convey water to the Valley Reservoir from the control tank. Approximately 150 LF before the Valley Reservoir, two hypochlorite feed pumps, rated at 0.4 gph, along with a 50 gallon hypochlorite tank, inject chlorine disinfectant into the water.

The Valley Reservoir (Figure 2-2) has a capacity of 400,000 gallons split into two equal-sized, 200,000 gallon reservoirs allowing maintenance of each tank while the other remains in operation. Level floats and a 12-inch reservoir inlet valve control the water levels within each tank. When there is a call for water, the inlet valve opens and water gravity flows from the control tank. When the level in the control tank drops, one of the wells is called to pump until the Valley Reservoir fills to a predetermined level, closing the inlet valve. Once the inlet valve closes, the control tank begins to fill, shutting down the well.

Figure 2-2 Overview of Valley Reservoir



The SFPUC meters CSA's usage by an old French-made 6-inch meter located approximately 100 LF upstream of the Valley Reservoir in an underground concrete vault. The SFPUC manually reads this meter generally during the third week of each month typically on the 19th or 20th. According to the SFPUC, meter reading is becoming more difficult in recent years because the indicator dial is small and some of the numbers on the dial have begun to fade, making precise reads sometimes difficult.

The location of the SFPUC meter is not ideal for accounting for CSA usage since it is located prior to the Valley Reservoir, before the end of the SFPUC system. SFPUC meter readings on most occasions do not match the sum of the CSA's master meters located just beyond the reservoir. Therefore, it is recommended to relocate the meter to the downstream side of the reservoir to locate it at the end of SFPUC's system. Relocation of the meter may eliminate any occurrence of unaccounted for losses between the SFPUC and CSA's master meters.

2.3 WATER SYSTEM INTERTIES

Note: The intertie to the Mid-Level Tank is believed to be removed since the assessment. Contractor to field verify.

An intertie is a physical connection between water sources operated by adjacent water agencies. A typical interconnection consists of valves and a meter placed in an underground vault or above ground housing. When the two systems operate at significantly different pressures, a pump or regulator is required at the interconnection to accommodate pressure differentials. A written agreement between agencies specifies the conditions of use, necessary notifications before and after use, construction and maintenance responsibilities, and operational procedures.

The Club has a connection with the City of Pleasanton along Foothill Blvd. to their 4-inch irrigation water main extending up to their irrigation tank. Along this main there is also a direct connection to the Mid-Level Tank controlled by an isolation valve and a combination back-pressure/solenoid control valve (Figure 2-3). The intent of the connection to the Mid-Level Tank was to allow the possibility of using the irrigation line as a domestic source in the event of an emergency. This is considered a "cross-connection" by the California Department of Public Health and is not recommended. In the event valves are turned or fail, stagnant irrigation water could backfeed into the domestic water supply. This connection should be removed.

Figure 2-3 Connection with Mid-Level Tank

As an alternative to the cross connection above, the CSA may explore a domestic to domestic connection with the City along the ridgeline above the Upper Level Tanks. The City has a 6-inch wrapped steel water main along the ridge with a 6-inch private water main extending down to a residence located approximately 1,100 LF uphill of the Upper Level Tanks. This would be an ideal location for an emergency interconnection allowing water to gravity feed to the entire CSA during an emergency. To account for pressure differences between the two systems a pressure reducing valve would also be required.

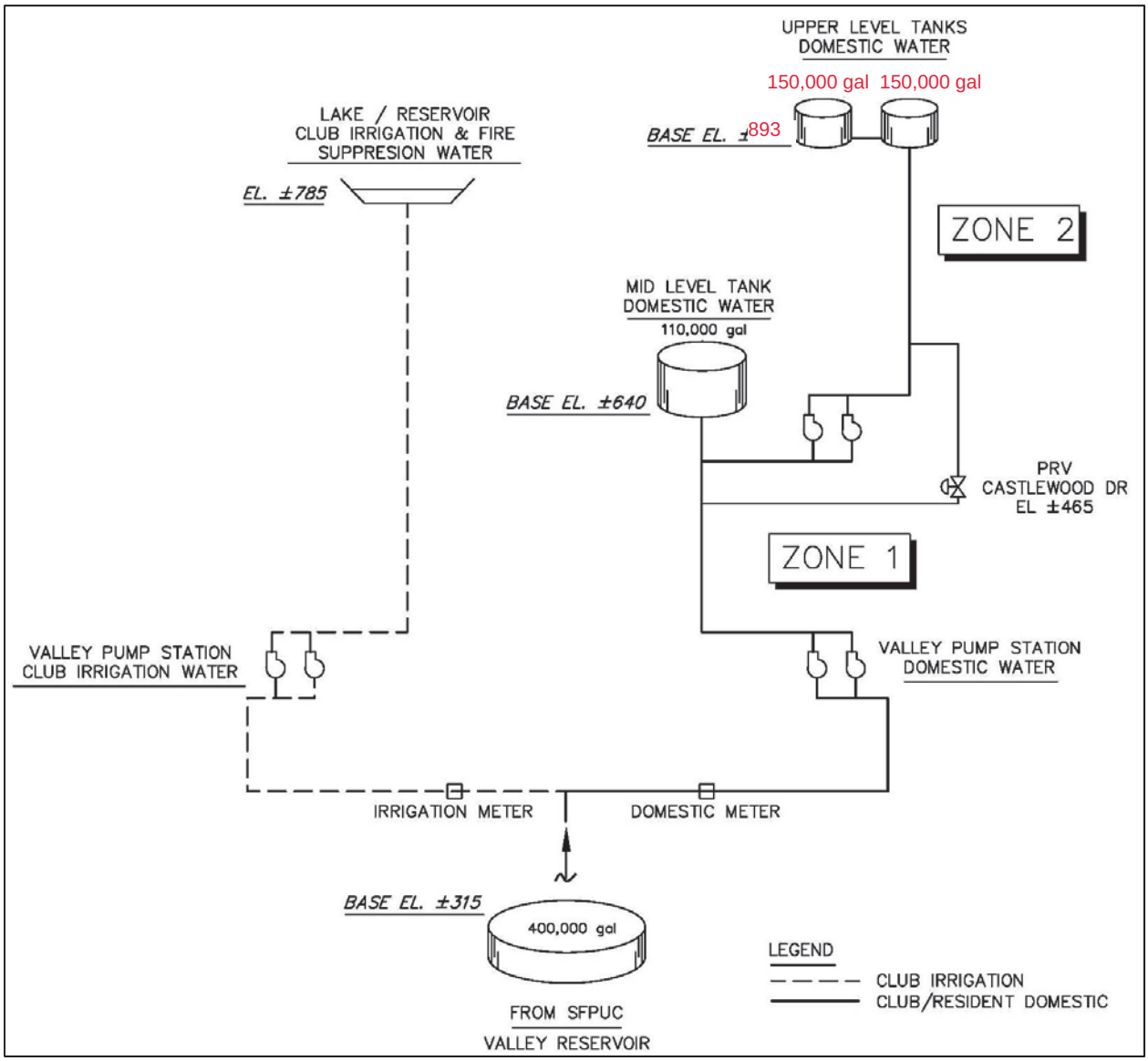
Further research and coordination with the City of Pleasanton and the owner of the private water main is recommended regarding an emergency interconnection. For this assessment, a capital improvement cost for the connection assuming all parties agree to the project was prepared.

2.4 EXISTING WATER SYSTEM

Water is delivered from SFPUC's Valley Reservoir to approximately 191 service connections throughout the CSA including Club facilities. Please refer to Figure 2-4 for a schematic of the water system. The CSA's domestic water system facilities consist of the following components: 3 storage tanks, 2 pump stations, and 1 pressure regulating valve.

Elevations in the water system range from approximately 315 ft at the Valley Pump Station to 900 ft at the Upper Level Tank site. Due to the topography, the water system is divided by elevation into two pressure zones to allow water to flow from their storage reservoirs to their respective service connection zones. The Valley Pump Station (EL. 315 ft) located just outside SFPUC's Valley Reservoir pumps water to the Mid-Level Tank in Zone 1 (Base EL. 640 ft) and from there water is pumped to the Upper Level Tanks in Zone 2 (Base EL. 890 ft). A pressure reducing valve (EL. 465 ft), located along Castlewood Drive near the entrance to the Club's Hillside Course, separates Zones 1 and 2.

Figure 2-4 CSA Water System Schematic



2.4.1 STORAGE FACILITIES

Note: The Upper Level Tanks have been upgraded. See updated information in Table 2-1.

The CSA has 3 storage tanks with a total storage capacity of 310,000 gallons. Following is a description of the CSA's water storage facilities and Table 2-1 provides a summary of storage tank information.

Table 2-1 Storage Tank Information

Tank	Type	Capacity (gal)	Height (ft)	Diameter (ft)	Base Elev.	Overflow Elev.
Zone 1						
Mid-Level	Steel	110,000	24	28	640	663
Zone 2						
Upper Level	Steel	150,000	24	36	893	914
Upper Level	Steel	150,000	24	36	893	914

Mid-Level Tank – The Mid-Level Tank (Figure 2-5) is a welded steel tank located above the Club's Hillside Course Clubhouse. The tank, at elevation 640 feet, has a capacity of 110,000 gallons, with an overflow elevation of 663 feet. This tank serves Zone 1, including residents and Club facilities, within elevations ranging from 300 feet to 465 feet. The operating range is typically 73% to 83% according to correspondence with Calwater. The water level in the tank controls the operation of the Valley Pump Station. No cathodic protection in the tank currently exists. Attached to the tank is a 4-inch pipe with control valve connected to the Club's irrigation system in the event of an emergency.

Figure 2-5 Mid-Level Tank

The tank site is located within a vegetated area providing seclusion from possible vandals. However, no security fencing or security gate exists to prevent vandal access. Access to the tank site is via a steep dirt road and access around the tank is minimal with a 5 foot concrete walkway and dirt beyond.

A cathodic protection system in the tank should be installed to improve the service life of the tank. Cathodic protection is a technique to control the corrosion of a metal surface by making it work as a cathode of an electrochemical cell. This is achieved by placing in contact with the metal to be protected another more easily corroded metal to act as the anode of the electrochemical cell. Cathodic protections systems are most commonly used to protect steel water mains and storage tanks. Cathodic protection can also be, in some cases, an effective method of preventing stress corrosion cracking.

Note: Cathodic protection might have been installed since the time of the assessment. County will verify prior to award of the contract.

Additional recommendations include the removal of the 4-inch connection to the irrigation system to eliminate the cross-connection, improving site conditions by paving the roadway up to the site as well as around the tank, expanding the clearance around the tank to allow for more accessibility, and security fencing. For additional information on the structural condition of the tanks please refer to Section 6 – Structural Analysis.

Note: Information regarding the Upper Level Tanks are outdated. Refer to Table 2-1 for updated info.

Upper Level Tanks - The two Upper Level Tanks (Figure 2-6) are redwood tanks located at the highest point of the CSA at elevation 890 feet. Each tank has a capacity of 100,000 gallons and an overflow elevation of 908 feet. These tanks serve Zone 2 including residents and Club facilities within elevations ranging from 465 feet to 850 feet. The operating range of Tank 1 is 71% to 84% and Tank 2 is 72% to 90% according to correspondence with Calwater. The water levels in the tanks control the operation of the Mid-Level Pump Station.

Figure 2-6 Upper Level Tank 1

Similar to the Mid-Level Tank, this site is located within a vegetated area providing seclusion from possible vandals however there is no security fencing. However, the site does have a gate to keep vehicles out. Access to and around the tanks is dirt and gravel and clearance around the tanks is minimal.

Paving the entrance to the site as well as around the tanks and installation of security fencing is recommended. In addition, the tanks are structurally deficient and need to be replaced. For additional information on the structural condition of the tanks please refer to Section 6 – Structural Analysis.

2.4.2 PUMP STATIONS

The following describes the CSA's water system pump stations. Please refer to Table 2-2 for information on pumps.

Table 2-2 Pump Station Summary

Pump Station	Pressure Zone	Capacity (gpm)	Power Source	Voltage
Valley	Zone 1	2 pumps @ 400 ea	Electrical	480V
Mid-Level	Zone 2	2 pumps @ 400 ea	Electrical	Unknown

Valley Pump Station – The Valley Pump Station was reconstructed in 1997 and is located outside the Valley Reservoir behind the Hole 7 green of the Club's Valley Course. The station contains two submersible "can" style vertical turbine pumps, rated at 400 gpm each (Figure 2-7). The station also has irrigation pumps for the Club which was not part of this assessment.

Figure 2-7 Valley Pump Station

Water is moved from the Valley Reservoir to Zone 1 by this pump station. When the water level in the Mid-Level Tank drops to a predetermined low level elevation, the existing Supervisory Control and Data Acquisition (SCADA) system signals the pump station to activate, thereby pumping water to the tank. When the level in the tank reaches the high level elevation, the pump station turns off.

This station currently does not have an emergency source of power such as a permanent stand-by emergency generator. However, there is an emergency power receptacle which can be used with a portable generator. In addition, no security fencing or enclosure building is present at this site.

The installation of a permanent stand-by generator controlled by an automatic transfer switch in the event of a power failure is recommended. In addition, to prevent access from vandals, it is suggested security fencing and an enclosure building be installed.

Mid-Level Pump Station - The Mid-Level Pump Station is located approximately 200 feet from the Club's maintenance yard below the Mid-Level Tank. It houses two submersible "can" style vertical turbine pumps each rated at 400 gpm.

Similar to the Valley Pump Station, the Mid-Level Pump Station is controlled by the Upper Level Tanks. This pump station pumps water to Zone 2. Water elevations within the Upper Level Tanks dictate when the pump station is active via SCADA communication. The station currently does not have an emergency source of power such as a permanent stand-by emergency generator. However, there is an emergency power receptacle which can be used with a portable generator.

The installation of a permanent stand-by generator controlled by an automatic transfer switch in the event of a power failure is recommended.

For additional information on the condition of the mechanical and electrical features of the pump stations, please refer to Section 7 – Mechanical Analysis and Section 8 –Electrical Analysis.

2.4.3 WATER MAINS

According to the County's Annual Reports, there is approximately 32,000 linear feet of 6-inch to 10-inch water main throughout the system comprised of both polyvinylchloride (PVC) and high density polyurethane (HDPE). Approximately 90% of the water mains were replaced in 1996-1997 as part of the system reconstruction. In referencing the construction record drawings, pipe sizes ranged from 6-8 inches and comprised only of PVC. PVC water mains can have longevity of approximately 100 years if designed and installed properly. It is recommended the CSA budget for water main replacement starting at 40 years in the event emergency repairs need to occur. The size of the water mains were analyzed using the hydraulic model and it was determined they were adequately sized. Please refer to Section 4 – Fire Flow Analysis.

Figure 2-8 Arroyo Crossing

One water main of concern is the 8-inch transmission water main which begins at the Valley Pump Station, transverses through the Valley Golf Course, crosses underneath the Arroyo Laguna, eventually crossing over Foothill Blvd. and up to the Mid-Level tank site. At the Arroyo crossing (Figure 2-8), the water main was installed underneath the existing concrete weir and over the years, the weir has been undermined by the Arroyo to the point where water is flowing underneath the weir (Figure 2-9). Because of this, it is believed the existing water main trench may be compromised therefore exposing the main.

Note: Arroyo water main and weir has been replaced since the assessment and is out of scope for this RFP (Castlewood 2023-1).

Due to the condition of the weir and the importance of this water main being active at all times, it is recommended to abandon the crossing underneath the weir and relocate it elsewhere. Approximately 20 feet south of the weir is a pedestrian bridge crossing where it is possible the water main could be installed along its side. A structural assessment of the bridge would be required to ensure it could withstand the additional loading of the water main.

Figure 2-9 Weir Undermining

Pipe sizes within the system should be verified. Pipe size can be determined by the number of turns it takes to open or close an in-line valve.

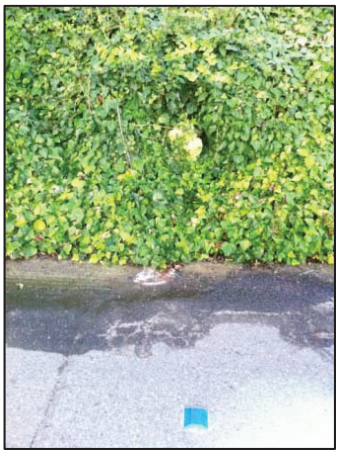
2.4.4 FIRE HYDRANTS

The distribution system has approximately 54 hydrants built to East Bay Municipal Utility District Standards (EBMUD) according to the Alameda County Fire Department (ACFD). The model is a Clow 950, wet-barrel hydrant with one 2-1/2″ and one 4-1/2″ pumper outlet (Figure 2-10). The spacing between hydrants is approximately 400 linear feet conforming to ACFD standards.

Figure 2-10 Typ. CSA Hydrant

Hydrants within the CSA have been struck or damaged in the past resulting in significant water loss according to correspondence with Calwater. Currently, the hydrants do not have bollard protection nor a break-off check valve. Due to the small size of the water system, water loss from a damaged hydrant could lead to service disruptions as a result of tank draining. As such, the installation of break-off check valves on all hydrants is recommended to prevent water loss in the event the hydrant is accidentally damaged. Bollard installation is also recommended as a first line of defense in hydrant protection.

Figure 2-11 Clearance Issue



During our field visits, several hydrants were observed to be inaccessible due to overgrowth of nearby vegetation (Figure 2-11). A minimum 3 feet of clearance free of vegetation is recommended around all fire hydrants so fire crews can easily maneuver around the hydrants. Therefore each hydrant should be cleared of any obstruction within 3 feet including vegetation, fencing, etc.

In addition to the above recommendations, the CSA may consider a hydrant replacement program to install hydrants containing two 2-1/2″ and one 4-1/2″ pump outlets to conform to neighboring water systems such as the City of Pleasanton while at the same time meeting ACFD Standards.

2.4.5 PRESSURE REDUCING VALVES

The water system has one 8-inch pressure regulating valve (PRV) located along Castlewood Drive near the entrance to the Club's Hillside Course in an underground concrete vault. This valve regulates the pressures between Zone 1 and Zone 2. Should the demand in Zone 1 increase substantially, such as the instance of a fire, the pressure will drop on the downstream side allowing the PRV to open and flow water from Zone 2 to Zone 1. In this case, the Upper Level Tanks would also supply water to Zone 1 in addition to the Mid-Level Tank.

Calwater indicated this PRV was replaced in 2009 as part of the Mid-Level Tank Cleaning Project. There is no need for replacement of the valve at this time per Calwater.

2.5 SYSTEM MAPS

Information Only. Out of Scope for this RFP (Castlewood 2023-1)

The existing water system maps for the CSA are record drawings from the 1996-1997 system reconstruction. Although fairly accurate in regards to general location of system facilities, improvements to the system, such as the reconstruction of the Mid-Level Pump Station and any additional improvements of repairs made since the reconstruction are not shown on the record drawings. Record drawings for any CSA system improvements, depending on the agency who constructed them, are with that respective agency. As such, no plans or maps exist truly indicating existing conditions accounting for all changes made to the system following the 1996-1997 reconstruction.

The creation of a water system map that is tied into a Global Information System (GIS) is recommended. This map would include information specifically related to the system including water main size, length, and type, location of all water valves, service connections, hydrants, blowoffs, air release valve, water quality testing locations, pressure reducing valves, location of tanks and pump stations, dates of construction, and property information such as property lines, addresses and easements.

2.6 RELIABILITY OF SFPUC WATER SUPPLY

Information Only. Out of Scope for this RFP (Castlewood 2023-1)

According to the SFPUC, system failures of the SFPUC system are usually related to water quality instrumentation, monitoring/adjusting the chlorine residual in the reservoir, and service to the pumps. The water supply does not have a backup system other than the 2 pumps which operate one at a time. The SFPUC upgraded the Valley Reservoir approximately 10-15 years ago (to the latest seismic codes at the time) and is expected to perform well after a seismic event. One or both of the pumps may fail after a seismic event leaving the CSA with no supply of water. For this reason, the CSA should explore the possibility of an emergency interconnection with the City of Pleasanton as previously mentioned.

2.7 RECOMMENDATIONS

Information Only. Out of Scope for this RFP (Castlewood 2023-1)

The following are project recommendations as highlighted in this section:

- SFPUC Meter Relocation – Relocate the SFPUC meter, currently located 100 feet upstream of the Valley Reservoir, to downstream of the reservoir to locate it at the end of the SFPUC system. As in any water system, the end user meter is generally located at the property line or in the CSA's case somewhere between the downstream side of the reservoir and before

the Valley Pump Station. Further investigation and coordination with the SFPUC will be required to determine property limits and ultimate meter location.

- Emergency Interconnection – Construct an emergency interconnection with the City of Pleasanton along the ridge above the Upper Level Tanks. Interagency connections allow flow of water from one agency to the next in the event of an emergency. Remove the irrigation connection to the Mid-Level tank.

- Mid-Level Tank Site Improvements – Pave the existing access road and the area around the tank. Maximize clearance around tanks by moving the CMU back approximately 5 feet. Additional clearance provides more room for tank maintenance such as painting. Install security fencing and access gate. Refer to Section 6 for structural recommendations.

- Mid-Level Tank Cathodic Protection – Install a cathodic protection system in the Mid-Level Tank to prevent corrosion and increase tank service life.

- Upper Level Tank Site Improvements – Pave the existing access road and the area around the tank and install security fencing and access gate as part of the Redwood Tanks Replacement. Refer to Section 6 for structural recommendations.

- Valley Pump Station – Install security fencing and construct a building enclosure. Refer to Sections 7 and 8 for additional mechanical and electrical improvements.

- Mid-Level Pump Station – Install security fencing. Refer to Sections 7 and 8 for additional mechanical and electrical improvements.

- Fire Hydrants – Implement a hydrant replacement program including the installation of hydrants consisting of two 2-1/2″ outlets to conform with neighboring jurisdictions, install break-off check valves, bollard protection at vulnerable locations, and clearing of obstructions within 3 feet of each hydrant.

- System GIS Maps – Create a GIS map showing all features of the water system that can be updated upon any changes within the system.