# Appendix A

Draft Updated PMP Manual

Valley Water

# PIPELINE MAINTENANCE PROGRAM

## 2024 MANUAL UPDATE

**August 2024**

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# Santa Clara Valley Water District

# Pipeline Maintenance Program 2024 Manual Update


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## August 2024

Valley Water
Clean Water • Healthy Environment • Flood Protection

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## Revision History

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| 07-24-2024 | Barton Ching<br>Senior Engineer<br>**Asset Management Unit** | 08-01-24: Review with comments provided |

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**Acronyms/Abbreviations**

| | |
|---|---|
| AFO | acoustic fiber optic |
| ARV | air release valve |
| CEQA | California Environmental Quality Act |
| CDFW | California Department of Fish and Wildlife |
| NPDES | National Pollutant Discharge Elimination System managed by the State Water Resources Control Board (SWRCB) which includes the Notice-of-Intent, SWPPP, Drinking Water Discharge Permit |
| Federal | Federal includes NEPA, USFWS, NMFS, USACE |
| Y/N/P | Yes/No/Potentially |
| SCC | Santa Clara Conduit |
| PAC | Pacheco Conduit |
| PPP | Pacheco Pumping Plant |
| CPP | Coyote Pumping Plant |
| USBR | United States Bureau of Reclamation |
| SCRWA | South County Regional Wastewater Authority |
| PMP | Pipeline Maintenance Program |
| EIR | Environmental Impact Report |
| NEPA | National Environmental Policy Act |
| USFW | United States Fish and Wildlife Service |
| NMFS | National Marine Fisheries Service |
| USACE | United States Army Corps of Engineers |
| VW | Valley Water |
| ROW | Right of Way |
| DWR | Department of Water Resources |
| SBA | South Bay Aqueduct |
| VFD | Variable Frequency Drive |
| PLC | Programmable Logic Controller |
| CFRP | Carbon Fiber Reinforced Polymers |
| IRP2 | Infrastructure Reliability Plan, Phase 2 |

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# CHAPTER 1. INTRODUCTION

The Santa Clara Valley Water District (Valley Water) owns, operates, and maintains over 150 miles of raw, treated, and recycled water conveyance pipelines throughout Santa Clara County and within small portions of San Benito and Merced Counties (Figure 1.1). Multiple pipelines are owned under cooperative agreements and managed under joint powers authorities. Various management agreements (e.g., United States Bureau of Reclamation O&M Agreement for the San Felipe System, City of Sunnyvale Agreement for the O&M for the Wolfe Road Recycled Water Pipeline, and the South County Regional Wastewater Authority (SCRWA) Agreement for O&M on the South County Recycled Water Pipeline System) are in place, giving Valley Water the authority to operate and maintain these pipelines.

Valley Water first approved a Pipeline Maintenance Program (PMP or Program) in 2007, recognizing the need to centralize and document the inspections and preventative and corrective maintenance procedures that their engineering and maintenance staff had historically implemented on the raw, treated, and recycled water pipeline facilities (that are covered under the Program) on a routine basis. The PMP is primarily a process and procedural manual that provides long-term guidance for the implementation of pipeline inspection and maintenance work and has been successfully implemented over the last 15 years; however, maintenance processes, tracking systems, and the regulatory and physical environment have changed over this timeframe.

Valley Water has determined that an update to the PMP would allow for capturing these changes and expanding the program to include the 10-Year Pipeline Maintenance Program and align it with other facility maintenance activities, which would increase the utility and effectiveness of the PMP. The 2024 PMP is therefore the update to the 2007 PMP.

The 2024 PMP is divided into four (4) components:1) the PMP Manual, which documents the PMP processes and procedures; 2) the PMP Environmental Impact Report (EIR), which provides coverage under the California Enviornmental Quality Act (CEQA) (PMP EIR); 3) the Permitting documentation; and 4) the pending NEPA documentation to be completed through Reclamation. This division allows the PMP Manual to link with VW's current approved organizational structures, process and procedure changes in the various units, support service request systems being implemented by various units, etc., without requiring ongoing update to environmental coverage when minor adminsitrative changes occur.

## 1.1 PROGRAM VISION, GOALS, AND OBJECTIVES

### 1.1.1 Program Vision and Purpose

The vision for the PMP is to define a continual process within a 10-year cycle and program to manage, maintain, inspect and rehabilitate Valley Water's pipeline conveyance systems indefinitely to achieve Valley Water's policies to provide a reliable, safe, and affordable water supply in accordance with all requirements.

The purpose of the Program is to identify the range of pipeline maintenance activities that guide the operations and maintenance (O&M) of pipelines and appurtenances to maintain the structural and functional integrity of the conveyance facilities. The Program will integrate the procedures for inspection and rehabilitation and O&M with the appropriate permitting and environmental review processes to ensure the inspection and rehabilitation and O&M is conducted under the appropriate requirements.

### 1.1.2 Program Goals and Objectives

The overall Program goal is to establish a set of procedures and processes to identify capital work (inspection and rehabilitation), maintenance work (repair and replacement), asset management by coordinating the work between Operations and Maintenance Units, Water Utility Capital Unit, as well as the support units whose services may be required. The following goals are defined for each of the areas:

1. Operation and Maintenance Goals –
    a. Inspect, assess, and maintain Valley Water's conveyance systems
    b. Address minor maintenance-related issues
    c. Conduct engineering studies and analyses to improve maintainence and operations of Valley Water's conveyance system
    d. Plan, provide, and standardize operational logistics to facilitate shutdowns to conduct maintenance safely

2. Capital Goals –
    a. Address major maintenance-related issues that require a general contractor
    b. Deliver projects that are associated with the PMP *(e.g. ROW projects, additional appurtenances)*
    c. Manage and monitor the finances of the program

3. Asset Management Goals –
    a. Manage and document all maintenance activities
    b. Program inspection and rehabilitation schedules for pipeline assets *based on expected service life and condition assessments*
    c. Identify and initiate projects associated with the PMP

4. Support Services Goals –
    a. Provide services to support the capital and maintenance activities defined in the PMP.

The objectives of the Program are to:

1. Define standard practices and procedures for maintenance activities associated with Valley Water's conveyance systems.
2. Enhance operational flexibility and adaptive management opportunities for evaluating and improving the maintenance activities defined in the PMP through learned experiences and successive planning over time.
3. Streamline the environmental documentation and local, State, and federal permit processing where required to facilitate efficient and timely maintenance and repair of the pipeline system.

## 1.2 PROGRAM OVERVIEW

### 1.2.1 Program Area and Project Locations

The area covered by the PMP encompasses all of Valley Water's raw, treated, and recycled water conveyance pipeline systems and related facilities and appurtenances in Santa Clara County and limited portions of San Benito and Merced counties (Figure 1.1). Conveyance system components are within Valley Water fee-title properties, ROWs, or public utility easements, except for the Santa Clara Conduit and the Pacheco Conduit, which are on property easements that are owned by the U.S. Bureau of Reclamation (Reclamation). The

PMP area also includes streams, fields, storm drains, and channels where releases of pipeline water can occur.

**Raw Water System [94.1 miles]**

Valley Water's raw water system transfers raw water from Department of Water Resources' (DWR) South Bay Aqueduct (SBA) and Reclamation's Central Valley Project's San Felipe System to Valley Water's three treatment plants and percolation system spread across the county. Raw water flows from the SBA and travels through the SBA to Penitencia Water Treatment Plant and through Central Pipeline. From Central Pipeline, water flows into the Vasona Pump Station and transfers water through Rinconada Force Main to Rinconada Water Treatment Plant, through the Stevens Creek Pipeline to Stevens Creek, and Almaden Valley Pipeline to Santa Teresa Water Treatment Plant via the Santa Teresa Force Main.

Raw water coming from Reclamation begins at the San Luis Reservoir, goes through the Pacheco Tunnel Reach 1, and gets pumped by the Pacheco Pumping Plant to the Pacheco Regulating Tank. From the Pacheco Regulating Tank, the raw water flows through the Pacheco Tunnel Reach 2 and Pacheco Conduit which tees at the Bifurcation Structure that sends water to Hollister Conduit to San Benito County Water District or Santa Clara Conduit to Valley Water. Santa Clara Conduit transfers water into the County and flows to the Coyote Pumping Plant. From the Coyote Pumping Plant, the water can continue into Cross Valley Pipeline or get pumped into Anderson Reservoir. From Cross Valley Pipeline, the water flows across Coyote Valley and eventually connects to Calero Bypass where water can be discharged into Calero Reservoir or bypass the reservoir to Almaden Valley Pipeline. Almaden Valley Pipeline flows water from Calero Bypass and Calero Reservoir to either Santa Teresa Water Treatment via the Santa Teresa Force Main or to Vasona Pump Station where water can flow to Rinconada Water Treatment Plant via the Rinconada Force Main and to Penitencia Water Treatment Plant from Central Pipeline via the Penitencia Force Main.

**Treated Water System [33.5 miles]**

Valley Water's treated water system has West and East systems that provide treated water to retailers. Treated water pipelines convey chlorinated post-process water from treatment facilities to retailers, municipalities, other agencies, and end-users at turnouts. Figure 1.1 shows the Program-covered pipeline system locations and lists all pipelines covered by the Program.

The western system starts at the Rinconada Water Treatment Plant and delivers treated water through the West Pipeline. The West Pipeline has three distributaries that branch off the West Pipeline: Santa Clara Distributary, Sunnyvale Distributary, and Mountain View Distributary. The Santa Clara Distributary branches off with another distributary called Campbell Distributary.

The western system serves the western part of the county which includes west San Jose, Santa Clara, Campbell, Sunnyvale, Mountain View, and other cities that California Water Services and San Jose Water Company serves.

The eastern system has two treatment plants: Penitencia Water Treatment Plant and the Santa Teresa Water Treatment Plant. The Penitencia Water Treatment Plant delivers treated water via the Penitencia Delivery Main through the East/Evergreen Pipeline that serves East San Jose and eventually connects to Snell Pipeline, then Santa Teresa Tunnel. Santa Teresa Water Treatment Plant also serves the eastern system via Santa Teresa Tunnel, Snell, and East/Evergreen Pipeline. The East Pipeline (EPL) has a parallel pipeline called the Parallel East Pipeline that provides operational redundancy. EPL serves the eastern part of the county which includes East San Jose. Water retailers within the service area are San Jose Water Company, San Jose Municipal Water, and Great Oaks Water Company. The eastern system also delivers treated water to the Milpitas Pipeline that serves North San Jose and Milpitas. There is a San Francisco Public Utilities Commission (SFPUC) intertie to SFPUC's Hetch-Hetchy Pipeline to provide inter-agency water delivery support and coordination when needed.

**Recycled Water System [10.8 miles]**

Valley Water also manages recycled water in partnership with the South County Regional Wastewater Authority (SCRWA), the City of Gilroy, and the City of Morgan Hill for the South County Recycled Water Pipeline system, and with the City of Sunnyvale for the Wolfe Road Recycled Water Pipeline. Non-potable recycled water from Valley Water's Silicon Valley Advanced Water Purification Center, the South County Recycled Wastewater Authority's wastewater treatment facility, and the City of Sunnyvale's Water Pollution Control Plant is transferred to non-potable water users for irrigation and other non-potable water uses.

## 1.3 PROGRAM FACILITIES

### 1.3.1 Pipelines Covered Under the PMP

The pipelines, and the facilities and components of the pipelines covered under the Program are identified in this section.

Table 1 lists the pipelines covered under the PMP, the type of water, the source of water, the year installed, and the diameter and length of each pipeline. Source column includes both the primary source of the water and the feeder pipeline.

**Table 1. Pipelines in Valley Water's Conveyance System**

| No. | Pipeline | Treated, Raw, Recycled | Source | Destination | Date Installed | Diameter (inches) | Length (miles) |
|---|---|---|---|---|---|---|---|
| 1 | Alamitos Pipeline | Raw | Los Capitancillos Percolation Pond (water from Almaden Valley Pipeline) | Alamitos Percolation Pond | 1964 | 24 | 0.2 |
| 2 | Almaden Valley Pipeline | Raw | San Luis Reservoir<br>South Bay Aqueduct<br>Calero Reservoir<br>Calero Pipeline | Santa Teresa Force Main, Vasona Pump Station<br>Turnouts: Alamitos Creek Turnout, Guadalupe Creek Turnout, Kooser Turnout, Ross Turnout | 1966 and 1982 | 72 to 78 | 12.3 |
| 3 | Anderson Force Main | Raw | Anderson Reservoir | Coyote Pumping Plant and Cross Valley Pipeline | 1984 | 54 | 0.8 |
| 4 | Bay View Golf Club Turnout | Raw | South Bay Aqueduct | Bayview Golf course | 1965 | 6 | 0.1 |
| 5 | Calero Pipeline | Raw | San Luis Reservoir<br>Cross Valley Pipeline | Almaden Valley Pipeline Turnouts: Calero Reservoir, Calero Creek | 1990 | 78 | 2.6 |
| 6 | Campbell Distributary | Treated | Rinconada Water Treatment Plant | San Jose Water Company via the West Pipeline and Santa Clara Distributary | 1967 | 20 | 2 |
| 7 | Central Pipeline | Raw | South Bay Aqueduct | Rinconada Water Treatment Plant<br>Turnouts: Los Gatos Creek, Page System, Kirk System, Coyote Blowoff, Guadalupe Line Valve Blowoff | 1965 | 66 | 13.1 |
| 8 | Church Avenue Percolation Pipeline | Raw | Llagas Creek | Church Avenue Percolation Ponds | 2000 | 24 to 36 | 0.1 |

| No. | Pipeline | Treated, Raw, Recycled | Primary Source | Destination | Date Installed | Diameter (inches) | Length (miles) |
|---|---|---|---|---|---|---|---|
| 9 | Coyote Discharge Line | Raw | Coyote Pumping Plant, Santa Clara Conduit | Coyote Creek | 1986 | 42 | 0.5 |
| 10 | Coyote-Madrone Half Road Pipeline | Raw | Anderson Reservoir and Santa Clara Conduit | To percolation pond for irrigation and groundwater recharge | 2019 | 30 | 1.2 |
| 11 | Cross Valley Pipeline | Raw | San Luis Reservoir<br>Santa Clara Conduit<br>Anderson Force Main & Reservoir | Calero Bypass, Cinnabar Hill Golf Course, Bailey Avenue Turnout | 1980 and 1985 | 78 | 7.9 |
| 12 | Cross Valley Pipeline Extension | Raw | Cross Valley Pipeline | Coyote Creek Downstream of Ogier Ponds | In Progress | 36 | 1.3 |
| 13 | East Evergreen Pipeline | Treated | Penitencia Water Treatment Plant | San Jose Municipal Water System and San Jose Water Co. via the Penitencia Delivery Main | 1974 | 33 to 48 | 6.4 |
| 14 | Ed Levin County Park Turnout | Raw | South Bay Aqueduct | Ed Levin County Park | 1966 | 10 | 0.01 |
| 15 | Guadalupe Percolation Pipeline | Raw | Alamitos Percolation Pond | Guadalupe Percolation Ponds | 1992 | 21 to 27 | 0.8 |
| 16 | Kooser Percolation Pipeline | Raw | Almaden Valley Pipeline | Kooser Ponds, Ross Creek | 1961 | 10 to 16 | 0.3 |
| 17 | Helmsley/Capitol Percolation Pipeline | Raw | Dr. Robert E. Gross (Penitencia) Groundwater Recharge Pond | City Park Percolation Pond, Helmsley Percolation Pond, Capitol Percolation Ponds | | 24 | 0.8 |
| 18 | Hetch-Hetchy Intertie | Treated | Milpitas Pipeline | Hetch-Hetchy Pipeline | 2001 | 42 | 0.2 |
| 19 | Los Capitancillos Percolation Pipeline | Raw | Almaden Valley Pipeline<br>San Luis Reservoir<br>Calero Reservoir<br>Anderson Reservoir | To percolation pond for irrigation and groundwater recharge | 2019 | 24 to 36 | 0.2 |

| No. | Pipeline | Treated, Raw, Recycled | Primary Source | Destination | Date Installed | Diameter (inches) | Length (miles) |
|---|---|---|---|---|---|---|---|
| 20 | Main Avenue Pipeline | Raw | Santa Clara Conduit | Main Avenue Percolation Ponds | 2019 | 24 to 36 | 1.4 |
| 21 | Milpitas Pipeline | Treated | Penitencia Water Treatment Plant | Milpitas Municipal Water Co. and San Jose Water Co. | 1993 | 42 | 4.6 |
| 22 | Mountain View Distributary | Treated | Rinconada Water Treatment Plant West Pipeline | California Water Services Co. and the Mountain View Municipal Water Co. via the West Pipeline | 1990 | 24 | 1.1 |
| 23 | Overfelt Garden Percolation System | Raw | Penitencia Creek, Mabury Percolation Pond South Bay Aqueduct | Overfelt Garden Percolation Ponds | | | 0.5 |
| 24 | Pacheco Conduit | Raw | San Luis Reservoir | Pacheco Bifurcation | 1987 | 120 | 7.9 |
| 25 | Pacheco Tunnel Reach 1&2 | Raw | San Luis Reservoir | Pacheco Sectionalizing Valve | 1981 | 114 | 5.4 |
| 26 | Page Distribution System | Raw | Central Pipeline South Bay Aqueduct | Page Percolation Ponds | 1966 | 24 | 0.5 |
| 27 | Parallel East Pipeline | Treated | Santa Teresa Water Treatment Plant Penitencia Water Treatment Plant Santa Teresa WTP | To supplement East Pipeline Deliveries to retailers | 1996 | 54 | 4.1 |
| 28 | Penitencia Delivery Main | Treated | Penitencia Water Treatment Plant | East Pipeline & Milpitas Pipeline | 1966/2018 | 60 | 0.5 |
| 29 | Penitencia Force Main | Raw | South Bay Aqueduct | South Bay Aqueduct terminal tank and the Penitencia Water Treatment Plant | 1974/2018 | 66 | 0.3 |
| 30 | Rinconada Force Main | Raw | San Luis Reservoir South Bay Aqueduct Almaden Valley Pipeline | Rinconada Water Treatment Plant, Stevens Creek Pipeline, Smith Creek Blowoff, Rinconada Country Club Turnout | 1966 | 72 | 1.4 |

| No. | Pipeline | Treated, Raw, Recycled | Primary Source | Destination | Date Installed | Diameter (inches) | Length (miles) |
|---|---|---|---|---|---|---|---|
| 31 | San Pedro Percolation Bypass Pipeline | Raw | Santa Clara Conduit | San Pedro Percolation Ponds | 2015 | 10 | 0.5 |
| 32 | San Pedro Percolation Pipeline | Raw | Santa Clara Conduit | San Pedro Percolation Ponds | 2010 | 24 | 0.05 |
| 33 | Santa Clara Conduit | Raw | San Luis Reservoir Pacheco Conduit | Coyote Pumping Plant Turnouts: San Pedro Percolation Ponds, Main Avenue Turnout, Half Road/Madrone Turnout | 1987 | 66 to 96 | 21.1 |
| 34 | Santa Clara Distributary | Treated | Rinconada WTP | Campbell Distributary, California Water Service Co., and City of Santa Clara via the West Pipeline | 1967 | 30 to 36 | 4.1 |
| 35 | Santa Clara Tunnel | Raw | San Luis Reservoir | Santa Clara Conduit | 1983 | 116 | 1 |
| 36 | Santa Teresa Force Main | Raw | Almaden Valley Pipeline | Santa Teresa Water Treatment Plant | 1989 | 66 | 0.3 |
| 37 | Santa Teresa Tunnel | Treated | Santa Teresa Water Treatment Plant | Snell Pipeline | 1988 | 72 | 0.34 |
| 38 | Snell Pipeline | Treated | Santa Teresa Water Treatment Plant | San Jose Municipal Water System and San Jose Water Co. | 1987 and 1988 | 60 to 72 | 9.7 |
| 39 | SBA Flowmeter/Dumbarton Quarry Turnout | Raw | South Bay Aqueduct | Dumbarton Quarry | 1963 | 6 | 0.01 |
| 40 | South County Recycled Water Pipeline | Recycled | South County Regional Wastewater Authority Treatment Plant | Recycled water customers | 1978, 2011, 2015, 2022, 2023 | 12 to 36 | 18.8 |
| 41 | Stevens Creek Pipeline | Raw | Rinconada Force Main<br>South Bay Aqueduct<br>San Luis Reservoir | Turnouts: San Thomas, Wildcat, Saratoga, Rodeo, Calabazas, Regnart, McClellan Ponds, Stevens Creek | 1953–1968 | 20 to 37 | 9.8 |
| 42 | Sunnyvale Distributary | Treated | Rinconada Water Treatment Plant | City of Sunnyvale via the West Pipeline | 1967 | 33 | 0.5 |
| 43 | Uvas-Llagas Transfer Pipeline | Raw | Uvas Dam | Llagas Creek for groundwater recharge | 1957 | 27 to 39 | 3.2 |

| No. | Pipeline | Treated, Raw, Recycled | Primary Source | Destination | Date Installed | Diameter (inches) | Length (miles) |
|---|---|---|---|---|---|---|---|
| 44 | West Pipeline | Treated | Rinconada Water Treatment Plant | Santa Clara, Sunnyvale, and Mountain View distributaries as well as the San Jose Water Co., California Water Co., and the City of Cupertino | 1967 | 30 to 84 | 9.1 |
| 45 | Wolfe Road Pipeline | Recycled | San Lucar Pumping and Storage Facility | Recycled Water Customers | 2016 | 24 | 2.6 |

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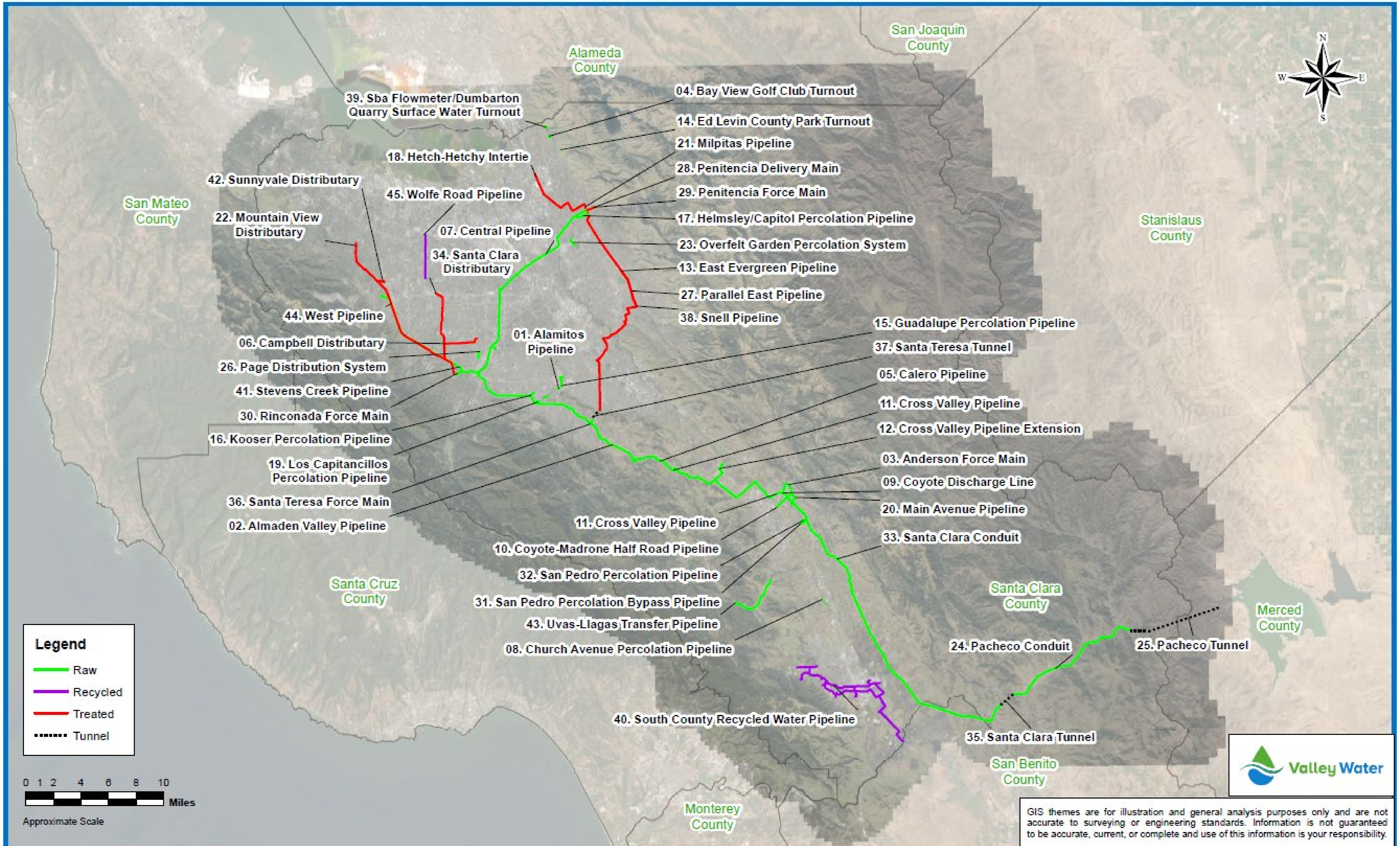
**Figure 1.1 Pipeline Map**



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## 1.4 PIPELINE FACILITIES AND COMPONENTS

This section describes the components and facilities associated with Valley Water's pipelines. Table 2 gives a description and the usual location of each pipeline component or facility, with a focus on those facilities that are typically inspected or maintained under the PMP.

**Overview**

The following facilities and components are associated with PMP covered activities and are therefore covered by the PMP.

**Conveyance Systems**

The conveyance systems components maintained under the PMP include the pipelines, appurtenances, and tunnels. All pipelines have similar design components. Valley Water pipelines vary in diameter, ranging from 6 inches to over 120 inches. Pipelines are generally located approximately 5 to 15 feet below ground surface (although the depth varies) and follow the contour of the land. Pipelines could cross under roads and highways, and natural features such as streams and rivers. Pipes are made of different materials ranging from steel to prestressed concrete cylinder pipe.

Valley Water operates and maintains four underground concrete-lined tunnels, Santa Clara Tunnel, Santa Teresa Tunnel and Pacheco Tunnel Reach 1 & 2, which convey raw untreated water from the San Luis Reservoir to wholesale customers. The Santa Clara Tunnel, at approximately 1 mile long, passes water from the Santa Clara Conduit, through the hillside, and back into the Santa Clara Conduit. The Pacheco Tunnel, at approximately 5.2 miles long, begins at San Luis Reservoir and ends at the Pacheco Sectionalizing Valve, delivering water to San Benito and Santa Clara counties through the Pacheco Conduit.

***Valves***

Many types of valves are located along pipeline segments to isolate pipeline water flow or to direct water flow: for alternative operations, for pipeline dewatering, for conducting maintenance of appurtenances, or at turnouts to supply water to retailers.

Air valves remove air accumulation along a pipeline segment or allow air to enter pipelines during dewatering. Table 2 lists the types of air valves.

***Vaults and Meters***

Pipeline components are generally located within vaults which can vary in size depending on the components housed within them. Ancillary components and/or structures other than the main pipeline piping are contained within vaults and include valves, electrical equipment, control systems, turnout piping, water quality testing facilities, and flowmeters to measure flow.

Permanent backup generators are connected to critical Valley Water facilities and are built on vaults or connected to vaults. Generators are tested and maintained on a regular basis to be ready for service in case of an unplanned outage.

***Systems for Water Releases and Storage***

The pipelines also include pump systems and fittings (e.g., pump out risers and blow offs) that are specifically designed for draining pipelines in preparation for maintenance activities. Pump out risers and blowoffs consists of the same components as water pipeline systems and include appurtenances, pipe, and structures. Blowoffs typically discharge into waterways and may include erosion protection around the discharge point (e.g., hardscape, rocks, gate)

Pump stations move water between different pressure zones within a water pipeline system. They are often associated with wells, water production facilities, and storage facilities. Pump systems may be housed within a vault or in an enclosed above ground facility (i.e., pump house). All pump types have multiple moving parts and wear over time due to various factors, including vibration and heat. Maintenance is necessary for the pump, as well as the associated pressure gauges, suction and discharge lines, motors, piping, sensing, and measuring elements, and electrical components such as variable frequency drives (VFDs) and electrical panels.

Valley Water owns and operates multiple water storage tank facilities, typically located within water treatment plants. Water storage tanks provide pipeline-system volume and pressure and are important for operational flexibility, including fire protection operations. They are inspected, cleaned, and repaired regularly for reliability.

Pressure surges, also commonly known as “water hammer,” can have a variety of causes and result in breaks and leaks in pipelines. Surge tanks and standpipes limit the effect of pressure surges and provide protection to the pipeline system. They can vary widely in size and be either vertical or horizontal. Smaller tanks may be enclosed within a facility while larger tanks may be stand-alone or installed on concrete pads.

### *Ancillary Facilities*

Ancillary facilities include components not directly related to the functions of the pipeline system but support the facility in other ways. Access roads, erosion control devices and structures, and vegetation are all considered ancillary facilities. In various locations, support structures such as small bridges or culvert type structures have aboveground pipelines attached to them. These structures do not support vehicle traffic and are utilized to maintain the hydraulic grade of the conveyance system.

### *Land Entitlement*

On rare occasions, Valley Water’s program pipelines or facilities originally were constructed without formalizing easements, R.O.W. or other land entitlement agreements with landowners. Regardless, as asset owner and operator, Valley water currently accesses and maintains such infrastructure on a routine basis, through informal coordination and agreements, and these maintenance activities would continue under the PMP. To formalize Valley Water’s access rights for future maintenance, Valley Water would obtain easements or other land entitlements for program facilities under the PMP.

**Table 2. Pipeline System Facilities**

| ID# | Type of pipeline system facility | Description | Location |
|---|---|---|---|
| **A.** | **Conveyance Systems** | | |
| 1 | Pipelines section | Individual pipe that conveys raw, treated, or recycled water as part of a larger distribution network. See Figure A1. | Typically buried underground, exposed in a vault, or mounted to a small structure |
| 2 | Tunnel | Large concrete-lined underground boring that transmits raw water. See Figure A2. | Rural Santa Clara County and San Jose |
| **B.** | **Valves** | | |
| 1 | Line/sectioning valve | Usually motor-operated and isolates the major conduits into segments of the main pipeline. See Figure B1. | Located along the main conveyance system pipeline |
| 2 | Turnout and modulation valves | Usually motor operated and branch off the major pipeline. See Figure B2. | Located at turnouts or customer stations |
| 3 | Bypass valve | Allows water to travel around a line valve so that pipeline downstream can be filled and pressure can be equalized. See Figure B3. | Located along the major pipeline |
| 4 | Discharge/blowoff valve | Valve used to discharge water from the pipeline into a dissipater or creek. See Figure B4. | Located at intermittent topographic low points in the pipelines, used to empty the pipeline for maintenance activities |
| 5 | Air and vacuum valve (AVV) | Valve with a large outlet equal in size to the valve's inlet. This valve allows great volumes of air to exhaust from or be admitted into a system as it is filled or drained. See Figure B5. | Located at each high point or change in grade in a pipeline |
| 6 | Air release valve (ARV) | Valves that remove air accumulation along a pipeline segment. See Figure B6. | ARVs are usually located along segments of the pipeline during long ascending or descending stretches or in the middle of horizontal pipeline section at intervals of 1500 to 2500 feet. |
| 7 | Combination Air and Vacuum Release Valve (CARV) | Valves with operating features of both ARVs and AVVs. See Figure B7. | CAVs are located at all high points of a system where it has been determined dual purpose AVV and ARV valves are needed to vent and protect a pipeline. |
| 8 | Guard valve | Manual valve that isolates a turnout or valve assembly. It is either buried or in a vault and usually a customer has a guard valve as well. See Figure B8. | Located at turnouts |
| 9 | Surge/pressure relief valve | Valve that reduces pressure surges along a pipeline. See Figure B9. | Upstream of pipeline discharges or anywhere along the pipeline with high pressures, based on a hydraulic analysis |

| ID# | Type of pipeline system facility | Description | Location |
|---|---|---|---|
| **C.** | **Vaults and Meters** | | |
| 1 | Concrete vault at grade | Belowground vault with ground-level aluminum or steel hatch that houses appurtenances and other equipment. See Figure C1. | Along all pipelines, usually on paved surfaces but could also be in fields |
| 2 | Raised concrete vault | Concrete vault with portion above ground and most of the vault below ground that houses appurtenances and other equipment. Accessed through an aluminum or steel hatch door. See Figure C2. | Along all pipelines, usually in fields or non-paved surfaces |
| 3 | Manhole | Vault with a round cast iron cover that houses appurtenances and other equipment. See Figure C3. | Most often located in streets |
| 4 | Block house | Masonry or concrete block structure above ground, can have a belowground component. See Figure C4. | Along several pipelines, usually in fields or non-paved surfaces |
| 5 | Christy box | A two-foot by one-foot (or larger) die-cast concrete structure installed at grade; houses air release valves. See Figure C5. | Usually located in backyards, sidewalks, and sometimes on side streets |
| 6 | Flow Meter | Measures flow rates. See Figure C6. | Located in (or adjacent to) turnout vaults |
| **D.** | **Electrical Equipment** | | |
| 1 | Corrosion control test stations | Generally, two electrical leads in a small enclosure where technicians measure electrical potentials impressed on the pipe. Panelboards may be in large vaults and pump stations. See Figure D1. | Usually located in or directly adjacent to the vaults, but not always. Santa Clara Conduit and Pacheco Conduit have a large number of test sites (~177), almost none of which are located in or adjacent to vaults. |
| 2 | Electrical generator | Small engine-driven (diesel) generator installed at several critical turnout and isolation valve vaults. The generators are secured by fences (sides and top) and are within the fenced-in grounds of the facility See Figure D2. | Guadalupe Line Valve, bifurcation structures along the Santa Clara Conduit, Piedmont Valve Yard, Norwood Turnout (East Pipeline), Aborn Turnout (East Pipeline), Calero Modulating Valve Vault |
| 3 | Electrical rectifier | Electrical equipment used to balance impressed current of the cathodic protection system. See Figure D3. | Usually located inside larger turnout and line valve vaults; commonly installed at grade at vaults |
| 4 | Remote Terminal Unit (RTU) | RTUs are the collection point for the field devices, providing information to the Remote-Control Center. This may include pipeline instrumentation such as flow, pressure, temperature, tank levels and other information such as pump operating/stopped, valve open/closed, etc. Analog data such as pressure, temperature, density, and flow must be digitized for ease of transmission to the Remote-Control Center, which is accomplished by the RTU. The data from the RTU is transmitted to the Remote-Control Center on a pre-determined frequency. See Figure D4. | Located in vaults |

| ID# | Type of pipeline system facility | Description | Location |
|---|---|---|---|
| **E.** | **Systems for water discharge and storage** | | |
| 1 | Pump-out riser | Discharge structure that is used to pump out additional water at intermediate locations such as at localized dips under roadways. See Figure E1. | Located along pipelines and usually near a watercourse, ditch, or storm drain |
| 2 | Sump pump | Small centrifugal pump used to maintain the vaults in a dry condition. See Figure E2. | Located in turnout and line valve vaults (raw and treated water systems) with electrical and SCADA equipment |
| 3 | Pump station | Provides pressure to move water throughout the distribution system. See Figure E3. | Located at water treatment plants and along pipeline sections |
| 4 | Storage tank | Provides emergency water supply and pressure; provides additional volume to meet peak demands. See Figure E4. | Aboveground and located in various areas of the county |
| 5 | Surge tank & Standpipe | Neutralizes varying water pressures within the pipeline system. See Figure E5. | Located along pipelines, typically near pumps |
| 6 | Energy dissipater | Large concrete box. Water fills into the case and then overflows into the surrounding body of water, reducing the force at which water is released. Water release into the energy dissipater is controlled by a blow-off valve. See Figure E6. | Located along some discharge points |
| **F.** | **Ancillary Facilities** | | |
| 1 | Vegetation | Natural or manmade grasses, shrubs, and trees. | Typically located near or around facilities |
| 2 | Access road and gate | Paved or unpaved road to access Valley Water facilities. Gates are used secure facilities. See Figure F2. | Located to access pipeline facilities, where available |
| 3 | Bank stabilization, erosion control, and energy dissipation devices | Permanent riprap, made from concrete or rock or other materials, that is placed along a bank to control erosion during discharges. See Figure F3. | Located along some discharge points |
| 4 | Discharge Outlet | Existing discharge outlet used to dewater the pipeline. See Figure F4. | Various facilities |

**Figure 1.2 Pipeline System Facilities Figures**

Figure A1 – Pipeline Section

Figure A2 – Pacheco Tunnel (Access)

Figure B1 – Line Valve

Figure B2 – Turnout and Modulation Valves

Figure B3 – Bypass Valve

Figure B4 – Discharge/Blowoff Valve

| | | |
|---|---|---|
|  Figure B5 – Air and Vacuum Valve |  Figure B6 – Air Release Valve (ARV) |  Figure B7 – Combination Air Release Valve (CARV) |
|  Figure B8 – Guard Valve |  Figure B9 – Surge/Pressure Relief Valve |  Figure C1 – Concrete Vault at Grade |

Figure C2 – Raised Concrete Vault

Figure C3 - Manhole

Figure C4 – Block House

Figure C5 – Christy Box

Figure C6 – Flow Meter

Figure D1 – Corrosion Control Test Station


Figure D2 – Electric Generator


Figure D3 – Electric Rectifier

Figure D4 – Remote Terminal Unit


Figure E1 – Pump-out Riser

Figure E2 – Sump Pump

Figure E3 – Pump Station

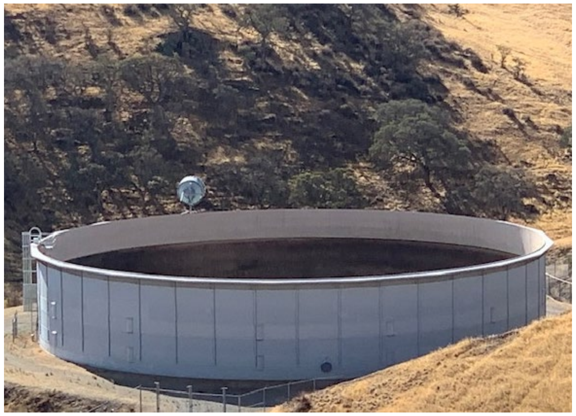

Figure E4 – Storage Tank

Figure E5 – Surge Tank

Figure E6 – Energy Dissipater

Figure F2 – Access Road & Gate

Figure F3 – Bank Stabilization and Erosion Control with visqueen BMP placed on top for dewatering.

Figure F4 – Discharge Outlet

# CHAPTER 2. ACTIONS AND ACTIVITIES

## 2.1 INTRODUCTIONThis chapter identifies the following:

- The activities necessary to inspect and maintain the pipelines
- The tasks needed to implement the activities

## 2.2 PROGRAM ACTIVITIES

### *Applicability and Use of the PMP*

The PMP guides the implementation of pipeline inspections and corrective and preventative maintenance activities that improve Valley Water O&M. Specific measures, protocols, and reporting requirements are identified in the PMP to ensure that pipeline inspection and maintenance activities are implemented in an efficient and environmentally sensitive manner.

The PMP is an ongoing Valley Water program. Program activities are based on successful historical pipeline inspection and maintenance activities (Appendix C). All forms of maintenance show a consistent pattern. Actual pipeline maintenance activities vary from year to year. Some future maintenance activities may be within Valley Water's jurisdiction and be consistent with the description of work and impacts evaluated for the Program overall while not specifically included in Valley Water's projection of work areas. Maintenance at such sites is still included and covered in the PMP EIR if the maintenance does not result in significant environmental effects substantially different from those evaluated for the Program as a whole.

If routine maintenance practices are substantially changed at any time, the Program and the Program's environmental documentation will be reviewed and may be updated as needed.

### *Pipeline System O&M Activities Covered Under the PMP*

Activities are identified to encompass all routine inspection and maintenance work. Two categories of maintenance activities—inspection activities and facility maintenance activities—are necessary to maintain proper pipeline facility and appurtenance function. Sub-activities that fall within these categories are as follows:

- Inspection Activities
  - External inspections
  - Internal inspections
- Facility Maintenance Activities
  - Buried and exposed pipeline component maintenance, including pipeline sections, valves, and fittings
  - Tunnel maintenance
  - Manhole, meter, vault, and related appurtenance maintenance
  - System instrumentation, controls, and monitoring
  - Backup generator maintenance
  - Pump station and facility maintenance
  - Storage tank and facility maintenance
  - Surge tank & Standpipe maintenance
  - Access road and support structure maintenance
  - Bank stabilization, erosion control, and energy dissipation device maintenance
  - Vegetation management

Each of these inspection or facility maintenance related activities comprises multiple tasks (i.e., the individual steps in completing the activity). This chapter includes a complete description of the tasks that are necessary to complete the above-listed PMP activities.

## 2.3 TYPES OF INSPECTION AND MAINTENANCE ACTIVITIES COVERED UNDER THE PMP

The PMP is designed to cover all the scenarios of inspection and maintenance in a methodical way to streamline the environmental review for the program. Therefore, the PMP is divided into the following seven activity types as described in **Table 3.**

**Table 3. Types of Inspection and Maintenance Activities**

| Activity Type | Activity Type Descriptions |
|---|---|
| 1 | Repairing or replacing pipe sections |
| 2 | Repairing, replacing, or installing appurtenances |
| 3 | Repairing, replacing, or installing instruments, monitoring systems, corrosion protection systems, and electrical systems |
| 4 | Repairing, replacing, or installing vaults and misc. appurtenances |
| 5 | Repairing, stabilizing, or reconstructing access to pipeline structures and appurtenances |
| 6 | Tasks required to facilitate maintenance |
| 7 | Inspections |

### 2.3.1 Inspections

Inspections can be either external or internal. External inspections are on the surface or outside of a pipeline or facility, and internal inspections are inside a pipeline or other facility. Inspections are needed to ensure the operability of pipelines or their associated facilities and, in many cases, to determine what type of maintenance may be needed based on conditions observed during the inspection.

### 2.3.2 Maintenance – Preventative, Routine, and Corrective

The majority of PMP activities fall under maintenance of facilities. Two types of maintenance can be implemented: preventative or corrective. Maintenance refers to the inspection, repair, replacement, rehabilitation or installation of the pipeline systems and facilities, unless specifically described otherwise.

Preventative maintenance includes scheduled maintenance of parts, usually to manufacturers' specifications or standards. Preventative maintenance can also include exercising or changing out valves and other components located in vaults or buried underground, cleaning vaults, testing electrical components, and inspection and routine repair of pipeline joints or surfaces. The purpose of preventative maintenance is to sustain equipment at an operable level to minimize the chances of failure or breakdown.

Routine preventative maintenance helps minimize breakdowns and equipment failure, even though sometimes outside forces such as seismic movement, subsidence, corrosion, or other utility construction work can cause unexpected damage to the conveyance systems.

Corrective maintenance, in a non-emergency situation, could involve replacing parts of the pipelines that have failed, such as air release valves or electrical components, or could include repair work made necessary by a natural or manmade event. Corrective maintenance can also include excavation work, as necessary, to replace pipeline system parts and repair access roads, including some capital projects. Excavation could occur anywhere along any of the pipelines or access roads. Excavation scenarios covered under the PMP could include, but are not limited to, the following:

- Replacing buried service valves
- Repairing or replacing telemetry cables
- Repairing or replacing corrosion control test stations or leads
- Repairing or replacing vaults or installing new vaults to access existing buried valves
- Repairing blow-off structures and valves in stream banks
- Bank stabilization, erosion control, and energy dissipation device maintenance
- Maintaining air release valves in streets or installing ventilation piping
- Repairing, stabilizing, or reconstructing private access roads to pipeline structures

## 2.4 PMP ACTIVITIES AND ACTIONS

### 2.4.1 Activities and Tasks and Matrix

Typical common tasks are needed to perform inspections and maintenance of facilities, described in Table 4. Tasks include, but are not limited to, general setup and staging, dewatering vaults and pipelines, and maintenance of facilities. The categories of tasks include the following:

- General tasks
  - Setup, staging, and access
  - Lockout/tagout and removal of lockout/tagout
  - Pump-out of vaults/manholes
- Pipeline draining tasks
  - Isolation
  - Dewatering and refilling
  - Inspection
  - Disinfection
- Pipeline system infrastructure repair or replacement tasks
  - Excavation, backfill, construction, and other ground disturbance
  - Repair of pipeline system infrastructure
  - Non-ground-disturbing repair

The activities list is not meant to be comprehensive but is meant to encompass most activities performed on the conveyance system. Activities not specifically described may also be covered by the PMP if the tasks described in the PMP cover the total work to be performed under the activity.

## Table 4. Updated PMP Activities and Tasks Matrix

| | General Tasks | | | Pipeline Draining Tasks | | | Maintenance and Repair Tasks | | |
|---|---|---|---|---|---|---|---|---|---|
| | Setup, staging, and access | Control of hazardous energy (Lock-out/tag-out) | Pump-out of vaults/manholes | Isolation | Dewatering | Refilling | Excavation, backfill, construction, and other ground disturbance | Repair of pipeline system infrastructure | Non-ground-disturbing repair |
| **Inspection Activities** | | | | | | | | | |
| External inspections (non-ground-disturbing)[a] | x | | | | | | | | |
| External inspections (ground-disturbing) | x | x | x | x | x | | x | | |
| Internal inspections | x | x | x | x | x | | | | |
| **Facility Maintenance Activities** | | | | | | | | | |
| Buried and exposed pipeline component maintenance, including pipeline sections, valves, and fittings | x | x | x | x | x | x | x | x | |
| Tunnel maintenance | x | x | x | x | x | x | x | x | |
| Manhole, meter, vault, and related appurtenance maintenance | x | x | x | x | x | x | x | x | x |
| System instrumentation, controls, and monitoring maintenance | x | x | x | x | | | x | | x |
| Backup generator maintenance | x | x | | | | | x | x | x |
| Pump station and facility maintenance | x | x | x | x | x | x | x | x | x |
| Storage tanks and facility maintenance | x | x | x | x | x | x | x | x | x |
| Surge tank & Standpipe maintenance | x | x | x | x | x | x | x | x | x |
| Access road and support structure maintenance | x | x | x | x | x | x | x | | x |
| Bank stabilization, erosion control, and energy dissipation device maintenance | x | | | | x | | x | | |
| Vegetation management | x | | | | | | x | | x |

Non-ground-disturbing external inspection tasks would typically be limited to access.

## 2.5 ACTIVITIES DESCRIPTIONS

***[Reproduced from Program EIR Documentation section 2.6.2]***

***Performance Inspections***

**Inspection Activities**

Inspections would be needed to verify the operability of the pipelines or their associated facilities, and in many cases to determine what type of maintenance may be needed, based on conditions observed during the inspection. These inspections could be either external or internal (on the surface or outside a pipeline or facility, or inside a pipeline or facility). Similar to the existing PMP, the vast majority of work implemented under the updated PMP would involve minor day-to-day routine inspection (non-ground-disturbing external inspections and internal inspections) activities, which are further detailed in the subsections below.

**External Inspections**

External inspections would involve physically examining the outside of a pipeline component. External inspections would include two types of external inspections—non-ground-disturbing and ground-disturbing external inspections.

***Non-Ground-Disturbing External Inspections***

The vast majority of external inspections would be non-ground-disturbing external inspections, which would be conducted on a regularly scheduled basis to inspect exposed or aboveground pipeline infrastructure (e.g., exposed pipeline segments, aboveground appurtenances such as valves). Non-ground-disturbing external inspections would not require the use of heavy construction equipment or vehicles or establishment of staging areas and may require off-road access. These types of minor inspections would be completed by up to two crewmembers over 1 to 2 days.

***Ground-Disturbing External Inspections***

Ground-disturbing external inspections (e.g., potholing, exposure of buried pipelines or infrastructure) would be required to inspect underground pipeline infrastructure and may require the use of heavy construction equipment and vehicles, establishment of sediment stockpiling and staging areas, and off-road access. These types of external inspections would be completed by up to five crewmembers over 3 to 5 days.

**Internal Inspections**

Internal inspections would be necessary to check the integrity of all internal parts and appurtenances of a pipeline and could be done by manned inspection or using disinfected special equipment, such as remote-controlled or hand-fed, closed-circuit television (CCTV) camera probes. Other types of internal inspections could include magnetic flux and electromagnetic inspections. For water tanks, if a diver is used, they would follow the industry standards set by the American Water Works Association (AWWA) that outline recommendations for divers in potable water facilities such as AWWA C652 (Disinfection of Water Storage Facilities) and AWWA D101-53 (Inspecting and Repairing Elevated Steel Water Storage).

During manned pipeline inspections, a crew of two to three people typically would be required. If the pipeline is large, multiple crews may be used. Dewatering, as described in Appendix A and Table 13, would be completed in advance of manned inspections. Confined-space safety protocols would be required for entry into pipelines, vaults, and manholes. Inspections usually would last from 1 day to 2 weeks. Access would be minimally disturbing and may involve off-road setup and staging.

## Facility Maintenance Activities

Age, wear, corrosion, leaks, and integrity loss from seismic activity and other natural geologic processes all contribute to degradation of the systems over time. Preventative and corrective maintenance are required for adequate system functionality and safe, reliable water delivery. Several different maintenance activities would need to be performed at the facilities, both on a defined schedule as preventative maintenance and on an as-needed basis as corrective maintenance. Some of these activities would be minor, while others could be larger undertakings that, while requiring a more robust internal design and approval effort, still would be considered maintenance, and thus would be covered under the updated PMP. Descriptions of each facility maintenance activity are presented next.

### Buried and Exposed Pipeline Component Maintenance, Including Pipeline Sections, Valves, and Fittings

Maintenance of pipelines and their direct appurtenances is critical for reducing water loss, maintaining safe operations, and ensuring pipeline integrity. This includes regular maintenance of valves, fittings, pumps, motors, and other mechanical components. Valves typically would be exercised annually, to verify their full operability, not only for typical operations but also in emergencies. Appurtenances may be buried or located in vaults. The installation of new appurtenances would be covered by the updated PMP because this could improve O&M. However, new appurtenances that would expand the system capacity would not be covered under the updated PMP. Various pipeline maintenance activities may be performed, such as interior lining repair, joint repair, slip lining repair, and pipeline section replacement, using trenchless methods, open-pit excavation, or within the pipeline. Cathodic protection systems also may be installed during pipeline maintenance activities, for long-term pipeline protection.

### Tunnel Maintenance

Appurtenances or monitoring equipment may be placed or replaced within the tunnels. Tunnel relining and/or extensive tunnel liner repair and/or be covered under the updated PMP. Tunnel portal repair and maintenance, such as leak grouting, pressure injection grouting and the repair and/or replacement of portal hardscape would be covered under the PMP. The replacement or installation of new tunnels would be a major action, requiring a separate environmental evaluation, and this would not be an activity included in the updated PMP.

### Manhole, Meter, Vault, and Related Appurtenance Maintenance

This maintenance activity would cover structures that provide access to pipeline components, including manholes, vaults, and meter pits. These structures could be aboveground or belowground and house pipeline appurtenances such as valves, meters, and monitoring equipment. Dewatering may be required for partially submerged structures. Replacement of manholes or vaults may require ground disturbance but abandoning them in place could reduce such disturbance. Water meter maintenance, repair, and replacement also may be necessary. Aboveground features, such as pipeline markers, surge tanks, standpipes, and equipment boxes/covers, also would be maintained with minimal ground disturbance under the updated PMP.

### System Instrumentation, Controls, and Monitoring Maintenance

Monitoring equipment or wires may be buried, inside pipelines, vaults, or manholes, or at pole mounted lock boxes. Operation of these systems would rely on maintaining a communication infrastructure network that could include wireless and wired electrical components. Maintenance would include repair and replacement of field instrumentation and their enclosures, such as sensors, monitors, and field controllers, remote terminal units (RTUs), and programmable logic controllers (PLCs). The RTUs and PLCs would collect and compile data, supplied by field instrumentation.

**Backup Generator Maintenance**

Maintenance of existing generators and associated facilities would be covered under the updated PMP. Generators would improve O&M by providing critical backup power for pumps and other vital electrical equipment. Installation of up to 20 new generators, which may also require a new concrete pad, would also be an updated PMP covered activity, because this would not expand system capacity. As with existing generators, the new permanent backup generators would be installed within sound-attenuating enclosures.

**Pump Stations and Facility Maintenance**

The pump station facilities would require maintenance to verify protection of the housed components. This would include the physical walls, entryways, ceilings, and foundations. Pump replacement would be an updated PMP covered activity if it would not expand conveyance system capacity. Other drives and flow control devices also would be covered under the updated PMP. These would include components such as adjustable speed drives (ASDs), which typically are on the interior of pump station buildings and commonly are replaced at the time of pump replacement.

**Storage Tanks and Facility Maintenance**

Maintenance of storage tanks would include replacing appurtenances such as locks, ladders, platforms, hatchways, pressure gauges, telemetry, vents, overflows, mixing devices, baffles, flushing, and internal cleaning. Methods for cleaning may require draining the tank for entry; however, some tanks may accommodate submerged entry. Inspection would be completed by human entry, or a remote-operated vehicle (ROV) equipped with CCTV. Repairs also could include external and internal tank coating or painting or internal tank and concrete foundation repair.

The above-mentioned water tank appurtenances may require replacement; however, the water tank itself also may need to be replaced. Water tank replacement would be a covered activity if this would not expand conveyance system capacity. Water storage tank materials and technologies may be upgraded if system capacity remains consistent.

**Surge Tank Maintenance**

Surge tanks have various components that may need repair or replacement, including the pressure gauge, pump, switches, and connectors. Maintenance could include repair, replacement, or installation of a new surge tank. Installation of a surge tank would not expand conveyance system capacity, and thus would be covered under the updated PMP.

**Access Road and Support Structure Maintenance**

Valley Water maintains various access roads and small structures that support water conveyance system pipelines. Road repair could involve grading, paving, and trucking in gravel as well as restabilizing access roads to vaults. Fencing, gates, and security structures associated with access roads and areas surrounding water system infrastructure also may need maintenance for increased security or public safety. This maintenance could include increasing fence heights or installing cameras and/or alarm systems. Systems such as French drains, or other green infrastructure providing similar benefits, may be installed to reduce ponding and runoff erosion. These drains typically would consist of a shallow trench filled with gravel or rock and a perforated pipe at the bottom of the trench.

**Bank Stabilization, Erosion Control, and Energy Dissipation Device Maintenance**

Bank stabilization and erosion control devices would be installed along access roads, near dewatering points, along stream embankments, and other features subject to runoff and erosion. Maintenance of energy dissipaters or hardened embankments may be required to prevent erosion. In addition to maintenance of those features, they also could be removed or decommissioned. The design of a particular bank protection project would include evaluation of other site-specific characteristics, such as bank slope, shear stress, locations (inside versus outside a curve), soil type, flow velocity and anticipated flow velocity from releases, and channel characteristics. Erosion and/or scour issues could occur along pipeline sections because of deteriorating upland and stream conditions. In these areas, it may be necessary to remediate these issues to prevent ongoing and worsening erosion and/or scour along the affected pipeline sections.

**Vegetation Management**

Year-round, Valley Water conducts various vegetative maintenance activities to maintain its facilities, access points, and water sources. Vegetative maintenance increases worker and public safety as well as wildfire prevention. Vegetation maintenance also decreases habitat for dangerous vectors, such as spiders, snakes, and ticks, thereby increasing worker safety. This activity is vital to reduce fire fuels. In addition to mowing and general ground clearing for setup, staging, and access, examples of work completed under this activity may include the following:

- Stump grinding
- Cut stump herbicide treatment
- Hand-pulling weed abatement
- Mechanical weed abatement
- Pre- and post-emergent herbicide application
- Fire break installation
- Pruning and limb removal
- Tree and shrub removal
- Removal of vegetation (not mow-able)
- Goat grazing
- Steaming

Additional vegetation maintenance activities not listed above also may be included in the updated PMP if the tasks related to the work would be the same.

## 2.6 TASK DESCRIPTIONS – OVERVIEW

Refer to Appendix A.

# CHAPTER 3. RESPONSIBLE DIVISIONS AND SUPPORTING UNITS

During VW's annual budget process and approval by VW's Board of Directors, funding allocations and delivery of the PMP projects and work is assigned to the Water Utility Capital Division (WUCD) and Raw Water Division (RWD) Deputy Operating Officers. The Division DOOs and their divisions become responsible to the Board for the PMP, and in the discharge of these responsibilities, they utilize other services from various support units within the organization.

## 3.1 WATER UTILITY CAPITAL RESPONSIBILITIES

The PMP is managed by Unit 385 – Pipelines Project Delivery Unit within the Water Utility Capital Division. The Deputy Operating Officer for the Water Utility Capital Division serves as the Supervising Manager and the Designated Engineer for the capital projects delivered under Unit 385.

The core responsibilities of the Unit 385 – Pipelines Project Delivery Unit include:

- Manage the program's scope, schedule, budget, and expenditures.
- Manage Project Plans (Vena, CMM) of capital projects under program (i.e. scope, schedule, budget, risk, stakeholder engagement)
- Coordinate with the Capital Improvement Program throughout the annual CIP cycle
- Deliver capital projects based on Planning Phase and Design Phase QEMS WBS
- Participate in condition assessment with maintenance and asset management staff
- Manage and monitor program and capital project risks
- Coordinate with stakeholders to deliver projects
- Procure District-Furnished materials and equipment for capital projects
- Secure permits and agreements for projects in coordination with environmental planners
- Draft and present Board Agenda Memos and items (e.g. advertisement and award)
- Provide engineering support during construction.
- Close-out projects when construction is complete
- Conduct lessons learned for program

A designated staff within Unit 385 is assigned as the Program Manager for the PMP, while other engineering staff are assigned as project managers for the specific capital projects under the Program.

The core responsibilities of the Program Manager include:

- Managing the PMP (including 10-YR Pipeline I&R Projects) and PMP EIR
  - Overseeing Environmental & Permitting that affects the Program
- Develop and Update the PMP Documents
- Developing 10-YR Pipeline I&R Project Delivery Strategy
  - Creating new 10-YR Pipeline I&R Capital Projects
  - Establishing 10-YR Pipeline I&R Long-Term Capital schedule
  - Establishing and managing 10-YR I&R Capital Program budget and funding
  - Updating the Project Plan (CMM) for 10-YR I&R

## 3.2 WATER UTILITY OPERATIONS AND MAINTENANCE RESPONSIBILITIES

The Deputy Operating Officer for the Water Utility Raw Water Division serves as the Project Owner and Oversight Manager for the PMP.

Unit 435 – Raw Water Operations and Pipeline Maintenance Engineering Unit (PME) and Unit 585 – Raw Water Field Operations and Pipeline Maintenance Unit (Pipelines Maintenance), within the Division, are the two main units responsible for the maintenance of the water conveyance systems and therefore conduct O&M activities for the PMP.

Unit 565 – North Water Treatment Operations Unit and Unit 566 – South Water Treatment Operations Unit under the Treated Water Division also support O&M activities for the treated water pipelines as part of the PMP.

The core responsibilities for the following units are:

Unit 435 – Raw Water Operations and Pipeline Maintenance Engineering Unit

- Conduct and participate in condition assessment with stakeholders
- Manage and coordinate shutdown logistics (e.g. LOTO plan, Dewatering, Disinfection, Refill)
- Manage the Long-Term Shutdown Schedule
- Manage and conduct inspections (e.g. visual, Electromagnetic, Magnetic Flux, Video)
- Conduct engineering and project delivery of projects conducted internally (i.e. not capital)
- Conduct engineering analyses and technical studies for O&M on pipelines
- Manage and maintain pipeline monitoring systems (e.g. Cathodic Protection, Surge Monitors, Acoustic Fiber Optic Monitoring System)
- Quality control review for capital projects managed by Pipelines Capital
- Engineering and O&M support during construction for capital projects

Unit 585 – Raw Water Field Operations and Pipeline Maintenance Unit

- Conduct routine maintenance on all pipeline components and systems
- Define maintenance issues and report to District-wide Asset Management
- Procure, store and support District-Furnished materials and equipment for PMP projects and activities
- Quality control review for capital projects managed by Pipelines Capital
- Perform LOTO based on plan developed by PME
- Lead gravity dewatering during shutdowns
- Perform pump-out dewatering, as needed for projects
- Conduct appurtenance repairs, installation, and replacements
- Inspect contractor's appurtenance repairs, installation, and replacements
- Disinfection and refill field operations
- RTU terminations for electrical and control engineered systems (i.e. Control Technician Team)

## 3.3 SUPPORTING UNITS

The major supporting units are the Asset Management Unit and the Environmental Planning Units.

### 3.3.1 Asset Management Unit Responsibilities

Unit 411 – District-Wide Asset Management Unit (AMU) will provide input on work either by the "Responsible Parties" with a spreadsheet of assets that are reaching service life or require maintenance, or by assigning work orders to the O&M units. Unit 411 responsibilities will also include:

1. Monitoring condition and service life of all PMP assets
2. Managing Maximo system for all work orders and assets
3. Defining maintenance work as part of Asset-Management Work Plan
4. Defining new studies necessary for maintenance and inspections
5. Defining ROW needs for maintenance and operations purposes
6. Developing projects based on other plans (e.g. Distribution Master Plans, IRP2)
7. Participating in condition assessments
8. Receiving information or data on as-builts drawing after work is complete or a work order is closed

### 3.3.2 ENVIRONMENTAL PLANNING UNIT'S RESPONSIBILITIES

Unit 248 – Environmental Planning Unit's and Unit 297 – Operations and Maintenance Environmental Support Unit's responsibilities will include where requested:

1. Managing PMP Environmental Documentation (i.e. Compliance with PEIR, VHP, CDFW, other regulatory permits)
2. Securing environmental and regulatory permits and clearance for capital and maintenance projects upon request from Responsible Parties
3. Conducting site surveys and analyzing impacts associated with PMP activities as part of the Environmental Documentation
4. Reviewing biological reports for PMP activities as part of the Environmental Documentation
5. Receiving biological support from biologists on securing permits, fisheries, wildlife, and botany support

## 3.4 OTHER SUPPORTING UNITS

During design for capital projects or O&M work, the staff managing these projects/work may require services and support from other units that periodically support PMP activities and PMP projects. When support is needed, the project manager/staff should coordinate with the various unit managers and teams when planning the activity or developing the "Project Work Plan" to estimate the level of effort for the requests, services, or support. The various units include the following:

1. Business Planning and Analysis Unit (214),
2. CADD Services Unit (366)
3. Construction Management Services Unit (351)
4. Construction Inspections Services Unit (352)
5. Land Surveying and Mapping Unit (367)

6. Real Estate Services Unit (369)
7. Raw Water Operations Unit (455)
8. Groundwater Management Unit (465)
9. Treatment Plant Maintenance Unit (555)
10. Water Quality Unit (525)
11. Utility Electrical and Control Systems Unit (545)
12. North Water Treatment Operations Unit (565)
13. South Water Treatment Operations Unit (566)
14. Community Projects Review Unit (294)
15. Vegetation Field Operations Unit (295)

# CHAPTER 4. CAPITAL AND OPERATIONS AND MAINTENANCE ACTIVITIES

## 4.1 CAPITAL ACTIVITIES – INSPECTION AND REHABILITATION

The capital projects under the PMP are managed by Unit 385 – Pipelines Project Delivery Unit, and typically include the following activities described in Table 5. Capital projects are planned years in advance and are conducted on a 10-year rotating basis. These projects go through the Capital Project Delivery process (QEMS Q-751-013 “Capital Project Delivery”). Typical project names include “Inspection and Rehabilitation Project”. These projects typically include condition assessments, inspections, dewatering, repairs, replacements, installation of new equipment, and retrofits of vaults and misc. appurtenances, and require a Class A general contractor to conduct the work.

**Table 5. Capital Activities**

| ID# | Activity Type | Specific Activity Description | Responsible Unit | Notes |
|---|---|---|---|---|
| 1 | 1 | Repair and replace pipe sections | Capital | Includes internal repair like CFRP or actual replacement which requires excavation (does not include emergencies). |
| 2 | 2 | Replace or install shutdown-required appurtenances | Capital | Appurtenances that need a shutdown to be replaced |
| 3 | 2 | Replace or install buried pipeline appurtenances | Capital | Appurtenances that need to be replaced requiring excavation |
| 4 | 2 | Replace pumps (major) | Capital | Major requires a shutdown or general contractor |
| 5 | 2 | Replace tanks (surge and storage) | Capital | |
| 6 | 3 | Replace or install system instrumentation, controls, and monitoring (major) | Capital | Major considered to be major upgrades or installations (E.g. Install Acoustic Fiber Optic monitoring cable within PCCP) |
| 7 | 3 | Replace or install backup generators | Capital | |
| 8 | 4 | Replace manholes, meters, vaults, and misc. appurtenances (Major) | Capital | Major needs a shutdown or general contractor |
| 9 | 5 | Construct new access roads | Capital | |
| **Notes:** Unit 385 – Pipelines Project Delivery Unit under the Water Utility Capital Division (Capital) | | | | |

Unit 435 – Raw Water Operations and Pipeline Maintenance Engineering Unit may also conduct capital projects, on an as-needed basis. However, these types of projects are specific maintenance projects that have been identified by Unit 411 – District-wide Asset Management or other O&M units.

## 4.2 OPERATIONS AND MAINTENANCE ACTIVITIES – MAINTENANCE

The routine, preventative and corrective maintenance activities conducted by O&M Units/staff, are listed in Table 6 and Table 7

**Table 6. Unit 435 Activities**

| ID# | Activity Type | Specific Activity Description | Responsible Unit | Notes |
|---|---|---|---|---|
| 10 | 7 | Internal Inspections of pipeline | PME | •Internal inspections require a shutdown.<br>•Capital secures general contractor to support PME's inspections |
| 11 | 7 | External Inspections of pipeline | PME | |
| 12 | 1 | Repair & Replace pipe sections (emergency) | PME | |
| 13 | 2 | Replace pumps (minor) | PME | •Minor doesn't require a shutdown or general contractor |
| 14 | 2 | Repair tanks (surge and storage) | PME | |
| 15 | 3 | Replace system instrumentation, controls, and monitoring (minor) | PME | Minor replacement considered to be replacements of instruments as needed (i.e. one-offs) (e.g. Replace HGL gauge that's faulty) |
| 16 | 4 | Replace manholes, meters, vaults, and misc. appurtenances (Minor) | PME | Minor doesn't need a shutdown |
| 17 | 6 | Lock-out Tag Out | PME | Led by PME; Maintenance supports |
| 18 | 6 | Dewater pipeline | PME | •Led by PME; Maintenance supports<br>•Includes de-chlorination for treated water and BMP installation |
| 19 | 6 | Refill pipeline | PME | •Led by PME; Maintenance supports<br>•Includes disinfection for treated water |
| 20 | 7 | Tunnel Inspections | PME | •Led by PME; Maintenance supports |
| 21 | 2 | Replace non-shutdown-required pipeline appurtenances | PME, RWFO&PM | •Appurtenances that can be replaced without a shutdown<br>•Includes Small Capital Projects<br>•36 |
| 22 | 3 | Repair system instrumentation, controls, and monitoring | PME, RWFO&PM | •Corrosion protection system led by PME |
| 23 | 5 | Bank stabilization and erosion control | PME, RWFO&PM | |

**Notes:**
- Unit 435 – Raw Water and Pipeline Maintenance Engineering Unit (PME)
- Unit 585 – Raw Water Field Operations and Pipeline Maintenance Unit (RWFO&PM)

**Table 7. Unit 585 Activities**

| ID# | Activity Type | Specific Activity Description | Responsible Unit | Notes |
|---|---|---|---|---|
| 21 | 2 | Replace non-shutdown-required pipeline appurtenances | PME, RWFO&PM | •Appurtenances that can be replaced without a shutdown<br>•Includes Small Capital Projects |
| 22 | 3 | Repair system instrumentation, controls, and monitoring | PME, RWFO&PM | Corrosion protection system led by PME |
| 23 | 5 | Bank stabilization and erosion control | PME, RWFO&PM | |
| 24 | 2 | Repair appurtenances | RWFO&PM | |
| 25 | 2 | Repair pumps | RWFO&PM | |
| 26 | 3 | Repair backup generators | RWFO&PM | Electricians responsible for repairs |
| 27 | 4 | Repair manholes, meters, vaults, and misc. appurtenances | RWFO&PM | |
| 28 | 5 | Repair access roads | RWFO&PM | |
| 29 | 5 | Vegetation management | RWFO&PM | |
| 30 | 7 | External Inspections of appurtenances | RWFO&PM | Led by maintenance; other stakeholders also involved |

**Notes:**
• Unit 435 – Raw Water and Pipeline Maintenance Engineering Unit (PME)
• Unit 585 – Raw Water Field Operations and Pipeline Maintenance Unit (RWFO&PM)

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# CHAPTER 5. PIPELINE PROCESS AND IMPLEMENTATION

## 5.1 OVERVIEW

This Chapter describes the processes implemented to complete PMP activities including capital and maintenance activities, which follow the current processes within the responsible divisions. The supporting units implement their current and updated processes within their units when services requests are made. For example, the capital projects follow the QEMS processes, which are updated periodically.

## 5.2 IMPLEMENTATION OF CAPITAL ACTIVITIES

### 5.2.1 Identifying Capital Work

Valley Water aims to conduct capital projects that are covered by the PMP on a rotating 10-year cycle to periodically shutdown pipelines to conduct inspections and rehabilitation. When the inspection and rehabilitation of a pipeline has been completed through the capital project implementation, that pipeline is put on the list for the next cycle of pipelines to be programmed for inspection and rehabilitation. The Program Manager will coordinate with key stakeholders to plan the future inspection and rehabilitation work. The Long-Term Shutdown Schedule (LTSS) is used to communicate upcoming pipelines that are scheduled for inspection and rehabilitation.

When a pipeline is scheduled for inspection and rehabilitation, the Program manager will coordinate with the Unit Manager and Deputy Operating Officer to assign a project manager. Next, the project manager will coordinate with key stakeholders and develop the “Planning Level Document” for the capital project which includes: a preliminary scope of work, schedule, budget, constraints, and requirements. Asset Management and the O&M units will provide the project manager with all the maintenance data and requests that need to be addressed during the implementation of the capital project. Typically, a capital project includes work that requires: a shutdown, a general contractor to conduct the work, or a specialized contractor or engineering design. The project manager will coordinate with the O&M units, Asset Management Unit, and other support units to conduct a condition assessment of the pipeline to verify the detailed scope of work of the project.

### 5.2.2 Implementing Capital Work

Once the detailed scope of work is verified by the project manager, the project manager will then complete a work plan following the QEMS “Create Work Plan” work instructions, document number W-751-123, for the project, and deliver the project following the “Design Phase WBS” work instructions, document number W-730-130.

During the design phase, the project manager and team will:

- Prepare the construction documents which include the drawings, specifications, and engineer’s estimate
- conduct engineering research, analyses, and calculations
- procure long-lead equipment and materials in preparation for the shutdown
- secure rights-of-way to facilitate the construction of the project
- secure agreements and permits for the project for construction
- coordinate with O&M staff on operations logistics and shutdowns

When a project is ready for construction, Unit 351 – Construction Management Services Unit and Unit 352 – Construction Inspections Services Unit will provide the project’s construction management and inspections.

Once construction is complete, the project manager will close-out the project by completing As-Built drawings, the Capital-to-Operations Transition Report, Operation and Maintenance Manuals, and the Close-Out Report, and send the documents to the stakeholder groups for their files and reference.

## 5.3 IMPLEMENTATION OF MAINTENANCE ACTIVITIES

### 5.3.1 Identifying Maintenance Work

***Methods of Identification***

Maintenance work is generally identified in the following ways:

1. **By maintenance engineer & staff.** Maintenance work is identified when deficiencies are found, such as through routine or special inspections, as described in Chapter 2 PMP Tasks and Activities. This work is typically corrective maintenance.
2. **During asset management evaluations.** The Asset Management Unit schedules preventative maintenance based on manufacturer recommendations and industry standard inspection frequencies. An Annual Asset Management Report is produced and defines long-range, larger projects. Large projects may be included under the PMP, provided there are no major changes that expand or reduce the capacity of the system or otherwise majorly alter the system.
3. **After emergencies.** Maintenance work is also identified in emergency situations where natural or manmade events compromise the system and damage must be immediately addressed.

***Work Orders***

Maintenance work is generally identified by Pipeline Maintenance staff and a Field Operations Administrator generates a Work Order in Maximo. Work orders are used to request and/or identify needed work and include information such as a project description, implementation schedule, project cost, permit requirements, and other special conditions.

How a work order is executed depends on whether the task is considered minor or major. The Field Operation Administrator from the Pipeline Maintenance Unit, an Engineer from the Raw Water & Pipeline Maintenance Engineering Unit and an Environmental Planner from the Operations & Maintenance Environmental Support Unit work together to determine the method of execution based on multiple factors, including the size (or dollar amount) of the activity, whether specialized trade labor is required, and the workload capacity of Valley Water maintenance crew, among other considerations. For minor and/or relatively routine tasks, the work order is released into Maximo and then tracked as an electronic job plan within the Maximo database. For major and/or more significant and complex tasks, work orders are used to document pipeline maintenance work through completion. Work orders include the following information:

- Date the work order was generated
- Location of work
- Activity type and description
- Implementation schedule
- Specific tasks to be completed
- Permits, if required

Work orders will continue to be the primary vehicle for the implementation of maintenance work. The Maintenance Administrator and the unit crew (maintenance supervisors) are typically responsible for defining the implementation schedule. Operations and Maintenance Environmental Support staff will track pipeline maintenance work through completion, ensuring proper environmental documentation.

### 5.3.2 Implementing Maintenance Work

***Minor Tasks***

Minor tasks are always completed by Valley Water maintenance crews. Minor tasks are processed through Valley Water's Computerized Maintenance Management System, commonly referred to as Maximo. The electronic work order is created by a Field Operations Administrator and then released into Maximo for execution by the Field Operations and Pipeline Maintenance Staff. The work order contains relevant information about the minor maintenance task to be completed, including location, work to be done, and schedule needed for proper execution by Valley Water maintenance crews. Standard BMPs, avoidance and minimization measures (AMMs), and mitigation measures specific to the minor task are automatically integrated into Maximo for implementation.

Field Operations Administrator will notify the PMP stakeholders when a work order is released into Maximo and who it's assigned to. Field maintenance crews can enter field data, as necessary, into Maximo. A Senior Plant/Pipeline Mechanical Technician will be responsible for acknowledging and confirming the field implementation of any required BMPs, AMMs, or mitigation measures. A Senior Environmental Planner within Unit 297 is responsible for following up with the Field Operations Unit to confirm BMP and/or mitigation measures were implemented and then must electronically file the relevant documentation.

***Major Tasks***

Major tasks are typically completed by third-party contractors and are not processed through Maximo. Major tasks can include PMP covered activities, including some that are classified as large projects (sometimes referred to internally as Small Capital projects). These tasks can be developed from the Annual Asset Management Report or by maintenance staff. The Maintenance Field Operations Administrator is responsible for determining whether the activity is covered by the PMP.

If a PMP-covered task is proposed in a biologically sensitive area, or contains environmentally sensitive elements, an Environmental Planner may need to complete an Internal Decision Memo (IDM). An IDM provides more comprehensive environmental compliance documentation specific to the project and is supported by the Biological Resource Staff. It is not an addendum to the Program EIR but rather supplemental documentation on a per-project basis. The environmental documentation and requirements are included by the Project Engineer in the bid package for the third-party contractor. The Program Manager is responsible for coordination with the engineers, environmental planners, and biologists for execution of the proper environmental review and documentation, as well as follow-up, to ensure the contractor has properly implemented any required BMPs, AMMs, and/or mitigation measures.

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# CHAPTER 6. PROGRAM EVALUATION

## 6.1 PERIODIC EVALUATION

The PMP is designed to incorporate adaptive management strategies to improve and update the program to reflect current regulations, agency direction, and new protocols.

Valley Water staff, led by the program manager, will hold a meeting to evaluate the effectiveness of both resource-protection and maintenance methods used in the preceding construction season. The information and assessment will be used to update BMPs, AMMs, mitigation measures, and the PMP process to create a greater understanding of how to accomplish environmentally sensitive, fiscally sound, and timely maintenance work. Updates may result in a need for an amendment to the PMP EIR. The meeting should include environmental planners, biologists, engineers, supervisors, and facility staff. Discussions should include the following:

- BMP, AMM, and mitigation measure implementation
- Internal PMP-related communications
- Capital expenditures and staff resources
- Suggestions for improvement, including additional staff training requirements

Program effectiveness is evaluated against Valley Water's most current Ends Policy, PMP Resource Protection Objectives and Protocols, compliance with mitigation and BMPs and AMMs identified in the PMP EIR, and compliance with permit conditions.

Program improvements proposed for incorporation into the PMP should be identified and incorporated after the meeting. The revisions could take the form of an addendum to the PMP EIR or other CEQA format, subject to approval by the Environmental Planning Unit, the Operations & Maintenance Environmental Support Unit, and the Water Utility Program Manager. Valley Water's pipeline and environmental staff will review the improvements to ensure that the changes do not modify any agency direction that may be contained in permits or other agreements.

A periodic evaluation report should be prepared by the PMP Program Manager and include the following:

- Work that was completed during the preceding year
- Any activity and/or pipeline-specific protocols that were developed
- Discussion and action items from the evaluation meeting
- Recommendations for improvement of activities or environmental protection measures, (i.e., lessons learned)
- Record of all work along with all completed IDMs

Program improvement ideas identified in the evaluation report need to include justifications for any changes to existing protocol. The improvement ideas must also include costs and benefits, protocol changes, and an evaluation of any new potential impacts to environmental resources subject to review by an environmental planning specialist.

## 6.2 FIVE-YEAR EVALUATION

Every five years, the Program should be comprehensively reviewed for consistency with current agency regulations and legislation and with consideration of internal effectiveness. The five-year evaluation report should include the following:

- Summary of agencies consulted and/or coordinated with
- Comparison of applicable permit changes
- Review of any legislative changes affecting PMP implementation
- Status and effectiveness of internal PMP process implementation
- Status and effectiveness of internal environmental compliance record-keeping

It is the responsibility of the program manager to ensure this evaluation is completed every 5 years by July 31st of that year. Table 8 summarizes the activities involved in program evaluation and improvement. The 5-year revision would be subject to review by the permitting agencies.

**Table 8. Program Evaluation and Improvement Activities Schedule**

| Activity | Subject/content | Recommended Timeline |
|---|---|---|
| Hold program evaluation meeting | BMP implementation successes and failures; staff communication problems and successes; capital expenditures and staff resource; suggestions for improvement, including additional staff training requirements | July 1 |
| Prepare evaluation report | Work completed in preceding year; BMP implementation successes and failures; staff communication problems and successes; capital expenditures and staff resources; program improvement recommendations, evaluations, and justifications | July 31 |
| Prepare addendum to the PMP[1] | Program improvement recommendations; protocols and documentation of activity procedures | July 31 |
| Prepare 5-year PMP revision | Review of consistency of program with existing legislation and agency direction, incorporation of addendums; obtain permitting-agency concurrence | July 31 of every 5th year |

[1] The Program EIR would not require revision unless substantial changes to the PMP are made that may add new significant environmental effects or substantially increase the severity of previously identified significant effects.

# CHAPTER 7. PROGRAM ENVIRONMENTAL REVIEW AND PERMITTING

## 7.1 PROGRAM ENVIRONMENTAL REVIEW

Refer to the Pipeline Maintenance Program (PMP) EIR Document.

## 7.2 BEST MANAGEMENT PRACTICES AND PROGRAM-SPECIFIC AVOIDANCE AND MINIMIZATION MEASURES

Valley Water maintains a Best Management Practices (BMPs) Handbook, which contains a comprehensive list of standardized BMPs that are incorporated into Valley Water's projects and operations to minimize or avoid environmental impacts. BMPs from the Handbook are incorporated into the updated PMP Manual by reference and are considered part of the Program.

Because the BMPs from Valley Water's Best Management Practices Handbook are standardized and intended to apply to a broad range of projects and activities, Valley Water has tailored several of the standardized BMPs to apply more directly to PMP-related activities or tasks. To differentiate them from BMPs, these modified measures are identified as program-specific Avoidance and Minimization Measures (AMMs).

The Environmental Planning Unit staff provides support in the implementation of the BMPs and AMMs.

Refer to Appendix B.

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# CHAPTER 8. 10-YR INSPECTION AND REHABILITATION PROJECT PLAN

The following table is a project budget schedule for the 10-year inspection and rehabilitation cycle resulting from the estimated budgets for the design and construction schedules. The table also describes the past inspection and rehabilitation completed within the cycle.

**Table 9. 10-YR I&R Schedule and Budget**

| FY Design | FY Const Start | Pipeline(s) | Past I&R | Budget ($Millions) |
|---|---|---|---|---|
| 2026 | 2027 | East Pipeline | 2011 | $12 |
| | | Penitencia Delivery Main | 2016 | $2 |
| | | Penitencia Force Main | 2016 | $2 |
| 2026 | 2028 | Santa Teresa Force Main | N/A | $2 |
| 2023 | | (AVP Replacement Project - Not 10YR) | N/A | N/A |
| 2027 | 2029 | Milpitas Pipeline | 2014 | $12 |
| | | Stevens Creek Pipeline | 2014 | $7 |
| 2028 | 2030 | Santa Clara Distributary | 2013 | $10 |
| | | Campbell Distributary | 2013 | $5 |
| 2029 | 2031 | Mountain View Distributary | 2013 | $3 |
| | | Sunnyvale Distributary | 2013 | $3 |
| 2030 | 2032 | Rinconada Force Main | N/A | $7 |
| | | Stevens Creek Pipeline | N/A | $7 |
| 2030 | 2033 | Central Pipeline | 2020 | $11 |
| 2031 | 2034 | Pacheco Conduit & SCC (BIF to Tunnel) | 2017 | $12 |
| | | Santa Clara & Pacheco Tunnels | 2022 | $2 |
| 2032 | 2035 | Santa Clara Conduit Phase 1 | 2023 | $15 |
| 2032 | 2036 | Santa Clara Conduit Phase 2 | 2024 | $15 |
| 2033 | 2037 | *Almaden Valley Pipeline Unit 1 Phase 1* | 2023 | $12 |
| | | Cross Valley & Calero Pipeline | 2019 | $16 |
| 2034 | 2038 | Snell Pipeline | 2024 | $20 |

**Project:** **10-Year Inspection & Rehabilitation**
**Program:** Water Supply – Transmission
**Priority No.:** 95084002
**Project No.:** TBD
**Contact:** Emmanuel Aryee

**PROGRAM DESCRIPTION**

The program develops Valley Water's large diameter Pipeline Management Strategy (PMP) and a 10-year program for implementation tasks associated with the strategy. This program involves the inspection, planning, and design activities required for renewal of Valley Water's large pipelines and tunnels. The projects in the program includes the following objectives:

- Perform dewatering and internal inspections of Valley Water's pipelines and tunnels
- Renew distressed pipe sections as required; Renewal encompasses the tasks of repair, rehabilitation, and replacement
- Perform condition assessment, maintenance, repair, coating, and other activities as required
- Replace line valves, flow meters, pipeline appurtenance assemblies, and piping as required
- Improve system performance by installing cathodic protection systems, acoustic fiber optic monitoring of prestressed concrete cylinder pipe, and transient pressure monitoring systems
- Development of a pipeline asset risk management system that includes geographic information system, databases, algorithms, models, data acquisition, program documents, and decision support systems.
- Update Valley Water's Pipeline Maintenance Program and its associated Programmatic Environmental Impact Report for future inspection and rehabilitation efforts to Valley Water's pipeline system

FUNDING SOURCES: SCVWD Water utility Enterprise Fund
USEFUL LIFE: TBD Years

**PROJECT LOCATION**

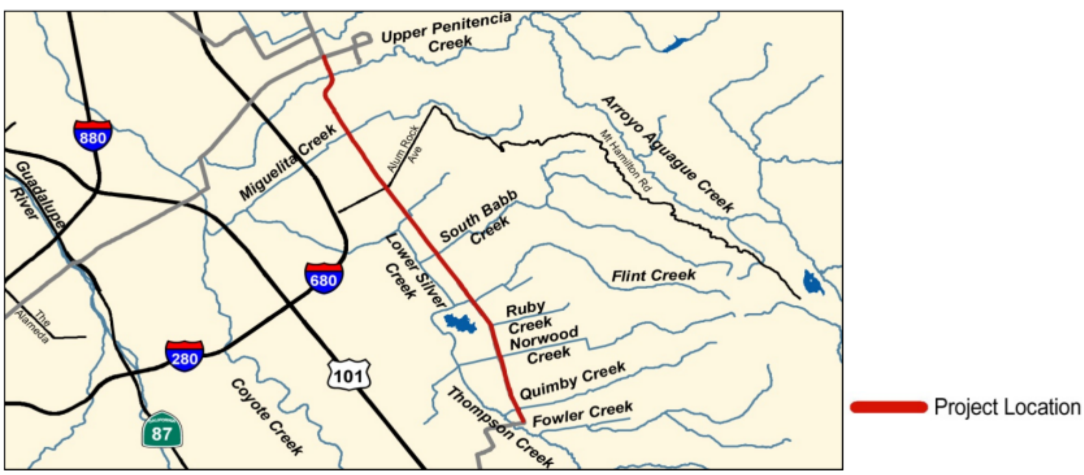
The followings are the descriptions of the planned Inspection and Rehabilitation (I&R) projects that are part of the 10-Year I&R Program described.

**Project:** **East Pipeline Inspection & Rehabilitation**
**Program:** Water Supply – Transmission
**Priority No.:** TBD
**Project No.:** TBD
**Contact:** Emmanuel Aryee

**PROJECT DESCRIPTION**
This project plans, design, and constructs major repairs and improvements on approximately 6.4 miles of East Pipeline from the Aborn Turnout to the Milpitas Pipeline, extending through the east side of the City of San Jose, to accomplish the following objectives:

- Improve reliability and operation of the pipeline and extend the pipeline's life.
- Reduce health and safety risks for staff and the public.
- Reduce costly emergency repairs.
- Comply with new regulations by California Department of Public Health.

**PROJECT LOCATION**



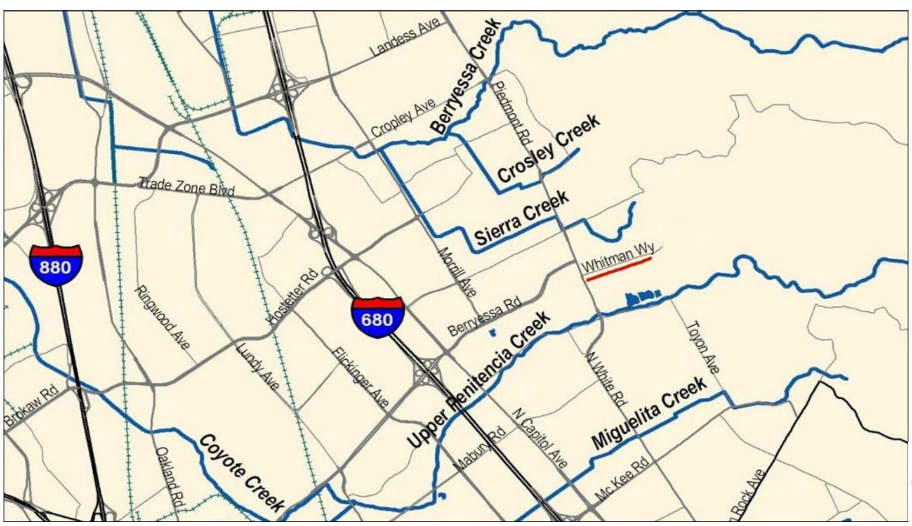
**Project:** **Penitencia Delivery Main Inspection & Rehabilitation**
**Program:** Water Supply – Transmission
**Priority No.:** TBD
**Project No.:** TBD
**Contact:** Emmanuel Aryee

**PROJECT DESCRIPTION**

This project plans, design, and constructs major repairs and improvements on approximately 0.5 miles of Penitencia Delivery Main from the Penitencia Water Treatment Plant to the East Pipeline and Milpitas Pipeline, extending through the northeast side of the City of San Jose, to accomplish the following objectives:

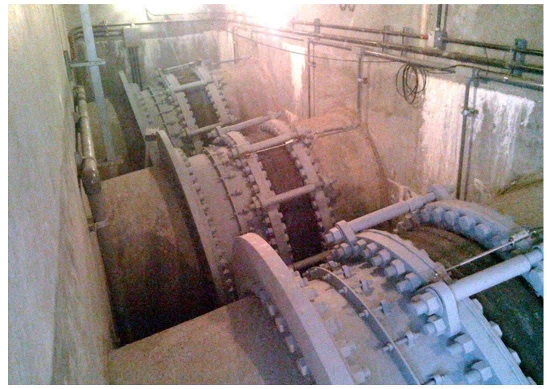
- Improve reliability and operation of the pipeline and extend the pipeline's life.
- Reduce health and safety risks for staff and the public.
- Reduce costly emergency repairs.
- Comply with new regulations by California Department of Public Health.

**PROJECT LOCATION**




Project Location

**Project:** **Penitencia Force Main Inspection & Rehabilitation**
**Program:** Water Supply – Transmission
**Priority No.:** TBD
**Project No.:** TBD
**Contact:** Emmanuel Aryee



**PROJECT DESCRIPTION**

This project plans, design, and constructs major repairs and improvements on approximately 0.3 miles of Penitencia Force Main from the Piedmont Valve Yard to the South Bay Aqueduct terminal tank and the Penitencia Water Treatment Plant, extending through the northeast side of the City of San Jose, to accomplish the following objectives:

- Improve reliability and operation of the pipeline and extend the pipeline's life.
- Reduce health and safety risks for staff and the public.
- Reduce costly emergency repairs.

**PROJECT LOCATION**

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# APPENDIX A. ACTIONS DESCRIPTIONS - DETAILED

***Overview***

Each activity would be completed through a set of common tasks. These tasks would be the core of the PMP. The general procedures, schedules, and required equipment are described for each task. These descriptions are not meant to be all-inclusive but rather to provide a framework for evaluation.

Because of the diversity and complexities of the various raw, treated, and recycled water conveyance systems and their components, variations in approach to activities by trained staff are anticipated. Any variation requiring tasks not covered under the PMP would exclude the activity from being covered by the PMP.

***General Tasks***

**Table 10. Setup, Staging, and Access**

| Activities Requiring Setup, Staging, and Access |
| --- |
| **Activity – inspection** |
| External inspection |
| Internal inspection |
| **Activity – facility maintenance** |
| Buried and exposed pipeline components, including pipeline sections, valves, and fittings |
| Tunnels |
| Manholes, meters, vaults, and related appurtenances |
| System instrumentation, controls, and monitoring |
| Backup generators |
| Pump stations and facilities |
| Storage tanks and facilities |
| Surge tanks |
| Access road and support structures |
| Bank stabilization, erosion control, and energy dissipation devices |
| Vegetation |

**Procedure**

Wherever possible, Valley Water would use previously disturbed areas, such as paved or gravel parking lots and roads for setup and staging. Before the start of work, staging and access locations and activities would be determined by Valley Water staff. Staff also would determine BMPs and traffic routes to be used. Local noise ordinances would be reviewed, to determine the best good neighbor measures that could be applied to limit noise. Any required equipment and fuel would be stored in secured staging areas. Certain sensitive settings may require 24-hour security. Examples of common site preparation would include vegetation trimming or removal and application of gravel to the area. Off-road vehicle access sometimes would be necessary to access pipeline structures and appurtenances not located along existing roads or access trails.

Project-specific work orders would detail the necessary staff and equipment for the activity. Site access would be determined during project design. The preferred route of travel would be defined to avoid sensitive resources. Use of specialized vehicles, to lessen impacts, may be implemented. If sensitive resources are identified, a qualified biologist would stake the route in areas of sensitive resources.

**Schedule**

Setup, staging, and access routes and areas typically would be used for the duration of the project. Local noise ordinances may stipulate the hours in which these areas may be occupied and used.

### Staff and Equipment

Staff and equipment necessary for staging would depend on the activity. Typical Valley Water maintenance crews would consist of one to six people. Equipment may include worker trucks, dump trucks, backhoes, loaders, skid-steer loaders, excavators, water trucks, and cranes. Project-specific work orders would detail the necessary staff and equipment for the activity.

**Table 11. Lockout/Tagout (Control of Hazardous Energy)**

| Activities Requiring Lockout/Tagout |
| --- |
| Activity – inspection |
| External inspection |
| Internal inspection |
| Activity – facility maintenance |
| Buried and exposed pipeline components, including pipeline sections, valves, and fittings |
| Manholes, meters, vaults, and related appurtenances |
| System instrumentation, controls, and monitoring |
| Backup generators |
| Pump stations and facilities |
| Storage tanks and facilities |
| Surge tanks |
| Access road and support structures |

### Procedure

Valley Water would implement a lockout/tagout procedure so that staff and contractors would be safe from unexpected energization or startup of machinery and equipment, hazardous energy releases during service and maintenance activities. The procedure would involve a designated employee turning off and disconnecting machinery or equipment before maintenance begins. The employee would lock or tag the energy-isolating device, to prevent hazardous energy release and verify that it is isolated effectively. Lockout/tagout would be performed before and after the work by designated Valley Water staff only.

### Schedule

Lockout/tagout would occur before the start of work and would be removed after completion by designated Valley Water staff only.

### Staff and Equipment

A designated Valley Water employee would perform lockout/tagout.

**Table 12. Pump-Out of Vaults/Manholes**

| Activities Requiring Pump-out of Vaults |
|---|
| **Activity – inspection** |
| External inspection |
| Internal inspection |
| Activity – facility maintenance |
| Buried and exposed pipeline components, including pipeline sections, valves, and fittings |
| Tunnels |
| Manholes, meters, vaults, and related appurtenances |
| System instrumentation, controls, and monitoring |
| Pump stations and facilities |
| Storage tanks and facilities |
| Surge tanks |
| Access road and support structures |

### Procedure

Vaults and manholes would require periodic cleaning, to verify a safe environment for worker access and reduce corrosion of equipment. The vault or manhole would be accessed and hosed down, to clean off debris. Water that may have accumulated in the vault from surface or groundwater infiltration, as well as water supplied by the hose, then would be pumped out according to the sump/vault pumping procedure described in the PMP Manual. Although the water typically would contain organic material, the procedure would provide guidelines for addressing parameters of concern, such as for potential contamination via visual and scent observations. The procedure would be followed for all pump-outs.

### Schedule

Pump-out typically would take less than 1 hour and often less than 15 minutes.

### Staff and Equipment

Pump-out of vaults and manholes typically would require at least two staff and two trucks. A pump would be used to lift the water from the vault. Depending on the vault or manhole, confined-space safety protocols may be necessary for entry. For work performed in streets, additional traffic control equipment and devices would be used to alert drivers and divert traffic.

***Pipeline Draining and Refilling Tasks***

**Table 13. Isolation**

| Activities That Require Isolation |
|---|
| **Activity – inspection** |
| External inspection |
| Internal inspection |
| **Activity – facility maintenance** |
| Buried and exposed pipeline components, including pipeline sections, valves, and fittings |
| Tunnels |
| Manholes, meters, vaults, and related appurtenances |
| System instrumentation, controls, and monitoring |
| Pump stations and facilities |
| Storage tanks and facilities |
| Surge tanks |
| Access road and support structures |

### Procedure

Isolation of pipeline sections would be used for activities requiring pipeline draining. Before any section of pipeline is isolated, Valley Water would complete an internal process to authorize the opening and closing of appropriate valves for pipeline isolation. Valve opening and closing could be controlled remotely at the appropriate supervisory control and data acquisition (SCADA) center or manually in the field. If valves are operated manually, Valley Water maintenance staff would be on site to operate the valves, and confined space safety protocols may be necessary for valves in vaults or manholes. The section of pipeline to be isolated would depend on the work to be done, and combinations of isolation valves may be used to drain a larger portion of the pipeline.

### Schedule

Isolation of pipeline sections would be used to facilitate activities requiring pipeline draining. This typically would be performed remotely and take only minutes but could take longer, depending on the number of valves needed to isolate the pipeline section. If the valves have to be operated manually in the field, Valley Water maintenance staff would mobilize to the site for the manual operation. Valves contained in vaults or manholes may require confined-space safety protocols before entry.

### Staff and Equipment

A qualified staff member would perform isolation of pipeline sections, either manually or via SCADA.

**Table 14. Dewatering**

| Activities that Require Dewatering |
|---|
| **Activity – inspection** |
| External inspection |
| Internal inspection |
| Activity – facility maintenance |
| Buried and exposed pipeline components, including pipeline sections, valves, and fittings |
| Tunnels |
| Manholes, meters, vaults, and related appurtenances |
| Pump stations and facilities |
| Storage tanks and facilities |
| Surge tanks |
| Access road and support structures |
| Bank stabilization, erosion control, and energy dissipation devices |
| Vegetation |

**Procedure**

**Isolation.** Refer to the Isolation Procedure, above.

**Dewatering.** Valley Water's pipelines are equipped with components, such as vaults, turnout piping, pump-out risers, and blow-offs, enabling the drainage of specific sections of the pipelines. The valves would be closed to redirect water from the main pipeline to flow to the surface pipeline release point, which could vary in design, structure, and location, depending on the type of water being released. The dewatering procedures and the types of receiving points to be used would depend on the system and water type, while additional requirements or limitations also may apply, depending on the receiving water body. The gravity flow method would be used first, followed by pumping out the pipelines using pump-out locations at low points in the pipeline profile, using pumps that would vary in capacity. Pump capacities could vary, but typically would range from about 3 cubic feet per second (cfs) to 11 cfs.

The amount of water released during dewatering would depend on the season, length of pipeline requiring isolation, topography of the pipeline, and the volume and velocity of water that could be released into the recharge facilities or turnouts. Flow rates would be adjusted to minimize scouring and the effects of rapid water-level increase and decrease. Flow rates would be controlled manually out of gravity flow blow-offs by controlling valves, and the area would be adjusted accordingly to maintain compliance with applicable BMPs and AMMs. Underground and aboveground energy dissipaters also would be used to reduce the velocity of the released water in certain areas, and the release rate gradually would be increased to prevent the buildup of water in streams, rivers, or canals and avoid scouring of the channel bed and ground surfaces.

Turnouts would be used for raw water releases only; such releases are permitted under Valley Water's Statewide Discharge Permit, issued in December 2015. Raw and treated water also may be discharged to local waterways, but treated water must be dechlorinated before release. Storm drains and urban drainage channels also could be used for raw and treated water, but again, treated water must be dechlorinated before release. For recycled water pipelines, release typically would be into existing sanitary sewers, which would require prior approval from the local authority that owns the system. Recycled water would need to meet certain quality requirements before release, and additional requirements may be stipulated to comply with National Pollution Discharge Elimination System (NPDES) permits.

*Other recycled releases.* Recycled water is defined as water which, because of treatment of waste, is suitable for a direct beneficial use or a controlled use that otherwise would not occur, and therefore is considered a valuable resource. Valley Water operates its recycled water conveyance system in accordance with applicable regulations, including the Uniform Statewide Recycling Criteria (Uniform Recycling Criteria) and recycled water General Order (Order WQ 2016-0068-DDW). The General Order is the primary method by which regional water boards permit recycled water distribution and use (not treatment). Dewatering for O&M would be directed to the sanitary sewer system for appropriate disposal and treatment. Other types of water reuse may be approved, such as for dust control, firefighting, hydrostatic testing, and other short-term or infrequent applications. The PMP Manual describes recycled water policies that would apply to Valley Water's maintenance of pipelines and appurtenances.

*Visqueen spillways.* When release points are lacking existing discharge infrastructure or adequate discharge infrastructure, installation, and removal of temporary BMPs would be used to create "Visqueen spillways" at release points. These structures would include hoses, wattles, and/or sandbags, Visqueen sheeting, geotextile fabric bags, flow-directing fish screens, or block nets. The structures would be put in place to minimize erosion.

*Groundwater.* When excavation would be required for inspection or maintenance activities, groundwater could be encountered. The groundwater would be pumped out according to procedures outlined in the PMP Manual and would be tested and treated if required. Groundwater also may infiltrate pipelines and vaults, requiring dewatering before O&M activities. Water also could infiltrate pipelines and vaults through blowoffs. When water is encountered this way, dewatering would follow the same procedure as described above.

**Treatment before release.** Raw, treated, and recycled water types have differing requirements for treatment before being released, depending on location and type of release.

*Raw water.* Raw water can have algal growth. To control algae, the State Water Resources Control Board occasionally adds copper sulfate to some of the raw water supplied to Valley Water in summer months. The amount of residual copper has been studied and is believed to be insignificant and not a pollutant of concern during dewatering (Water Utility Operation and Maintenance Pollution Prevention Work Group and Valley Water 2016). Raw water releases for maintenance typically would be done in winter. No treatment would be needed for raw water before dewatering.

*Treated water.* Treated water must be dechlorinated before any type of release. A dechlorination chemical would be added to the water to remove residual chlorine before effluent is dispersed into the receiving environment. Dechlorination could be performed on site with mobile units.

*Recycled water.* Recycled water contains disinfection chemicals and slightly higher concentrations of dissolved solids, ammonia, and nitrites than treated potable water (SCVWD 2016). For releases to be used or transported for non-potable uses (e.g., irrigation, construction, fire suppression, hydrostatic testing), the recycled water General Order would apply. The State of California Recycled Water Regulations provide water quality parameters for other recycled water uses, such as dust control, concrete mixing, soil compacting, or cleaning roads, sidewalks, and outdoor work areas, for which infrequent recycled water releases may be used. These types of uses would require recycled water of at least disinfected secondary--23 recycled water quality, a standard of total coliform bacteria concentration. Water quality testing for secondary-23 water is outlined in the State Recycled Water Regulations and includes daily coliform sampling.

The recycled water General Order does not apply to treatment of wastewater before releases to a sanitary sewer. The authority that owns the sanitary system and the wastewater treatment plant that processes the inflow may stipulate additional treatment requirements before sanitary sewer releases.

**Water quality testing.** Water quality testing would be performed for all release types. Depending on the type of water being released and point of release, testing may include chlorine residual, turbidity, dissolved oxygen, temperature, and pH. Valley Water staff and/or subcontractors are trained to complete water quality bench tests that provide quick results in the field. The specific requirements for water quality testing would be situational and determined by the applicable permit, BMP requirements, and mitigation measures. Recycled water releases have specific testing requirements, tied to the receiving authority's permits. Water quality testing would be performed actively during all releases, to verify that the released water quality is within acceptable parameters for the type of release. Operational decisions would be made on site, based on the active water quality sampling.

Implementation of applicable BMPs and AMMs may be documented through standard operating procedures or field data collected (e.g., the State Drinking Water System General Permit requires water utility agencies to log the BMPs implemented for planned potable water discharges) (Water Utility Operation and Maintenance Pollution Prevention Work Group and Valley Water 2016).

### Schedule

Total drainage time would depend on the released water volume and the flow rate at which it is expelled. Releases could last from a few hours to a few days. Property owners, irrigators, retailers, and stakeholders would be notified of pipeline shutdown dates and duration. Valley Water personnel would coordinate with property owners, cities, and special districts, to prepare for maintenance work and describe how that work may affect other land use operations.

### Staff and Equipment

A valve operator and a maintenance crew would be required to monitor the release. Portable generators, pumps, and Valley Water vehicles may be necessary.

**Table 15. Refilling**

| Activities That Require Isolation |
| --- |
| **Activity – inspection** |
| External inspection |
| Internal inspection |
| **Activity – facility maintenance** |
| Buried and exposed pipeline components, including pipeline sections, valves, and fittings |
| Tunnels |
| Manholes, meters, vaults, and related appurtenances |
| System instrumentation, controls, and monitoring |
| Pump stations and facilities |
| Storage tanks and facilities |
| Surge tanks |
| Access road and support structures |

The disinfection and refill procedures for pipelines are critical for the safety and quality of water supply for the public. Flushing pipelines, as applicable, would be the first step to remove any debris from the pipelines. After the pipelines are flushed, they would be refilled and pressure tested, following standard Valley Water procedures. Treated water pipelines would be disinfected after pressure testing, using a high concentration of sodium hypochlorite for disinfection. Before, during, and after the disinfection process, both normal chloramine residual and high chlorine water would be dechlorinated and then released to an approved location while being monitored against water quality criteria. The dechlorination system at the release points would eliminate both the normal chloramine residual and the high free-chlorine residual before the water is released. The disinfection process would be complete when bacteriological samples verify that it is effective, and the pipeline would be returned to service.

### Schedule

The refilling schedule would depend on the season and the size of the pipeline to refill. Refilling could take hours to days, depending on the type of water and required bacteriological testing results.

### Staff and Equipment

Small crews of one to five people would be responsible for installing blind flanges, replacing manhole covers, and closing valves. Equipment typically would consist of a truck to replace manhole covers. Additional crew members would be required if disinfection and dechlorination is needed.

***Pipeline System Infrastructure Maintenance and Repair Tasks***

**Table 16. Excavation, Backfill, Construction, and Other Ground Disturbance**

| Activities that Require Excavation, Construction, and other Ground Disturbance |
|---|
| **Activity – inspection** |
| External inspection |
| **Activity – facility maintenance** |
| Buried and exposed pipeline components, including pipeline sections, valves, and fittings |
| Tunnels |
| Manholes, meters, vaults, and related appurtenances |
| System instrumentation, controls, and monitoring |
| Backup generators |
| Pump stations and facilities |
| Storage tanks and facilities |
| Surge tanks |
| Access road and support structures |
| Bank stabilization, erosion control, and energy dissipation devices |
| Vegetation |

**Procedure**

**Pipelines and pipeline components.** Excavation would occur after identifying a segment of pipeline or an appurtenance requiring maintenance or repair. Excavation typically would be performed if internal pipe repair is not an option, or for appurtenances that require excavation for maintenance activities.

When excavation is determined necessary, survey crews would identify and mark the limits of the project ROW around the area to be excavated. If necessary, the area would be cleared of debris or vegetation. Backhoes or excavators would be used to excavate around the existing pipeline, vault, or access road. Excavated spoil material would be stored within the ROW during the maintenance activity or hauled to staging areas. Pipelines would vary in depth, with an average of about 5 to 6 feet below the ground surface. Hand-digging would be performed around the pipeline or appurtenance, to prevent damage from heavy machinery. Valley Water's Health and Safety Unit would enforce all applicable Occupational Safety and Health Administration (OSHA) regulations for excavation and trenching. After maintenance work is performed, the excavation typically would be backfilled with the same excavated material or, in some cases, backfilled with imported backfill soils, rock, or gravel. If imported backfill is used, then the excavated spoils would be removed from the site, tested, and properly disposed. Permitting, management, testing of all soil, transportation, and disposal of all regulated material encountered on site shall be performed in accordance with applicable local, State, and federal regulations and program BMPs and AMMs. Soil may be disposed of at state permitted landfills, on Valley Water-owned sites, or at other approved locations. The ROW would be returned to its original contours and grade or to the designed project lines and grades. Where appropriate, the disturbed soil would be stabilized by seeding in the appropriate season with an approved weed-free native mix.

Whenever possible, excavation in wetland and riparian areas would occur during the dry season (July 1 to October 15). If waterways contain flowing water, diversions may be necessary. The width of the area disturbed at drainage crossings would be minimized to avoid affecting more of the drainage than necessary to complete the work.

Erosion and sedimentation BMPs and AMMs would be implemented and maintained throughout excavation. BMPs and AMMs often include sedimentation barriers (e.g., straw bales, silt fences), to contain suspended soil on site. If rain is forecasted during excavation, sedimentation barriers would be installed and maintained across the ROW and above the drainage.
BMPs would remain in place until the excavated area is stabilized, and vegetation becomes established.

Before any excavation operations are initiated, a complete photographic history would be taken of the site and surrounding buildings. Post-excavation photographs would be taken to document the level of disturbance and any changes in the appearance of the environment.

**Access roads and support structures.** Excavations of various sizes also would be needed to maintain access roads. Typical activities would include filling potholes for drainage and erosion control, shoulder and slope repair, support structure repair, or re-graveling existing access roads. Access road excavations could be very small, to repair a pothole or shoulder slump, or involve larger linear excavations to perform maintenance on culverts, drainage ditches, or slope failures for elevated access-road fills. Gate and fence maintenance also may require minor excavation activities. Procedures for access road maintenance would be the same as those discussed above. Erosion control measures also would be applied as discussed above.

**Bank stabilization, erosion control, and energy dissipation devices.** Water releases could have high-velocity flow, which could cause erosion. Bank protection work would occur before a planned release in areas where banks that appear to show signs of erosion or instability are within 50 feet of the discharge point.

The extent of existing erosion around a release point would depend on several factors, including the following:

- existing bank substrate (vegetated versus earthen)
- slope and stability of the bank/geotechnical considerations
- natural and human-made erosion forces at the site (e.g., storm events, development, farming)

Bank stabilization before pipeline draining may be necessary in some areas, so that no significant erosion occurs during the activity. A typical permanent bank protection project would replace temporary bank protection measures, such as using geo-bales and fabric with concrete curbs and aprons. The intent would be to capture and direct flow to the area protected by the concrete. This apron would be extended downward, past the normal winter high-water mark, to avoid erosion at the interface between the concrete and channel bottom. The typical size of a bank protection project would be approximately 25 feet long by 10 feet deep on either side of a channel.

Bank protection for dewatering-point stabilization could include installation of hard structures (e.g., rock blankets, concrete, sack concrete, gabions). Preference would be given to incorporation of plantings that would serve a dual purpose in providing habitat as well as reducing erosion. Where hardscape would be necessary, protection measures could include the following:

- Gabions (not used in salmonid streams)
- Rock blankets (including larger riprap with small rock fill)
- Sacked concrete
- Articulated concrete mats

Of these methods, preference would be given to rock blankets, particularly in areas of high habitat value. Plastics would not be used for any permanent bank stabilization installations. The number of bank protections that would need to be performed would depend on the pipelines being drained and the condition of the banks at the release point. The type and location of necessary bank protection would be determined in spring before the scheduled fall and/or winter pipeline draining effort. Site-specific installation of synthetic cellular confinement may be used to reduce erosion temporarily during dewatering and would be removed after completion of dewatering activities.

The design of a particular bank protection project would include evaluation of other site-specific characteristics, such as bank slope, shear stress, locations (inside versus outside a curve), soil type, flow velocity and anticipated flow velocity from discharge, and channel characteristics. Bank stabilization methods and the basis of design would be included in project plans.

**Vegetation.** Maintenance of vegetation sometimes can cause ground disturbance. Valley Water conducts year-round vegetation maintenance along streams, around water conveyance structures and components, and at access points to support initiatives such as invasive species management, stream maintenance, public safety, and fire management. Activities and implementation schedules would be reviewed by Valley Water biological resources staff and coordinated with appropriate internal working groups and plans (e.g., Integrated Invasive Plant Management Plan) before application.

Tree removal and limbing may be required to improve vegetation health, mitigate safety hazards, and maintain access to pipelines. Certified arborists would identify trees for removal. Complete tree removal, stump grinding, and re-grading the land may be necessary to reduce erosion potential. Valley Water BMPs, including the Nesting Bird Policy and erosion control measures, would be implemented to reduce impacts and restore disturbed areas.

Mowing is a mechanical treatment and would be one of the most frequently used vegetation maintenance activities. Mowing would be used to maintain access points, minimize woody plant growth, and promote desirable vegetation. Mowing could be completed by a single crew member, using a pickup and a trailered mower.

In addition to mowing and other mechanical removal, non-mechanical vegetation maintenance measures also may be used. These may include hand-pulling weed abatement, pruning and limb removal, removal of vegetation (not mow-able), goat grazing, and steaming.

Herbicide application may be appropriate for pre- and post-emergent weed abatement and prevention of unwanted tree re-growth on a cut stump. Valley Water's general BMPs addressing herbicide application would be followed for all treatments.

### Schedule

**Pipelines and pipeline components, and access roads and support structures.** The duration of time necessary for work would depend on the length of the segment that needs to be excavated. Work generally would be completed within a few weeks. If excavation is necessary for leak repair, it could occur at any time. A severe leak that compromises system pressures and/or Valley Water's ability to provide safe, reliable water may require emergency repair and would not be a PMP activity. Excavations for pipeline draining that require pipeline shutdowns typically occur in winter. Other excavations, such as for road maintenance or telemetry systems, would occur during the dry season (May 1 through October 31). Blow-off valve repair in stream banks and bank protection measures would be performed between July 1 and October 31, when water levels in streams would be lowest. Reclamation and reseeding of disturbed areas usually occur in late fall before the rainy season begins.

**Bank stabilization, erosion control, and energy dissipation devices.** Bank protection projects generally occur in the dry season, between July 1 to October 1. The average duration of a bank protection project would be 5 to 7 working days.

**Vegetation.** Vegetation maintenance tools may range from chainsaws and rakes to large machines, such as bulldozers and woodchippers. Crews and equipment would be transported by truck, and equipment would be stored in an established staging area. Vegetation removal could occur throughout the year, as needed for safe access and maintenance of facilities.

### Staff and Equipment

**Pipelines and pipeline components, and access roads and support structures.** Excavation usually would involve a small crew of two to 10 people but could require a larger crew in some cases. Equipment would include flatbed delivery trucks, water trucks, backhoes, excavators, compactors, sump pumps, shoring equipment, and loaders/dozers.

**Bank stabilization, erosion control, and energy dissipation devices.** Equipment for bank protection may include excavators, dozers, loaders, dump trucks, concrete trucks, pumps, and water trucks. If water is required to be diverted around the site during construction, water pumps and piping also may be used.

**Vegetation.** Vegetation maintenance crews would average two to five people but would vary, depending on the size of the treatment area.

**Table 17. Repair of Pipeline System Infrastructure**

| Activities Requiring Repair of Pipeline System Infrastructure |
|---|
| **Activity – facility maintenance** |
| Buried and exposed pipeline components, including pipeline sections, valves, and fittings |
| Tunnels |
| Manholes, meters, vaults, and related appurtenances |
| Backup generators |
| Pump stations and facilities |
| Storage tanks and facilities |
| Surge tanks |

### Procedure

**Overview.** This task would include direct pipeline repairs as well as repairs to system components, such as backup generators, manholes, meters, vaults, storage tanks, pump stations, and surge tanks.

Pipeline-specific repair activities would depend on the results of the inspections and the pipeline or component and would include both internal and external maintenance. Repair to pipelines could include applying cement-mortar grout at joints or locations where linings are damaged, installing Weko (rubber-type) seals, welding joints, and replacing valves. Internal pipeline repairs would require discharge as described above. Some examples of maintenance activities to be performed under this task are highlighted next.

**Replacing valves.** Valves would be replaced if they have demonstrated leaks or failure or no longer open or close. The replacement methodology would depend on the type of valve. Valves generally are scheduled for replacement at a frequency of once every 25 years for 2-inch and smaller in diameter valves, and once every 33 years for valves larger than 2 inches in diameter. The procedure would include complete removal and disposal of old valves and installation of a new valve, according to manufacturer specifications. Valve replacement could occur during in-pipe or external repair. Excavation sometimes would be necessary to do repair work. If proper isolation is not available, discharge would be required. Used parts and waste from repair may be transported to Valley Water pumping plants for disposal, or the contractor may dispose them directly.

**Replacing pipeline sections.** Occasionally, sections of the pipeline would need to be replaced. Replacement would involve excavation and removal of the existing pipeline section. Procedures for placing the new pipeline sections would depend on the type of pipeline material but generally would consist of joining the pipe, coating, or wrapping the pipe at joints; testing for leaks before backfilling; and adding backfill, cathodic protection (for steel pipes), and electrical insulation of dissimilar metals if required. Replacement or repair of pipeline sections under 1 mile in length and within a public ROW would be exempt from CEQA (California Public Resources Code Section 21080.21). The CEQA exemption is limited to subsurface facilities and does not include repair or replacement of surface facilities related to the operation of the underground facilities; however, such activities would be covered by the PMP.

**Installing new appurtenances.** Although the pipeline systems are operated and maintained, occasionally new appurtenances would be added to the system to improve existing O&M capabilities for more reliability, such as adding new valves, flowmeters, or monitoring systems. Installing new appurtenances could be associated with repairing pipelines or existing appurtenances. Adding new appurtenances would not increase or expand the system capacity.

### Schedule

The repair schedule would be highly dependent on the extent of repairs for the segment of pipeline or water system component under evaluation. Typical open-trench pipeline repairs would be completed in 1 to 2 weeks. Air release valves would be serviced approximately every 6 months, with repair work typically requiring about 1 week depending on the extent of repairs to be performed.

### Staff and Equipment

The number of required crew members and type of equipment needed for repairs to backup generators, manholes, meters, vaults, storage tanks, pump stations, and surge tanks would vary, depending on the task. Repair work may require specialized plumbing or electrical subcontractors. For maintenance of water tanks, dive crews may be required (similar to inspection activities). If a diver is used, they would follow the industry standards set by the American Water Works Association, outlining recommendations for divers in potable water facilities. Specialized equipment may be required for a large pump removal/replacement and a vault or manhole replacement.

For pipeline-specific repair, three crew members typically would be used for in-pipe repair, and this work may be subcontracted. Valley Water's Utility Maintenance Unit provides pipeline ventilation and confined-space entry, and Valley Water's Environmental Health and Safety Unit enforces all applicable OSHA regulations. Equipment would include hand-held maintenance tools, ventilation fans, and welding torches. Workers also would use specialized confined-space equipment.

For repair of air release valves, routine preventive maintenance would require at least two crew members and usually two trucks. For work in streets, an additional truck with a lighted signboard would be used if traffic is a concern.

**Table 18. Non-Ground-Disturbing Repair**

| Activities that Require Non-ground Disturbing Repair |
|---|
| **Activity – facility maintenance** |
| Manholes, meters, vaults, and related appurtenances |
| System instrumentation, controls, and monitoring |
| Backup generators |
| Pump stations and facilities |
| Storage tanks and facilities |
| Surge tanks |
| Access road and support structures |
| Vegetation |

### Procedure

**Overview.** Water conveyance system maintenance activities would be conducted regularly with minimal ground disturbance. Maintenance and replacement work may involve aboveground pipeline features, such as pipeline markers, standpipes, and equipment cages/boxes. Larger features, such as backup generators, uninterruptible power supplies, pump stations, storage tanks, and surge tanks, also may require maintenance and replacement, which could be conducted without ground disturbance. These activities typically would be performed on existing equipment within the current infrastructure, and if required, new appurtenances also could be installed on the existing pipeline infrastructure if they do not increase the system's capacity.

**Backup generators.** Backup generators would be tested routinely and inspected to verify their readiness in case of an emergency. Backup generator maintenance may include work on the fuel system, equipment pad, fuel piping, transition sumps, leak containment, alarm panel, instrumentation, or electrical controls. Lighting and security equipment also may be installed or maintained. Vegetation maintenance may occur around generator facilities. Sound attenuation would be important, to minimize noise disturbance to both the facility and potential sensitive noise receptors. All generators would be outdoor-rated and sound-attenuated to restrict noise; however, additional attenuation may be installed if necessary. All portable and stationary backup generators that are used by Valley Water are fully licensed/permitted by the air pollution control district.

**Pump stations.** Valley Water maintenance crews are trained in pump station maintenance and repair, basic electrical, and basic telemetry troubleshooting. Regular maintenance would be required in any moving part of the pump, and repairs may be required to any of the regularly inspected components, based on oil level and condition, noise and vibration, bearing temperatures, leaks from the pump housing, leaks from pipe connections, cracks in pipes or hoses, discharge pressure, intake pressure, seal integrity, and operating temperature. Electrical and instrumentation repairs may be required as well as repairs to the structure housing the pump.

**Water tanks.** Water storage tanks have multiple appurtenances that may be repaired or replaced without ground disturbance. Tank re-coating, cleaning, and electrical and instrumentation repairs also are examples of work that would be completed under this facility maintenance activity.

**Schedule**

Activities for non-ground-disturbing repair could take less than a day for small repairs, to multiple days for pump replacements or water tank re-coatings and cleanings.

**Staff and Equipment**

The number of crew members and equipment required for these repairs would depend on the nature of the work to be performed. Trained Valley Water crews could handle most regular maintenance repairs, and typically, one to three crew members would be required for these tasks. However, specialized subcontractors may be necessary for certain types of work.

For these maintenance activities, one to two work trucks and hand-held tools usually would be sufficient. However, equipment may be in confined spaces requiring ventilation and confined-space entry precautions. Valley Water's Environmental Health and Safety Unit would verify that all applicable OSHA regulations are followed. Specialized confined-space equipment would be used by the workers, and inspection crew members and Valley Water vehicles would be present on site. If required, a small crane or hoist may be used for pump replacement.

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# APPENDIX B. BEST MANAGEMENT PRACTICES

| BMP Number | BMP Description |
| --- | --- |
| AQ-1<br>Use Dust Control Measures | The following Bay Area Air Quality Management District (BAAQMD) Dust Control Measures will be implemented:<br><br>1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day;<br>2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered;<br>3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited;<br>4. Water used to wash the various exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, etc.) will not be allowed to enter waterways;<br>5. All vehicle speeds on unpaved roads shall be limited to 15 mph;<br>6. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;<br>7. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations), and this requirement shall be clearly communicated to construction workers (such as verbiage in contracts and clear signage at all access points);<br>8. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications, and all equipment shall be checked by a certified visible emissions evaluator;<br>9. Correct tire inflation shall be maintained in accordance with manufacturer's specifications on wheeled equipment and vehicles to prevent excessive rolling resistance; and,<br>10. Post a publicly visible sign with a telephone number and contact person at the lead agency to address dust complaints; any complaints shall be responded to and take corrective action within 48 hours. In addition, a BAAQMD telephone number with any applicable regulations will be included. |
| AQ-2<br>Avoid Stockpiling Odorous Materials | Materials with decaying organic material, or other potentially odorous materials, will be handled in a manner that avoids impacting residential areas and other sensitive receptors, including:<br><br>1. Avoid stockpiling potentially odorous materials within 1,000 feet of residential areas or other odor sensitive land uses; and<br>2. Odorous stockpiles will be disposed of at an appropriate landfill. |

| BMP Number | BMP Description |
|---|---|
| BI-1<br>Avoid Relocating Mitten Crabs | Sediment potentially containing Chinese Mitten Crabs will not be transported between San Francisco Bay Watersheds and Monterey Bay Watersheds, specifically:<br><br>1. Sediment removed from the San Francisco Bay watersheds will not be transported south of Coyote Creek Golf Drive in south San Jose, and the intersection of McKean and Casa Loma Roads; and,<br>2. Earth moving equipment used in the San Francisco Bay watershed will be cleaned before being moved to, and used in, the Pajaro Watershed. |
| BI-2<br>Minimize Impacts to Steelhead | Minimize potential impacts to salmonids by avoiding routine use of vehicles and equipment in salmonid streams between January 1 and June 15. |
| BI-3<br>Remove Temporary Fill | Temporary fill materials, such as for diversion structures or cofferdams, will be removed upon finishing the work or as appropriate. The creek channels and banks will be re-contoured to match pre-construction conditions to the extent possible. Low-flow channels within non-tidal streams will be contoured to facilitate fish passage and will emulate the preconstruction conditions as closely as possible, within the finished channel topography. |
| BI-4<br>Minimize Adverse Effects of Pesticides on Non-target Species | “Pesticides” refers to any herbicide, insecticide, rodenticide, algaecide, fungicide, or any combination of substances intended to prevent, destroy, or repel any pest. Pesticides will be handled, stored, transported, and used in compliance with any established directions and in a manner that minimizes negative environmental effects on non-target species and sensitive habitats.<br><br>The proposed project plan for handling, storing, transporting, and using pesticides must be reviewed and approved by both of the following subject matter experts:<br><br>1. District’s Pest Control Advisor (a State-certified Qualified Applicator) – the plan will be reviewed, and modified as deemed appropriate, for compliance with: District policy, label restrictions and any advisories published by the California Department of Pesticide Regulation, the Santa Clara County Division of Agriculture, and the U.S. EPA bulletin *Protecting Endangered Species, Interim Measures for Use of Pesticides in Santa Clara County* (USEPA 2000).<br>2. Qualified District Biologist (as defined in EMAP-30264) – the plan will be reviewed, and modified as deemed appropriate, for compliance with: District policy, approved environmental review documents, project permits, and avoidance of all known listed (Threatened or Endangered) and sensitive species. Information sources for determination of all known locations of species that may be harmed by pesticides include the District’s GIS system and California Natural Diversity Database (CNDDB). |

| BMP Number | BMP Description |
|---|---|
| | Either the District's Pest Control Advisor or the Qualified District Biologist may modify the proposed pesticide plan, such as establishing buffer areas or prohibiting the use of pesticides outright, based on site-specific data, current regulatory requirements, and District policy.<br><br>The purchase of all pesticides must be approved by the District's Pest Control Advisor to ensure compliance with the District's *Control and Oversight of Pesticide Use* policy and appropriate regulatory agency reporting requirements. |
| BI-5<br>Avoid Impacts to Nesting Migratory Birds | Nesting birds are protected by state and federal laws. The District will protect nesting birds and their nests from abandonment, loss, damage, or destruction. Nesting bird surveys will be performed by a qualified biologist prior to any activity that could result in the abandonment, loss, damage, or destruction of birds, bird nests, or nesting migratory birds. Inactive bird nests may be removed with the exception of raptor nests. Birds, nests with eggs, or nests with hatchlings will be left undisturbed. |
| BI-6<br>Avoid Impacts to Nesting Migratory Birds from Pending Construction | Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where construction activities would occur. All nesting exclusion devices will be maintained throughout the nesting season or until completion of work in an area makes the devices unnecessary. All exclusion devices will be removed and disposed of when work in the area is complete. |
| BI-7<br>Minimize Impacts to Vegetation from Survey Work | Survey cross-sections will be moved, within acceptable tolerances, to avoid cutting dense riparian vegetation and minimize cutting of woody vegetation, taking advantage of natural breaks in foliage. If the cross-section cannot be moved within the established acceptable tolerances to avoid impacts to dense riparian or woody vegetation, the survey section will be abandoned. |
| BI-8<br>Choose Local Ecotypes Of Native Plants and Appropriate Erosion-Control Seed Mixes | Whenever native species are prescribed for installation the following steps will be taken by a qualified biologist or vegetation specialist:<br><br>1. Evaluate whether the plant species currently grows wild in Santa Clara County; and,<br>2. If so, the qualified biologist or vegetation specialist will determine if any need to be local natives, i.e. grown from propagules collected in the same or adjacent watershed, and as close to the project site as feasible.<br><br>Also, consult a qualified biologist or vegetation specialist to determine which seeding option is ecologically appropriate and effective, specifically:<br><br>1. For areas that are disturbed, an erosion control seed mix may be used consistent with the SCVWD *Guidelines and Standards for Land Use Near Streams, Design Guide 5, 'Temporary Erosion Control Options.'*<br>2. In areas with remnant native plants, the qualified biologist or vegetation specialist may choose an abiotic application instead, such as an erosion control blanket or seedless hydro-mulch and tackifier to facilitate passive revegetation of local native species. |

| BMP Number | BMP Description |
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| | 3. Temporary earthen access roads may be seeded when site and horticultural conditions are suitable.<br>4. If a gravel or wood mulch has been used to prevent soil compaction, this material may be left in place [if ecologically appropriate] instead of seeding.<br><br>Seed selection shall be ecologically appropriate as determined by a qualified biologist, per *Guidelines and Standards for Land Use Near Streams, Design Guide 2: Use of Local Native Species*. |
| BI-9<br>Restore Riffle/Pool Configuration of Channel Bottom | The channel bottom shall be re-graded at the end of the work project to as close to original conditions as possible.<br><br>In salmonid streams, restore pool and riffle configurations to emulate pre-project instream conditions, taking into account channel morphological features (i.e. slope), which affects riffle/pool sequence. |
| BI-10<br>Avoid Animal Entry and Entrapment | All pipes, hoses, or similar structures less than 12 inches diameter will be closed or covered to prevent animal entry. All construction pipes, culverts, or similar structures, greater than 2-inches diameter, stored at a construction site overnight, will be inspected thoroughly for wildlife by a qualified biologist or properly trained construction personnel before the pipe is buried, capped, used, or moved. If inspection indicates presence of sensitive or state- or federally listed species inside stored materials or equipment, work on those materials will cease until a qualified biologist determines the appropriate course of action.<br><br>To prevent entrapment of animals, all excavations, steep-walled holes, or trenches more than 6-inches deep will be secured against animal entry at the close of each day. Any of the following measures may be employed, depending on the size of the hole and method feasibility:<br><br>1. Hole to be securely covered (no gaps) with plywood, or similar materials, at the close of each working day, or any time the opening will be left unattended for more than one hour; or<br>2. In the absence of covers, the excavation will be provided with escape ramps constructed of earth or untreated wood, sloped no steeper than 2:1, and located no farther than 15 feet apart; or<br>3. In situations where escape ramps are infeasible, the hole or trench will be surrounded by filter fabric fencing or a similar barrier with the bottom edge buried to prevent entry |
| BI-11<br>Minimize Predator-Attraction | Remove trash daily from the worksite to avoid attracting potential predators to the site. |

| BMP Number | BMP Description |
|---|---|
| CU-1<br>Accidental Discovery of Archaeological Artifacts or Burial Remains | If historical or unique archaeological artifacts are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Work at the location of the find will halt immediately within 30 feet of the find. A “no work” zone shall be established utilizing appropriate flagging to delineate the boundary of this zone. A Consulting Archaeologist will visit the discovery site as soon as practicable for identification and evaluation pursuant to Section 21083.2 of the Public Resources Code and Section 15126.4 of the California Code of Regulations. If the archaeologist determines that the artifact is not significant, construction may resume. If the archaeologist determines that the artifact is significant, the archaeologist will determine if the artifact can be avoided and, if so, will detail avoidance procedures. If the artifact cannot be avoided, the archaeologist will develop within 48 hours an Action Plan which will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines.<br><br>If burial finds are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Upon discovering any burial site as evidenced by human skeletal remains, the County Coroner will be immediately notified and the field crew supervisor shall take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent. No further excavation or disturbance within 30 feet of the site or any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the County Coroner, California Native American Heritage Commission, and/or the County Coordinator of Indian Affairs. |
| HM-1<br>Comply with All Pesticide Application Restrictions and Policies | Pesticide products are to be used only after an assessment has been made regarding environmental, economic, and public health aspects of each of the alternatives by the District’s Pest Control Advisor (PCA). All pesticide use will be consistent with approved product specifications. Applications will be made by, or under the direct supervision of, State Certified applicators under the direction of, or in a manner approved by the PCA. Refer to Q751D02, Control and Oversight of Pesticide Use. |
| HM-2<br>Minimize Use of Pesticides | In all cases, where some form of pest control is deemed necessary by the PCA; evaluate alternative pest control methods and pesticides. Refer to Q751D02: Control and Oversight of Pesticide Use. |
| HM-3<br>Post Areas Where Pesticides Will Be Used | Posting of areas where pesticides are to be used shall be performed in compliance with Q751D02: Control and Oversight of Pesticide Use. Posting shall be performed in compliance with the label requirements of the product being applied.<br><br>In addition, the District shall provide posting for any products applied in areas used by the public for recreational purposes, and areas readily accessible to the public, regardless of whether the label requires such notification (the posting method may be modified to avoid destruction of bait stations or scattering of rodenticide), including: |

| BMP Number | BMP Description |
|---|---|
| | 1. Sign postings shall notify staff and the general public of the date and time of application; the product's active ingredients, and common name; and, the time of allowable re-entry into the treated area.<br>2. A District staff contact phone number shall be posted on the sign.<br>3. Signs shall not be removed until after the end of the specified re-entry interval.<br>4. Right-to-know literature on the product shall be made available upon request to anyone in the area.<br>5. Notification will take into account neighbors with specific needs prior to treatment of an adjacent area to ensure such needs are met. Such requests are maintained by the District under Q751D02. |
| HM-4<br>Comply with All Pesticide Usage Requirements | All projects that propose ongoing use of pesticides will comply with all provisions of Q751D02: Control and Oversight of Pesticide Use, including, but not necessarily limited to the following:<br><br>1. All pest control methods will be performed only after a written Pest Control Recommendation for use has been prepared by the District's PCA in accordance with requirements of the California Food and Agricultural Code.<br>2. F751D01 – Pest Control Recommendation & Spray Operators Report will be completed for each pesticide application. |
| HM-5<br>Comply with Restrictions on Herbicide Use in Upland Areas | Consistent with provisions of Q751D02: Control and Oversight of Pesticide Use, application of pre-emergence (residual) herbicides to upland areas will not be made within 72 hours of predicted significant rainfall. Predicted significant rainfall for the purposes of this BMP will be described as local rainfall greater than 0.5 inch in a 24-hour period with greater than a 50% probability of precipitation according to the National Weather Service. |
| HM-6<br>Comply with Restrictions on Herbicide Use in Aquatic Areas | Consistent with provisions of Q751D02: Control and Oversight of Pesticide Use, only herbicides and surfactants registered for aquatic use will be applied within the banks of channels within 20 feet of any water present.<br><br>Furthermore, aquatic herbicide use will be limited to June 15th through October 31st with an extension through December 31 or until the first occurrence of any of the following conditions; whichever happens first:<br><br>1. local rainfall greater than 0.5 inches is forecasted within a 24-hour period from planned application events according to the National Weather Service; or<br>2. when steelhead begin upmigrating and spawning in the 14 steelhead creeks, as determined by a qualified biologist (typically in November/December).<br><br>If rain is forecast then application of aquatic herbicide will be rescheduled. |
| HM-7<br>Restrict Vehicle and Equipment Cleaning to Appropriate Locations | Vehicles and equipment may be washed only at approved areas. No washing of vehicles or equipment will occur at job sites. |

| BMP Number | BMP Description |
|---|---|
| HM-8<br>Ensure Proper Vehicle and Equipment Fueling and Maintenance | No fueling or servicing will be done in a waterway or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators).<br><br>1. For stationary equipment that must be fueled or serviced on-site, containment will be provided in such a manner that any accidental spill will not be able to come in direct contact with soil, surface water, or the storm drainage system.<br>2. All fueling or servicing done at the job site will provide containment to the degree that any spill will be unable to enter any waterway or damage riparian vegetation.<br>3. All vehicles and equipment will be kept clean. Excessive build-up of oil and grease will be prevented.<br>4. All equipment used in the creek channel will be inspected for leaks each day prior to initiation of work. Maintenance, repairs, or other necessary actions will be taken to prevent or repair leaks, prior to use.<br>5. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be done in a channel or flood plain. |
| HM-9<br>Ensure Proper Hazardous Materials Management | Measures will be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means.<br><br>1. Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered.<br>2. Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers with appropriate secondary containment to prevent any spillage or leakage.<br>3. Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials will not contact soil and not be allowed to enter surface waters or the storm drainage system.<br>4. All toxic materials, including waste disposal containers, will be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage system or surface water.<br>5. Quantities of toxic materials, such as equipment fuels and lubricants, will be stored with secondary containment that is capable of containing 110% of the primary container(s).<br>6. The discharge of any hazardous or non-hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations will be conducted in accordance with applicable State and federal regulations.<br>7. In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1-800-510-5151. |

| BMP Number | BMP Description |
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| HM-10<br>Utilize Spill Prevention Measures | Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water following these measures:<br><br>1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and clean up of accidental spills;<br>2. Equipment and materials for cleanup of spills will be available on site, and spills and leaks will be cleaned up immediately and disposed of according to applicable regulatory requirements;<br>3. Field personnel will ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means;<br>4. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations), and all field personnel will be advised of these locations; and,<br>5. The work site will be routinely inspected to verify that spill prevention and response measures are properly implemented and maintained. |
| HM-11<br>Ensure Worker Safety in Areas with High Mercury Levels | To ensure worker safety is protected in areas with elevated mercury concentrations in exposed surfaces, personal protective equipment will be required during project construction to maintain exposure below levels established by the California Division of Occupational Safety and Health (Cal/OSHA). |
| HM-12<br>Incorporate Fire Prevention Measures | 1. All earthmoving and portable equipment with internal combustion engines will be equipped with spark arrestors.<br>2. During the high fire danger period (April 1–December 1), work crews will have appropriate fire suppression equipment available at the work site.<br>3. An extinguisher shall be available at the project site at all times when welding or other repair activities that can generate sparks (such as metal grinding) is occurring.<br>4. Smoking shall be prohibited except in designated staging areas and at least 20 feet from any combustible chemicals or vegetation. |
| HM-13<br>Avoid Impacts from Naturally Occurring Asbestos | The District will comply with and implement BAAQMD dust control measures and notification requirements when working in serpentine soils. |
| WQ-1<br>Conduct Work from Top of Bank | For work activities that will occur in the channel, work will be conducted from the top of the bank if access is available and there are flows in the channel. |

| BMP Number | BMP Description |
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| WQ-2<br>Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms | Field personnel will use the appropriate equipment for the job that minimizes disturbance to the stream bottom. Appropriately tired vehicles, either tracked or wheeled, will be used depending on the situation. Tracked vehicles (bulldozers, loaders) may cause scarification. Wheeled vehicles may cause compaction. Heavy equipment will not operate in the live stream. |
| WQ-3<br>Limit Impact of Pump and Generator Operation and Maintenance | Pumps and generators will be maintained and operated in a manner that minimizes impacts to water quality and aquatic species.<br><br>1. Pumps and generators will be maintained according to manufacturers' specifications to regulate flows to prevent dry-back or washout conditions.<br>2. Pumps will be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high-water conditions, which creates ponding.<br>3. Pump intakes will be screened to prevent uptake of fish and other vertebrates. Pumps in steelhead creeks will be screened according to NMFS criteria.<br>4. Sufficient back-up pumps and generators will be onsite to replace defective or damaged pumps and generators. |
| WQ-4<br>Limit Impacts From Staging and Stockpiling Materials | 1. To protect on-site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and project spoil) will be contained within the existing service roads, paved roads, or other pre-determined staging areas.<br>2. Building materials and other project-related materials, including chemicals and sediment, will not be stockpiled, or stored where they could spill into water bodies or storm drains.<br>3. No runoff from the staging areas may be allowed to enter water ways, including the creek channel or storm drains, without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens).<br>4. The discharge of decant water to water ways from any on-site temporary sediment stockpile or storage areas is prohibited.<br>5. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. During the dry season; exposed, dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers. |

| BMP Number | BMP Description |
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| WQ-5<br>Stabilize Construction Entrances and Exits | Measures will be implemented to minimize soil from being tracked onto streets near work sites:<br><br>1. Methods used to prevent mud from being tracked out of work sites onto roadways include installing a layer of geotextile mat, followed by a 4-inch-thick layer of 1 to 3-inch diameter gravel on unsurfaced access roads.<br>2. Access will be provided as close to the work area as possible, using existing ramps where available and planning work site access so as to minimize disturbance to the water body bed and banks, and the surrounding land uses. |
| WQ-6<br>Limit Impact of Concrete Near Waterways | Concrete that has not been cured is alkaline and can increase the pH of the water; fresh concrete will be isolated until it no longer poses a threat to water quality using the following appropriate measures:<br><br>1. Wet sacked concrete will be excluded from the wetted channel for a period of four weeks after installation. During that time, the wet sacked concrete will be kept moist (such as covering with wet carpet) and runoff from the wet sacked concrete will not be allowed to enter a live stream.<br>2. Poured concrete will be excluded from the wetted channel for a period of four weeks after it is poured. During that time, the poured concrete will be kept moist, and runoff from the wet concrete will not be allowed to enter a live stream. Commercial sealants (e.g., Deep Seal, Elasto-Deck Reservoir Grade) may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If a sealant is used, water will be excluded from the site until the sealant is dry.<br>3. Dry sacked concrete will not be used in any channel.<br>4. An area outside of the channel and floodplain will be designated to clean out concrete transit vehicles. |
| WQ-7<br>Isolate Work in Tidal Areas With Use of Coffer Dam | For work in tidal areas, It is preferable to isolate one side of the channel with a cofferdam and allow flows to continue on the other side of the creek. If downstream flows cannot be diverted around the project site, the creek waters will be transmitted around the site through cofferdam bypass pipes. By isolating the work area from tidal flows, water quality impacts are minimized.<br><br>1. Installation of coffer dams will begin at low tide.<br>2. Waters discharged through tidal coffer dam bypass pipes will not exceed 10 percent in areas where natural turbidity is greater than 50 NTU over the background levels of the tidal waters into which they are discharged.<br>3. Coffer dams in tidal areas may be made from earthen or gravel material. If earth is used, the downstream and upstream faces will be covered by a protected covering (e.g., plastic or fabric) and anchored to minimize erosion.<br>4. Cofferdams and bypass pipes will be removed as soon as possible but no more than 72 hours after work is completed. Flows will be restored at a reduced velocity to minimize erosion, turbidity, or harm to downstream habitat. |

| BMP Number | BMP Description |
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| WQ-8<br>Minimize Hardscape in Bank Protection Design | Bank repair techniques appropriate to a given site based on hydraulic and other site conditions will be selected.<br><br>1. Biotechnical repair methods include construction with living materials; willow wattling; erosion control blankets; brush matting; and, installation of root wads and boulders in banks.<br>2. The repair will be designed and installed so that it will be self-sustaining and use vegetation that adds structural integrity to the stream bank. |
| WQ-9<br>Use Seeding for Erosion Control, Weed Suppression, and Site Improvement | Disturbed areas shall be seeded with native seed as soon as is appropriate after activities are complete. An erosion control seed mix will be applied to exposed soils down to the ordinary high-water mark in streams.<br><br>1. The seed mix should consist of California native grasses, (for example Hordeum brachyantherum; Elymus glaucus; and annual Vulpia microstachyes) or annual, sterile hybrid seed mix (e.g., Regreen™, a wheat x wheatgrass hybrid).<br>2. Temporary earthen access roads may be seeded when site and horticultural conditions are suitable or have other appropriate erosion control measures in place. |
| WQ-10<br>Prevent Scour Downstream of Sediment Removal | After sediment removal, the channel will be graded so that the transition between the existing channel both upstream and downstream of the work area is smooth, and continuous between the maintained and non-maintained areas, and does not present a sudden vertical transition (wall of sediment) or other blockage that could erode once flows are restored to the channel. |
| WQ-11<br>Maintain Clean Conditions at Work Sites | The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials on a daily basis. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways.<br><br>For activities that last more than one day, materials or equipment left on the site overnight will be stored as inconspicuously as possible and will be neatly arranged. Any materials and equipment left on the site overnight will be stored to avoid erosion, leaks, or other potential impacts to water quality.<br><br>Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site. |
| WQ-12<br>Manage Well or Exploratory Boring Materials | All materials or waters generated during drilling, well or exploratory boring construction, well development, pump testing, or other activities associated with wells or exploratory borings, will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case will these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed. |

| BMP Number | BMP Description |
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| WQ-13<br>Protect Groundwater from Contaminates Via Wells or Exploratory Borings | Any substances or materials that may degrade groundwater quality will not be allowed to enter any well or boring. Lubricants used on drill bits, drill pipe, or tremie pipe will not be comprised of oily or greasy substances or other materials that may degrade groundwater quality.<br><br>Well openings or entrances will be sealed or secured in such a way as to prevent the introduction of contaminants. |
| WQ-14<br>Backfill Completed Exploratory Borings | All borings should be backfilled within 24 hours of termination of testing. Borings will not be left in such a condition as to allow for the introduction of surface waters or foreign materials into them. Borings will be secured such that they do not endanger public health.<br><br>All borings must be properly destroyed by backfilling with acceptable sealing materials. Acceptable sealing materials are:<br><br>1. 27 sack neat cement (four 94-pound bags/55-gallon drum),<br>2. 10 sack cement sand grout, or<br>3. hydrated high solids 20 percent bentonite slurry.<br><br>No soil cuttings may be used for backfilling boreholes. No bentonite chips or pellets may be used to backfill borings.<br><br>Free fall of sealing material will not be allowed if greater than 30 feet or if more than 3 feet of standing water exists in borehole. A tremie pipe must be used to place the cement sealing material if exploratory boring is over 30 feet deep or if more than 3 feet of standing water exists in borehole. Exploratory borings located in Geologic Setting Zone 4 (bedrock) may be backfilled with borehole cuttings from total depth of the boring up to a depth of 50 feet from the surface grade. The top 50 feet of the borehole must be backfilled with above-described sealing materials. |
| WQ-15<br>Prevent Water Pollution | Oily, greasy, or sediment laden substances or other material that originate from the project operations and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife will not be allowed to enter, or be placed where they may later enter, any waterway.<br><br>The project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows:<br><br>1. where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5 percent; |

| BMP Number | BMP Description |
|---|---|
| | 2. where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent;<br>3. where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the project.<br><br>Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site. Natural watercourse turbidity measurements will be made prior to initiation of project discharges, preferably at least 2 days prior to commencement of operations. |
| WQ-16<br>Prevent Stormwater Pollution | To prevent stormwater pollution, the applicable measures from the following list will be implemented:<br><br>1. Soils exposed due to project activities will be seeded and stabilized using hydroseeding, straw placement, mulching, and/or erosion control fabric. These measures will be implemented such that the site is stabilized and water quality protected prior to significant rainfall. In creeks, the channel bed and areas below the Ordinary High-Water Mark are exempt from this BMP.<br>2. The preference for erosion control fabrics will be to consist of natural fibers; however, steeper slopes and areas that are highly erodible may require more structured erosion control methods. No non-porous fabric will be used as part of a permanent erosion control approach. Plastic sheeting may be used to temporarily protect a slope from runoff, but only if there are no indications that special-status species would be impacted by the application.<br>3. Erosion control measures will be installed according to manufacturer’s specifications.<br>4. To prevent stormwater pollution, the appropriate measures from, but not limited to, the following list will be implemented:<br>• Silt Fences<br>• Straw Bale Barriers<br>• Brush or Rock Filters<br>• Storm Drain Inlet Protection<br>• Sediment Traps or Sediment Basins<br>• Erosion Control Blankets and/or Mats<br>• Soil Stabilization (i.e. tackified straw with seed, jute, or geotextile blankets, etc.)<br>• Straw mulch. |

| BMP Number | BMP Description |
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| | 5. All temporary construction-related erosion control methods shall be removed at the completion of the project (e.g. silt fences).<br>6. Surface barrier applications installed as a method of animal conflict management, such as chain link fencing, woven geotextiles, and other similar materials, will be installed no longer than 300 feet, with at least an equal amount of open area prior to another linear installation. |
| WQ-17<br>Manage Sanitary and Septic Waste | Temporary sanitary facilities will be located on jobs that last multiple days, in compliance with California Division of Occupational Safety and Health (Cal/OSHA) regulation 8 California Code of Regulations 1526. All temporary sanitary facilities will be located where overflow or spillage will not enter a watercourse directly (overbank) or indirectly (through a storm drain). |
| TR-1<br>Incorporate Public Safety Measures | Fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction, to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof. |

Refer to the BMP Handbook and Pipeline Maintenance Program (PMP) EIR for comprehensive Best Management Practices (BMP) and Avoidance & Minimization Measures (AMM).

# APPENDIX C PIPELINE MAINTENANCE HISTORY AND PROGRESS

## 8.1 HISTORY

### Past Maintenance Projects

**Table 19. 10-Year Pipeline Maintenance Project (95084002)**

| Year | Pipelines Name/Project |
|---|---|
| 2020 | Central Pipeline and Parallel East Pipeline (C0661) |
| 2019 | Cross Valley Pipeline and Calero Pipeline (C0650) |
| 2018 | Almaden Valley Pipeline and Santa Teresa Force Main (C0631, C0636) |
| 2017 | Pacheco Conduit (C0629) |

**Table 20. 5-Year Pipeline Maintenance Project (95084001)**

| Year | Pipelines Name/Project |
|---|---|
| 2016 | Snell Pipeline (STWTP to Coyote Creek Line Valve, C0608) |
| 2015 | Snell Pipeline (Coyote Creek Line Valve to Thompson Line Valve, C0598) |
| 2014 | Almaden Valley Pipeline and Santa Teresa Force Main (C0631, C0636) |
| 2013 | Stevens Creek Pipeline (C0586), Milpitas Pipeline (C0593) |

**Table 21. *Post-PMP Approval***

| Year | Pipelines Name/Project |
|---|---|
| 2012 | East Pipeline (Patt Line Valve to Piedmont Valve Yard, Project # 94344006, C0577 |
| 2011 | East Pipeline (Ocala Line Valve to Aborn Line Valve, Project # 94344006, C0566) |
| 2010 | East Pipeline (Patt Line Valve to Ocala Line Valve, Project # 94344006, C0558),<br>Santa Clara Conduit (SV1 to CPP, C0570) |

**Table 22. Pre-PMP Approval**

| Year | Pipelines Name/Project |
|---|---|
| 2009 | West Pipeline (Cox Line Valve to Granger Line Valve, Project # 94364002, C0555) |
| 2007 | Almaden Valley Pipeline (Project # 92761083) |
| 2005 | Santa Clara and Campbell Distributaries (Project # 94761004) |
| 2004 | West Pipeline (RWTP to Cox) |

## 8.3 PROGRESS

The following projects are underway under the “10-Year Pipeline Maintenance Project (Project # 95084002)”:

- FY2023 – Santa Clara Conduit (from Santa Clara Tunnel to Sectionalizing Valve 1, C0673), Almaden Valley Pipeline Unit II Phase II (C0685)
- FY2024 – Santa Clara Conduit (from Sectionalizing Valve 2 to Coyote Pumping Plant, C0697), Snell Pipeline (C0698)
- FY2026 – West Pipeline Phase 1 (from RWTP to Cox Line Valve)
- FY2027 – West Pipeline Phase 2 (from Cox Line Valve to Mountain View Line Valve)

The following pipelines have been selected for inspection and rehabilitation after West Pipeline:

- FY2027 – East Pipeline, Penitencia Delivery Main, Penitencia Force Main
- FY2028 – Santa Teresa Force Main
- FY2029 – Milpitas Pipeline

After 2029, the following pipelines are in the queue to be inspected and rehabilitated in no specific order:

- Project #1 - Santa Clara Distributary & Campbell Distributary
- Project #2 - Mountain View Distributary & Sunnyvale Distributary
- Project #3 - Rinconada Force Main & Stevens Creek Pipeline
- Project #4 - Anderson Force Main & Coyote Discharge Line

# Appendix B

Notice of Preparation

# NOTICE OF PREPARATION – Extended response date of **November 22, 2023** provided to match dates shown in the newspaper public notice

October 17**,** 2023

**From:** Santa Clara Valley Water District 5750
Almaden Expressway
San José, CA 95118

**Subject: Notice of Preparation of a Draft Subsequent Environmental Impact Report**

**Project Title:** Pipeline Maintenance Program (PMP)

**Project Location:** Santa Clara County, and limited portions of San Benito and Merced Counties, California.

The Santa Clara Valley Water District (Valley Water) will be the Lead Agency and will prepare a Subsequent Environmental Impact Report (EIR) for the proposed Pipeline Maintenance Program (PMP or Project). Responsible and trustee agencies, and other interested agencies, organizations, and individuals, are invited to provide written comments on the scope and content of the Draft EIR.

The project description, location, and potential environmental effects are contained in the attached materials. An Initial Study was not prepared.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but **not later than Thursday, November ~~16~~ 22, 2023.** Please include a name and contact information, to receive further information on this proposed Project, or in the event there are questions.

A scoping meeting will be held at **2:30 pm on November 2, 2023**, online via Zoom at: https://us02web.zoom.us/j/85198951440

Or dial by phone: 1-253-205-0468, Meeting ID: 851 9895 1440

Please send your comments to:

Michael F. Coleman, ACIP
Environmental Planner
Valley Water
5750 Almaden Expressway
San José, CA 95118
(408) 630-3096
MColeman@valleywater.org

Subject Line: PMP EIR Scoping Comments


10/17/23

Rick L. Callender, Esq. Date
Chief Executive Officer

Date:

# Notice of Preparation of Draft Subsequent Environmental Impact Report for the Pipeline Maintenance Program

## 1.1 Introduction and Background

The Santa Clara Valley Water District (Valley Water) owns, operates, and maintains raw, treated, and recycled water conveyance pipelines throughout Santa Clara County as well as in small portions of San Benito and Merced counties. These conveyance pipelines and their appurtenances are routinely inspected and maintained, repaired, and/or replaced on an as-needed basis. To standardize implementation and centralize documentation of the inspections and preventative and corrective maintenance procedures, Valley Water established their existing Pipeline Maintenance Program (existing PMP), which included preparation of a procedural manual, in 2007. The PMP activities were evaluated in an Environmental Impact Report (EIR), which was certified by the Valley Water Board of Directors in 2007. The existing PMP has been successfully implemented over the last 16 years; however, maintenance processes and tracking system technology in the pipeline related industry have been updated. In parallel, since 2007, Valley Water has updated its internal processes, organizational structure, and district-wide objectives related to pipeline maintenance programs to accommodate the use of newer and more efficient system management software. To modernize the existing PMP and encompass and standardize all pipeline-related activities under a single program, Valley Water is developing an updated Pipeline Maintenance Program (updated PMP or Program) and an associated Program Manual (updated PMP Manual). The updated PMP Manual would expand upon the existing PMP Manual to include capital pipeline projects and long-range planning efforts by Valley Water; establish new workflow processes and procedures; reflect updates to Valley Water's maintenance techniques, activities, and best management practices (BMPs); and identify updated Program documentation requirements.

Because many of the activities covered in the updated PMP would be similar to those activities covered in the existing PMP, Valley Water is preparing a Subsequent Environmental Impact Report (SEIR) for the updated PMP in compliance with the California Environmental Quality Act (CEQA) to inform the Board's decision on whether to approve the Program. The PMP EIR will analyze environmental effects at a program level to allow Valley Water to consider broad effects, alternatives, and program-wide mitigation measures on a program-wide basis. The PMP EIR will also analyze certain components of the Program about which more detail is known at the project level to ensure analysis of all potential impacts and reduce the likelihood of needing to prepare future additional CEQA documentation.

## 1.2 Program Area

The area covered under the PMP is shown in Figure 1 and primarily encompasses Santa Clara County with limited portions in San Benito and Merced counties. The work area subject to the PMP includes the areas around water conveyance system pipelines and related appurtenances, including streams, fields, storm drains, and channels where release of water during pipeline draining for maintenance activities can occur. Conveyance system components are located in Valley Water right-of-way or public utility easements.

Two of the pipeline facilities covered under the PMP, the Santa Clara Conduit and Pacheco Conduit, are federal facilities owned by the U.S. Bureau of Reclamation (Reclamation) but are operated and maintained by Valley Water under formal agreement. These two pipelines are part of the San Felipe System which delivers raw water from the Pacheco Pumping Plant, at the San Luis Reservoir near State Route Highway 152, to the Coyote Pumping Plant, located in the City of Morgan Hill.

Valley Water also manages recycled water conveyance in partnership with the South County Regional Wastewater Authority, the City of Gilroy, and the City of Morgan Hill for the South County Recycled Water Pipeline system, and with the City of Sunnyvale for the Wolfe Road Recycled Water Pipeline.

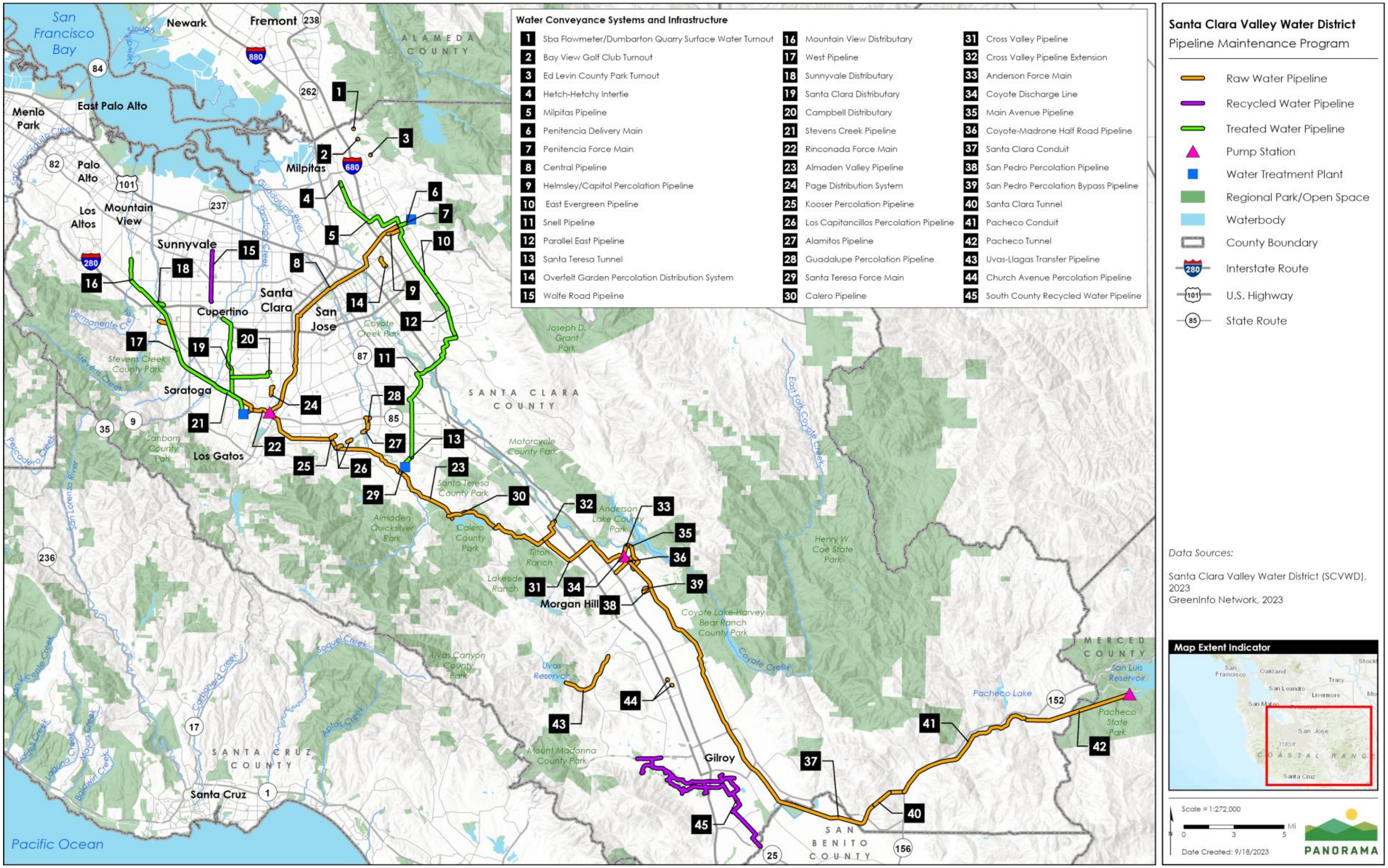
## 1.3 Program Purpose and Objectives

The overall goal of the PMP is to maintain Valley Water's facilities and infrastructure that are required to meet Valley Water's obligation to deliver safe and reliable service as a water purveyor. The PMP also serves as a policy guide for pipeline maintenance in the context of Valley Water's overall Ends Policies[1]. The objectives of the PMP are to:

1. Define standard practices and procedures for maintenance activities associated with Valley Water's conveyance systems;
2. Enhance operational flexibility and adaptive management opportunities for evaluating and improving the maintenance activities defined in the PMP through learned experiences and successive planning over time;
3. Streamline the environmental documentation and local, State, and federal permit processing where required to facilitate efficient and timely maintenance and repair of the pipeline system.

[1] Valley Water plans, manages, and carries out work to meet policies established by its Board of Directors. Under Valley Water's form of Policy Governance, these "Ends" policies describe the mission, outcomes, or results to be achieved by Valley Water staff. Balancing the Ends policies are Executive Limitations, which set limits on staff activities in fulfilling the Ends. Alignment of plans and resources with the Ends policies helps the Board fulfill the critical responsibility of defining, balancing, and prioritizing "what benefits, for what people, at what cost," and enhances Valley Water staff's accountability in using budgeted resources to accomplish those ends.

## Figure 1 Program Area and PMP System



## 1.4 Project Description

The PMP is divided into the two major types of activities, Performance of Inspections and Maintenance of Facilities, which are described in further detail below.

- **Performance of Inspections.** Pipeline and facility inspections can be either external or internal (on the surface or outside of a pipeline or facility, or inside a pipeline or other facility). Inspections are needed to ensure the operability of pipelines or their associated facilities and, in many cases, to determine what type of maintenance may be needed based on conditions observed during the inspection.
- **Maintenance of Facilities.** Maintenance, which includes the repair, replacement, rehabilitation, or installation of the pipeline systems and facilities, can be preventative or corrective.
  - Preventative maintenance includes scheduled maintenance of wearable parts, usually to manufacturers' specifications or to known and operable standards. The purpose of preventative maintenance is to sustain equipment at an operable level to minimize the chances of failure or breakdown.
  - Corrective maintenance, in a non-emergency situation, could involve replacing parts of the pipeline that have failed, such as air release valves or electrical components, or could include repair work made necessary by a natural or manmade event. Corrective maintenance can also include excavation work, as necessary, to replace pipeline system parts and appurtenances and/or pipeline or conduit sections, and repair access roads, including some capital projects.

Several or a sequence of common actions, which are summarized in Table 1, are needed to perform these two types of activities. Actions include, but are not limited to, general set-up, draining of a pipeline segment to perform work or inspections, and replacing or repairing facilities or pipeline components within the drained segment. The activities list is not meant to be comprehensive but is meant to encompass most activities performed on the conveyance system. Activities not specifically described may also be covered by the PMP SEIR if the impacts of those activities are similar to the impacts those actions described and evaluated in the SEIR. Table 1 provides a list of the general categories of activities that would be required to perform the inspection and maintenance of the facilities; more specific descriptions of these activities would be provided in the SEIR.

In compliance with Fish and Game Code section 1602, Valley Water plans to obtain a single Routine Maintenance Agreement (RMA), issued by the California Department of Fish and Wildlife (CDFW), to cover all PMP activities that have the potential to impact CDFW-jurisdictional aquatic features (e.g., streams, stream banks, lakes, riparian habitat). Because the RMA would provide programmatic coverage for PMP activities, it would negate the need for Valley Water to obtain individual Lake and Streambed Alteration Agreements for each PMP activity, thereby resulting in greater cost, staff resource, and schedule efficiencies under the PMP. The RMA would be effective for a minimum of 5 years and renewed on a regular basis in coordination with the CDFW.

## Table 1 PMP Activities and Actions Matrix

| | General Actions | | | Pipeline Draining Actions | | | Pipeline System Infrastructure Maintenance and Repair Actions | | |
|---|---|---|---|---|---|---|---|---|---|
| | Setup, staging, and access | Control of hazardous energy (Lock-out/tag-out) | Pump-out of vaults/manholes | Isolation | Dewatering | Refilling | Excavation, backfill, construction, and other ground disturbance | Repair of pipeline system infrastructure | Non-ground-disturbing repair |
| **Inspection Activity** | | | | | | | | | |
| External inspections | x | x | x | x | x | | x | | |
| Internal inspections | x | x | x | x | x | | | | |
| **Facility Maintenance Activity** | | | | | | | | | |
| Buried and exposed pipeline component maintenance, including pipeline sections, valves, and fittings | x | x | x | x | x | x | x | x | |
| Tunnel maintenance | x | | x | x | x | x | x | x | |
| Manhole, meter, vault, and related appurtenance maintenance | x | x | x | x | x | x | x | x | X |
| System instrumentation, controls, and monitoring maintenance | x | x | x | x | | | x | | X |
| Backup generator maintenance | x | x | | | | | x | x | X |
| Pump station and facility maintenance | x | x | x | x | x | x | x | x | X |
| Storage tanks and facility maintenance | x | x | x | x | x | x | x | x | X |
| Surge tank maintenance | x | x | x | x | x | x | x | x | X |
| Access road and support structure maintenance | x | x | x | x | x | x | x | | X |
| Bank stabilization, erosion control, and energy dissipation device maintenance | x | | | | x | | x | | |
| Vegetation management | x | | | | x | | x | | X |

## 1.5 PMP Impacts to be Analyzed in the Draft SEIR

Valley Water will prepare a Draft SEIR, which will assess the PMP's potential to cause significant impacts on the environment. Specifically, the Draft SEIR will analyze the PMP's reasonably foreseeable direct and indirect impacts and cumulative impacts (in combination with other past, present, and planned projects) for the following resource areas:

- Hydrology and Water Quality
- Geology and Soils
- Biological Resources
- Hazards and Hazardous Materials
- Transportation
- Biological Resources
- Cultural Resources
- Tribal Cultural Resources
- Air Quality
- Greenhouse Gas Emissions
- Energy
- Noise
- Aesthetics
- Wildfire
- Land Use and Planning
- Recreation
- Public Services
- Agriculture and Forestry

The Draft SEIR will also identify feasible mitigation measures to reduce or eliminate potentially significant environmental impacts, where appropriate.

## 1.6 Environmental Review Process and Scoping

### 1.6.1 Notice of Preparation

This Notice of Preparation (NOP) initiates the CEQA process through which Valley Water will refine the range of issues and project alternatives to be addressed in the Draft SEIR. In compliance with CEQA Guidelines Section 15082, this NOP contains description of the project, location of the project, and probable environmental effects of the project.

### 1.6.2 Scoping Meeting

The CEQA public scoping process provides the public and regulatory agencies an opportunity to ask questions and submit comments on the scope of the SEIR. A virtual public scoping meeting will be held during the NOP review period on November 2, 2023. The scoping meeting will solicit input from the public and interested agencies regarding the nature and scope of environmental impacts to be addressed in the Draft SEIR.

At the meeting, a brief presentation will be made to provide an overview of the existing PMP, the new PMP and its relationship to the existing PMP, and the general CEQA process. Written comments will be accepted during the 30-day scoping period that will begin on October 17, 2023, and end on Thursday, November 16, 2023. Electronic written comments will be accepted during and after the virtual scoping meeting. Details on submitting other forms of comment are included at the end of this document.

The public scoping meeting is scheduled for:

November 2, 2023, at 2:30 p.m.
Join the webinar here: https://us02web.zoom.us/j/85198951440
Or dial by phone: 1-253-205-0468, Meeting ID: 851 9895 1440

This scoping meeting information is also available on Valley Water's website: https://www.valleywater.org/public-review-documents

### 1.6.3 SEIR Process

**Draft SEIR**

After the 30-day review period for the NOP is complete, a draft SEIR will be prepared in accordance with CEQA (Pub. Res. Code Section 21000 et seq.) and the CEQA Guidelines (CCR Section 15000 et seq.). The Draft SEIR will analyze and disclose the reasonably foreseeable direct and indirect environmental impacts that may occur because of the PMP. The Draft SEIR, as informed by public and agency input through the scoping period, will analyze and disclose the potentially significant environmental impacts associated with the PMP and will identify potentially feasible mitigation measures and alternatives where such impacts are considered significant. Alternatives and mitigation measures will be developed with the goal to substantially reduce or avoid any significant impacts that are identified.

The completed Draft SEIR will be made available for a 45-day public review and comment period. Notice of the availability of the draft SEIR will be sent directly to interested parties, responsible and trustee agencies, and those agencies that commented on the NOP. The draft SEIR will be posted on Valley Water's website and on the State Clearinghouse website.

## 1.7 Submittal of Scoping Comments

The NOP will be circulated to local, state, and federal agencies, and to interested organizations and individuals who may wish to review and comment on the proposed PMP at this stage in the process. Comments concerning the scope and content of this SEIR are encouraged.

Consistent with the time prescribed by State law for public review of a NOP, your response and input regarding the project should be sent at the earliest possible date, but not later than 30 days from the date the NOP is received by agencies and the Governor's Office of Planning and Research, which is also the date published on CEQAnet (October 17, 2023). Please include your name, address, and contact number for your agency as applicable for all future correspondence related to the PMP. Written comments may be sent via email or letter to:

Santa Clara Valley Water District
Attn: Michael Coleman, AICP
Environmental Planner
PMP SEIR Scoping Comments

5750 Almaden Expressway
San Jose, CA 95118-3686
Email: mcoleman@valleywater.org
Subject Line: PMP SEIR Scoping Comments

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# Appendix C

Valley Water's Best Management Practices Handbook

# BEST MANAGEMENT PRACTICES HANDBOOK

## SANTA CLARA VALLEY WATER DISTRICT
## COMPREHENSIVE LIST

# Table of Contents

## List of Tables

# Purpose

The Best Management Practices Handbook (Handbook) provides a list of Santa Clara Valley Water District (District) Best Management Practices (BMPs), intended to be incorporated into projects or activities. It aids in accomplishment of the stewardship component of the District Ends Policies by incorporating the basic principle of avoiding or minimizing the potential to impact the environment negatively in projects and activities.

# Process

The Handbook is a controlled ISO document. It is a technical guidance document (W751M01) under ISO 14001 Environmental Management System Environmental Planning Q520D01 designed to ensure that the District meets its responsibilities under the California Environmental Quality Act (CEQA).[1] Work Instruction *W520M03 Section 3 – Mitigation, Monitoring and Reporting Programs* describes the standard policies for environmental review process used to apply these BMPs to projects and activities, consistent with CEQA Guidelines §15097(e).

The handbook is an electronic repository of information that allows staff to access and incorporate standardized BMPs, as/if appropriate, into CEQA documents efficiently, BMPs are incorporated into project design or activity implementation during an analytical process to identify and avoid or minimize project impacts for a particular project. They can be included as a component of the project description for projects at all levels of review, including categorical and/or statutory exemptions. The BMPs are selected by an Environmental Planner, with assistance from other project team members, (including Biologists, as well as design-, construction-, and maintenance engineers), to identify the appropriate BMPs for the proposed work activities. Thus, they only become official for the project after the CEQA document for that project has been certified or approved.

For projects or activities where implementation of BMPs would not suffice to avoid or minimize the impacts to a level below that of significance, a higher level of environmental evaluation would be required, leading to a higher level of documentation (e.g., MND or EIR). In instances where a project requires additional avoidance or minimization measures not included in this handbook, such practices and/or measures would be evaluated appropriately during the environmental review process and incorporated as project-specific mitigation measures and, potentially, be incorporated in a future revision of the Handbook.

# Organization

For ease in application, the BMPs have been organized into the standard environmental factors found in the Initial Study Checklist, which is consistent with the CEQA Guidelines.[2] This supports the 'activities and impacts matrix' (AIM) approach contained in *W520M03 Section 3 – Mitigation, Monitoring and Reporting Program.* Generally, these practices are either structural treatments (e.g., devices) or non-structural behaviors, methods, actions, procedures, or other management practices that have been shown to avoid or minimize potential adverse environmental effects.

The Handbook also includes sets of BMPs grouped together to address more commonly conducted activities such as bank protection; storm water management; discharge activities; grading and excavation; pesticide use; sediment removal and storage; vegetation management; and, well and exploratory boring construction-, modification-, and destruction operations. These '*BMP Suites*' make it easier for environmental planners to include the applicable BMPs consistently in a project's environmental document. When using a set of activity-based BMPs, individual practices should be reviewed to ensure its applicability.

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[1] Public Resources Code Section 21000 *et seq.*
[2] Title 14 Code of Regulations Section 15000 *et seq.* Appendix G

# Limitations

Under no circumstances should the entire contents of the Handbook be included as supporting information in an Initial Determination Memorandum (IDM), or in a project's design (i.e., plans and specifications) to circumvent an analysis of impacts from project activities. The consideration of the suitability of *individual* BMPs, to avoid or minimize the significance of impacts, is central to the environmental review process.

Furthermore, since BMPs are District standard operating procedures, and are not project-specific, they are not mitigations and are not to be used as a substitute for proper environmental evaluation and mitigation.

The BMPs reflect how the District currently conducts business. They are updated as new methods or industry standards are identified that provide an opportunity to further improve upon our practice of environmental stewardship, while maintaining a high level of service to the public. Thus, these BMPs are a guideline and not a substitute for analytical decision-making on how to avoid and minimize impacts.

# QEMS Elements

**Reference Documents:**

See page 32 for a listing of both external and internal references

**Requirements:**

ISO 9001

7.5.1 Control of Production and Service Provision

ISO 14001

4.4.6 Operational Control

**Quality Records:**

None

## Change History:

| DATE | REVISION | COMMENTS |
|---|---|---|
| 11/2006 | A | Converted Watershed QEMS WW75109 into W751M01 |
| 1/2009 | B | BMP updated |
| 03/22/10 | C | The Process Owner was changed from Debra Caldon to Jennifer Castillo |
| 08/31/10 | D | Stakeholder working group (WG) made some final changes including: Bill Smith, David Dunlap, Jamie McLeod and Janell Hillman and Jennifer Castillo. Prior to the WG, the document was sent for review by biologists, environmental planners and vegetation specialists. |
| 01/24/11 | E | Added QEMS Elements (Reference documents, Requirements, Quality Records. Added references to CEQA, Q520D01, & Q751D02 on last page. Changed BI-7 Avoid Secondary Poisoning from Rodenticide Use to inspect on a weekly basis instead of the fifth day. |
| 01/08/14 | F | Updated BMPs based on updated Stream Maintenance Program and other standard practices incorporated into District projects and activities. |
| 9/15/14 | G | Removed BMPs BI-3, -8, -10, -11; CU-2; WQ-4, -7, -8, -11, -14, -17, -18; NO-1, -2; and TR-2 from version F of Handbook. Modified BMPs BI-6 and CU-1 from version F of Handbook.<br>Revised document number to the new QEMS numbering convention (previously identified as W751M01) |

## Table 1 - Comprehensive BMP List

| BMP # | BMP Name | |
|---|---|---|
| **Air Quality** | | |
| AQ-1 | Use Dust Control Measures | |
| AQ-2 | Avoid Stockpiling Odorous Materials | |
| **Biological Resources** | | |
| BI-1 | Avoid Relocating Mitten Crabs | |
| BI-2 | Minimize Impacts to Steelhead | |
| BI-3 | Remove Temporary Fills | |
| BI-4 | Minimize Adverse Effects of Pesticides on Non-target Species | |
| BI-5 | Avoid Impacts to Nesting Migratory Birds | |
| BI-6 | Avoid Impacts to Nesting Migratory Birds from Pending Construction | |
| BI-7 | Minimize Impacts to Vegetation from Survey Work | |
| BI-8 | Choose Local Ecotypes Of Native Plants and Appropriate Erosion-Control Seed Mixes | |
| BI-9 | Restore Riffle/Pool Configuration of Channel Bottom | |
| BI-10 | Avoid Animal Entry and Entrapment | |
| BI-11 | Minimize Predator-Attraction | |
| **Cultural Resources** | | |
| CU-1 | Accidental Discovery of Archaeological Artifacts or Burial Finds | |
| **Hazards & Hazardous Materials** | | |
| HM-1 | Comply with All Pesticide Application Restrictions and Policies | |
| HM-2 | Minimize Use of Pesticides | |
| HM-3 | Post Areas Where Pesticides Will Be Used | |
| HM-4 | Comply with All Pesticide Usage Requirements | |
| HM-5 | Comply with Restrictions on Herbicide Use in Upland Areas | |
| HM-6 | Comply with Restrictions on Herbicide Use in Aquatic Areas | |
| HM-7 | Restrict Vehicle and Equipment Cleaning to Appropriate Locations | |
| HM-8 | Ensure Proper Vehicle and Equipment Fueling and Maintenance | |
| HM-9 | Ensure Proper Hazardous Materials Management | |
| HM-10 | Utilize Spill Prevention Measures | |
| HM-11 | Ensure Worker Safety in Areas with High Mercury Levels | |
| HM-12 | Incorporate Fire Prevention Measures | |
| HM-13 | Avoid Impacts from Naturally Occurring Asbestos | |
| **Hydrology/Water Quality** | | |
| WQ-1 | Conduct Work from Top of Bank | |
| WQ-2 | Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms | |
| WQ-3 | Limit Impact of Pump and Generator Operation and Maintenance | |
| WQ-4 | Limit Impacts From Staging and Stockpiling Materials | |
| WQ-5 | Stabilize Construction Entrances and Exits | |
| WQ-6 | Limit Impact of Concrete Near Waterways | |
| WQ-7 | Isolate Work in Tidal Areas With Use of Coffer Dam | |
| WQ-8 | Minimize Hardscape in Bank Protection Design | |
| WQ-9 | Use Seeding for Erosion Control, Weed Suppression, and Site Improvement | |
| WQ-10 | Prevent Scour Downstream of Sediment Removal | |
| WQ-11 | Maintain Clean Conditions at Work Sites | |
| WQ-12 | Manage Well or Exploratory Boring Materials | |
| WQ-13 | Protect Groundwater from Contaminates Via Wells or Exploratory Borings | |
| WQ-14 | Backfill Completed Exploratory Borings | |
| WQ-15 | Prevent Water Pollution | |
| WQ-16 | Prevent Stormwater Pollution | |
| WQ-17 | Manage Sanitary and Septic Waste | |

## Table 1 - Comprehensive BMP List

| BMP # | BMP Name | |
|---|---|---|
| **Transportation/Traffic** | | |
| TR-1 | Use Suitable Public Safety Measures | |

## Table 2
## Santa Clara Valley Water District
## BMP Suite List

| BMP Suite |
|---|
| Bank Protection BMP Suite |
| Stormwater Management BMP Suite |
| Discharge Activities BMP Suite |
| Grading and Excavation BMP Suite |
| Sediment Removal and Storage BMP Suite |
| Vegetation Management and Removal BMP Suite |
| Well and Exploratory Boring Construction, Modification, or Destruction BMP Suite |

# Air Quality

| | |
|---|---|
| **AQ-1**<br>**Use Dust Control Measures** | The following Bay Area Air Quality Management District (BAAQMD) Dust Control Measures will be implemented:<br>1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day;<br>2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered;<br>3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited;<br>4. Water used to wash the various exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, etc.) will not be allowed to enter waterways;<br>5. All vehicle speeds on unpaved roads shall be limited to 15 mph;<br>6. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used;<br>7. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations), and this requirement shall be clearly communicated to construction workers (such as verbiage in contracts and clear signage at all access points);<br>8. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications, and all equipment shall be checked by a certified visible emissions evaluator;<br>9. Correct tire inflation shall be maintained in accordance with manufacturer's specifications on wheeled equipment and vehicles to prevent excessive rolling resistance; and,<br>10. Post a publicly visible sign with a telephone number and contact person at the lead agency to address dust complaints; any complaints shall be responded to and take corrective action within 48 hours. In addition, a BAAQMD telephone number with any applicable regulations will be included. |
| **AQ-2**<br>**Avoid Stockpiling Odorous Materials** | Materials with decaying organic material, or other potentially odorous materials, will be handled in a manner that avoids impacting residential areas and other sensitive receptors, including:<br>1. Avoid stockpiling potentially odorous materials within 1,000 feet of residential areas or other odor sensitive land uses; and<br>2. Odorous stockpiles will be disposed of at an appropriate landfill. |

# Biological Resources

BMPs for biological resources are designed to minimize impacts to sensitive resources, including special status and listed species, and sensitive natural communities and habitats. Sensitive species and habitats may be directly or indirectly affected by project activities such as excavation, fill, vegetation management including pruning or removal, alteration of hydrological regime, etc. Impacts to species and natural communities are regulated by agencies such as the California Department of Fish and Wildlife (CDFW), the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, and the Bay Conservation and Development Commission, as well as corresponding laws such as the State and Federal Endangered Species Acts, the Migratory Bird Treaty Act, the Clean Water Act, the Fish and Game Code, the Native Plant Protection Act, and the California Environmental Quality Act. In addition, the California Native Plant Society publishes a rarity listing status for plants that is used by CDFW and is required for review under CEQA.

| | |
|---|---|
| **BI-1**<br>**Avoid Relocating Mitten Crabs** | Sediment potentially containing Chinese Mitten Crabs will not be transported between San Francisco Bay Watersheds and Monterey Bay Watersheds, specifically:<br>1. Sediment removed from the San Francisco Bay watersheds will not be transported south of Coyote Creek Golf Drive in south San Jose, and the intersection of McKean and Casa Loma Roads; and,<br>2. Earth moving equipment used in the San Francisco Bay watershed will be cleaned before being moved to, and used in, the Pajaro Watershed. |
| **BI-2**<br>**Minimize Impacts to Steelhead** | Minimize potential impacts to salmonids by avoiding routine use of vehicles and equipment in salmonid streams between January 1 and June 15. |
| **BI-3**<br>**Remove Temporary Fill** | Temporary fill materials, such as for diversion structures or cofferdams, will be removed upon finishing the work or as appropriate. The creek channels and banks will be re-contoured to match pre-construction conditions to the extent possible. Low-flow channels within non-tidal streams will be contoured to facilitate fish passage and will emulate the preconstruction conditions as closely as possible, within the finished channel topography. |
| **BI-4**<br>**Minimize Adverse Effects of Pesticides on Non-target Species** | "Pesticides" refers to any herbicide, insecticide, rodenticide, algaecide, fungicide, or any combination of substances intended to prevent, destroy, or repel any pest. Pesticides will be handled, stored, transported, and used in compliance with any established directions and in a manner that minimizes negative environmental effects on non-target species and sensitive habitats.<br>The proposed project plan for handling, storing, transporting and using pesticides must be reviewed and approved by <u>both</u> of the following subject matter experts:<br>1. District's Pest Control Advisor (a State-certified Qualified Applicator) – the plan will be reviewed, and modified as deemed appropriate, for compliance with: District policy, label restrictions and any advisories published by the California Department of Pesticide Regulation, the Santa Clara County Division of Agriculture, and the U.S. EPA bulletin *Protecting Endangered Species, Interim Measures for Use of Pesticides in Santa Clara County* (USEPA 2000).<br>2. Qualified District Biologist (as defined in EMAP-30264) – the plan will be reviewed, |

# Biological Resources

| | |
|---|---|
| | and modified as deemed appropriate, for compliance with: District policy, approved environmental review documents, project permits, and avoidance of all known listed (Threatened or Endangered) and sensitive species. Information sources for determination of all known locations of species that may be harmed by pesticides include the District's GIS system and California Natural Diversity Database (CNDDB).<br>Either the District's Pest Control Advisor or the Qualified District Biologist may modify the proposed pesticide plan, such as establishing buffer areas or prohibiting the use of pesticides outright, based on site-specific data, current regulatory requirements, and District policy.<br>The purchase of all pesticides must be approved by the District's Pest Control Advisor to ensure compliance with the District's *Control and Oversight of Pesticide Use* policy and appropriate regulatory agency reporting requirements. |
| **BI-5**<br>**Avoid Impacts to Nesting Migratory Birds** | Nesting birds are protected by state and federal laws. The District will protect nesting birds and their nests from abandonment, loss, damage, or destruction. Nesting bird surveys will be performed by a qualified biologist prior to any activity that could result in the abandonment, loss, damage, or destruction of birds, bird nests, or nesting migratory birds. Inactive bird nests may be removed with the exception of raptor nests. Birds, nests with eggs, or nests with hatchlings will be left undisturbed. |
| **BI-6**<br>**Avoid Impacts to Nesting Migratory Birds from Pending Construction** | Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where construction activities would occur. All nesting exclusion devices will be maintained throughout the nesting season or until completion of work in an area makes the devices unnecessary. All exclusion devices will be removed and disposed of when work in the area is complete. |
| **BI-7**<br>**Minimize Impacts to Vegetation from Survey Work** | Survey cross-sections will be moved, within acceptable tolerances, to avoid cutting dense riparian vegetation and minimize cutting of woody vegetation, taking advantage of natural breaks in foliage. If the cross-section cannot be moved within the established acceptable tolerances to avoid impacts to dense riparian or woody vegetation, the survey section will be abandoned. |
| **BI-8**<br>**Choose Local Ecotypes Of Native Plants and Appropriate Erosion-Control Seed Mixes** | Whenever native species are prescribed for installation the following steps will be taken by a qualified biologist or vegetation specialist:<br>1. Evaluate whether the plant species currently grows wild in Santa Clara County; and,<br>2. If so, the qualified biologist or vegetation specialist will determine if any need to be local natives, i.e. grown from propagules collected in the same or adjacent watershed, and as close to the project site as feasible.<br>Also, consult a qualified biologist or vegetation specialist to determine which seeding option is ecologically appropriate and effective, specifically:<br>1. For areas that are disturbed, an erosion control seed mix may be used consistent with the SCVWD *Guidelines and Standards for Land Use Near Streams, Design Guide 5, 'Temporary Erosion Control Options.'* |

# Biological Resources

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| | 2. In areas with remnant native plants, the qualified biologist or vegetation specialist may choose an abiotic application instead, such as an erosion control blanket or seedless hydro-mulch and tackifier to facilitate passive revegetation of local native species.<br>3. Temporary earthen access roads may be seeded when site and horticultural conditions are suitable.<br>4. If a gravel or wood mulch has been used to prevent soil compaction, this material may be left in place [if ecologically appropriate] instead of seeding.<br>Seed selection shall be ecologically appropriate as determined by a qualified biologist, per *Guidelines and Standards for Land Use Near Streams, Design Guide 2: Use of Local Native Species*. |
| **BI-9**<br>**Restore Riffle/Pool Configuration of Channel Bottom** | The channel bottom shall be re-graded at the end of the work project to as close to original conditions as possible.<br>In salmonid streams, restore pool and riffle configurations to emulate pre-project instream conditions, taking into account channel morphological features (i.e. slope), which affects riffle/pool sequence. |
| **BI-10**<br>**Avoid Animal Entry and Entrapment** | All pipes, hoses, or similar structures less than 12 inches diameter will be closed or covered to prevent animal entry. All construction pipes, culverts, or similar structures, greater than 2-inches diameter, stored at a construction site overnight, will be inspected thoroughly for wildlife by a qualified biologist or properly trained construction personnel before the pipe is buried, capped, used, or moved. If inspection indicates presence of sensitive or state- or federally-listed species inside stored materials or equipment, work on those materials will cease until a qualified biologist determines the appropriate course of action.<br>To prevent entrapment of animals, all excavations, steep-walled holes or trenches more than 6-inches deep will be secured against animal entry at the close of each day. Any of the following measures may be employed, depending on the size of the hole and method feasibility:<br>1. Hole to be securely covered (no gaps) with plywood, or similar materials, at the close of each working day, or any time the opening will be left unattended for more than one hour; or<br>2. In the absence of covers, the excavation will be provided with escape ramps constructed of earth or untreated wood, sloped no steeper than 2:1, and located no farther than 15 feet apart; or<br>3. In situations where escape ramps are infeasible, the hole or trench will be surrounded by filter fabric fencing or a similar barrier with the bottom edge buried to prevent entry. |

# Biological Resources

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| **BI-11**<br>**Minimize Predator-Attraction** | Remove trash daily from the worksite to avoid attracting potential predators to the site. |

# Cultural Resources

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| **CU-1**<br>**Accidental Discovery of Archaeological Artifacts or Burial Remains** | If historical or unique archaeological artifacts are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Work at the location of the find will halt immediately within 30 feet of the find. A "no work" zone shall be established utilizing appropriate flagging to delineate the boundary of this zone. A Consulting Archaeologist will visit the discovery site as soon as practicable for identification and evaluation pursuant to Section 21083.2 of the Public Resources Code and Section 15126.4 of the California Code of Regulations. If the archaeologist determines that the artifact is not significant, construction may resume. If the archaeologist determines that the artifact is significant, the archaeologist will determine if the artifact can be avoided and, if so, will detail avoidance procedures. If the artifact cannot be avoided, the archaeologist will develop within 48 hours an Action Plan which will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines.<br><br>If burial finds are accidentally discovered during construction, work in affected areas will be restricted or stopped until proper protocols are met. Upon discovering any burial site as evidenced by human skeletal remains, the County Coroner will be immediately notified and the field crew supervisor shall take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent. No further excavation or disturbance within 30 feet of the site or any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the County Coroner, California Native American Heritage Commission, and/or the County Coordinator of Indian Affairs. |

# Hazards & Hazardous Materials

The District's projects and operations often require exposure to, and the use of, potentially hazardous materials. The BMPs listed in this section reflect the District's standard procedures for their handling and use. Pesticides are one tool for pest control on district properties and facilities. The most common pesticide use is herbicide application to manage vegetation. Insecticides and rodenticides are used infrequently and in small quantities. All BMPs associated with pesticide use comply with, Q751D02, *Control and Oversight of Pesticide Use***.** ISO document **Q751D02** defines District policies and procedures for pesticide use and reporting. The policies and procedures specified therein apply to all District-owned or operated facilities, as well as to pesticide use by staff, contractors, permittees, and suppliers. It is the District policy to minimize the environmental risk, and exposure, resulting from its pesticide use, by employing alternatives to the maximum extent practicable. To assure avoidance and minimization of impacts from the use of pesticides, all proposed pesticide applications must be reviewed by the District's Pest Control Adviser, who is responsible for coordinating, reviewing, tracking, documenting and reporting pest control practices at the District.

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| **HM-1**<br>**Comply with All Pesticide Application Restrictions and Policies** | Pesticide products are to be used only after an assessment has been made regarding environmental, economic, and public health aspects of each of the alternatives by the District's Pest Control Advisor (PCA). All pesticide use will be consistent with approved product specifications. Applications will be made by, or under the direct supervision of, State Certified applicators under the direction of, or in a manner approved by the PCA. Refer to Q751D02, *Control and Oversight of Pesticide Use*. |
| **HM-2**<br>**Minimize Use of Pesticides** | In all cases, where some form of pest control is deemed necessary by the PCA; evaluate alternative pest control methods and pesticides. Refer to Q751D02: *Control and Oversight of Pesticide Use*. |
| **HM-3**<br>**Post Areas Where Pesticides Will Be Used** | Posting of areas where pesticides are to be used shall be performed in compliance with Q751D02: *Control and Oversight of Pesticide Use.* Posting shall be performed in compliance with the label requirements of the product being applied.<br>In addition, the District shall provide posting for **any** products applied in areas used by the public for recreational purposes, and areas readily accessible to the public, regardless of whether the label requires such notification (the posting method may be modified to avoid destruction of bait stations or scattering of rodenticide), including:<br>1. Sign postings shall notify staff and the general public of the date and time of application; the product's active ingredients, and common name; and, the time of allowable re-entry into the treated area.<br>2. A District staff contact phone number shall be posted on the sign.<br>3. Signs shall not be removed until after the end of the specified re-entry interval.<br>4. Right-to-know literature on the product shall be made available upon request to anyone in the area.<br>5. Notification will take into account neighbors with specific needs prior to treatment of an adjacent area to ensure such needs are met. Such requests are maintained by the District under Q751D02. |

# Hazards & Hazardous Materials

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| **HM-4**<br>**Comply with All Pesticide Usage Requirements** | All projects that propose ongoing use of pesticides will comply with all provisions of Q751D02: *Control and Oversight of Pesticide Use*, including, but not necessarily limited to the following:<br>1. All pest control methods will be performed only after a written Pest Control Recommendation for use has been prepared by the District's PCA in accordance with requirements of the California Food and Agricultural Code.<br>2. F751D01 – *Pest Control Recommendation & Spray Operators Report* will be completed for each pesticide application. |
| **HM-5**<br>**Comply with Restrictions on Herbicide Use in Upland Areas** | Consistent with provisions of Q751D02: *Control and Oversight of Pesticide Use,* application of pre emergence (residual) herbicides to upland areas will not be made within 72 hours of predicted significant rainfall. Predicted significant rainfall for the purposes of this BMP will be described as local rainfall greater than 0.5 inch in a 24-hour period with greater than a 50% probability of precipitation according to the National Weather Service. |
| **HM-6**<br>**Comply with Restrictions on Herbicide Use in Aquatic Areas** | Consistent with provisions of Q751D02: *Control and Oversight of Pesticide Use,* only herbicides and surfactants registered for aquatic use will be applied within the banks of channels within 20 feet of any water present.<br>Furthermore, aquatic herbicide use will be limited to June 15th through October 31st with an extension through December 31 or until the first occurrence of any of the following conditions; whichever happens first:<br>1. local rainfall greater than 0.5 inches is forecasted within a 24-hour period from planned application events according to the National Weather Service; or<br>2. when steelhead begin upmigrating and spawning in the 14 steelhead creeks, as determined by a qualified biologist (typically in November/December).<br>If rain is forecast then application of aquatic herbicide will be rescheduled. |
| **HM-7**<br>**Restrict Vehicle and Equipment Cleaning to Appropriate Locations** | Vehicles and equipment may be washed only at approved areas. No washing of vehicles or equipment will occur at job sites. |

# Hazards & Hazardous Materials

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| **HM-8**<br>**Ensure Proper Vehicle and Equipment Fueling and Maintenance** | No fueling or servicing will be done in a waterway or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators).<br>1. For stationary equipment that must be fueled or serviced on-site, containment will be provided in such a manner that any accidental spill will not be able to come in direct contact with soil, surface water, or the storm drainage system.<br>2. All fueling or servicing done at the job site will provide containment to the degree that any spill will be unable to enter any waterway or damage riparian vegetation.<br>3. All vehicles and equipment will be kept clean. Excessive build-up of oil and grease will be prevented.<br>4. All equipment used in the creek channel will be inspected for leaks each day prior to initiation of work. Maintenance, repairs, or other necessary actions will be taken to prevent or repair leaks, prior to use.<br>5. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be done in a channel or flood plain. |
| **HM-9**<br>**Ensure Proper Hazardous Materials Management** | Measures will be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means.<br>1. Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered.<br>2. Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers with appropriate secondary containment to prevent any spillage or leakage.<br>3. Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials will not contact soil and not be allowed to enter surface waters or the storm drainage system.<br>4. All toxic materials, including waste disposal containers, will be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage system or surface water.<br>5. Quantities of toxic materials, such as equipment fuels and lubricants, will be stored with secondary containment that is capable of containing 110% of the primary container(s).<br>6. The discharge of any hazardous or non-hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations will be conducted in accordance with applicable State and federal regulations.<br>7. In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1-800-510-5151. |

# Hazards & Hazardous Materials

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| **HM-10**<br>**Utilize Spill Prevention Measures** | Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water following these measures:<br>1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and clean up of accidental spills;<br>2. Equipment and materials for cleanup of spills will be available on site, and spills and leaks will be cleaned up immediately and disposed of according to applicable regulatory requirements;<br>3. Field personnel will ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means;<br>4. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations), and all field personnel will be advised of these locations; and,<br>5. The work site will be routinely inspected to verify that spill prevention and response measures are properly implemented and maintained. |
| **HM-11**<br>**Ensure Worker Safety in Areas with High Mercury Levels** | To ensure worker safety is protected in areas with elevated mercury concentrations in exposed surfaces, personal protective equipment will be required during project construction to maintain exposure below levels established by the California Division of Occupational Safety and Health (Cal/OSHA). |
| **HM-12**<br>**Incorporate Fire Prevention Measures** | 1. All earthmoving and portable equipment with internal combustion engines will be equipped with spark arrestors.<br>2. During the high fire danger period (April 1–December 1), work crews will have appropriate fire suppression equipment available at the work site.<br>3. An extinguisher shall be available at the project site at all times when welding or other repair activities that can generate sparks (such as metal grinding) is occurring.<br>4. Smoking shall be prohibited except in designated staging areas and at least 20 feet from any combustible chemicals or vegetation. |
| **HM-13**<br>**Avoid Impacts from Naturally Occurring Asbestos** | The District will comply with and implement BAAQMD dust control measures and notification requirements when working in serpentine soils. |

# Hydrology/Water Quality

The District's projects and operations often pose situations that warrant standard measures to avoid or minimize impacts to water quality. As of this Handbook revision (G), the following best management practices represent measures currently used by the District; however, since many of these measures are based on industry standards for stormwater management maintained by the California Stormwater Quality Association (**CASQA**), the selection of appropriate BMPs from this list **must be verified** by comparison with the most current standards found on the CASQA website.

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| **WQ-1**<br>**Conduct Work from Top of Bank** | For work activities that will occur in the channel, work will be conducted from the top of the bank if access is available and there are flows in the channel. |
| **WQ-2**<br>**Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms** | Field personnel will use the appropriate equipment for the job that minimizes disturbance to the stream bottom. Appropriately tired vehicles, either tracked or wheeled, will be used depending on the situation. Tracked vehicles (bulldozers, loaders) may cause scarification. Wheeled vehicles may cause compaction. Heavy equipment will not operate in the live stream. |
| **WQ-3**<br>**Limit Impact of Pump and Generator Operation and Maintenance** | Pumps and generators will be maintained and operated in a manner that minimizes impacts to water quality and aquatic species.<br>1. Pumps and generators will be maintained according to manufacturers' specifications to regulate flows to prevent dry-back or washout conditions.<br>2. Pumps will be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high water conditions, which creates ponding.<br>3. Pump intakes will be screened to prevent uptake of fish and other vertebrates. Pumps in steelhead creeks will be screened according to NMFS criteria.<br>4. Sufficient back-up pumps and generators will be onsite to replace defective or damaged pumps and generators. |
| **WQ-4**<br>**Limit Impacts From Staging and Stockpiling Materials** | 1. To protect on-site vegetation and water quality, staging areas should occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all equipment and materials (e.g., road rock and project spoil) will be contained within the existing service roads, paved roads, or other pre-determined staging areas.<br>2. Building materials and other project-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies or storm drains.<br>3. No runoff from the staging areas may be allowed to enter water ways, including the creek channel or storm drains, without being subjected to adequate filtration (e.g., vegetated buffer, swale, hay wattles or bales, silt screens).<br>4. The discharge of decant water to water ways from any on-site temporary sediment stockpile or storage areas is prohibited.<br>5. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control. |

# Hydrology/Water Quality

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| | During the dry season; exposed, dry stockpiles will be watered, enclosed, covered, or sprayed with non-toxic soil stabilizers. |
| **WQ-5**<br>**Stabilize Construction Entrances and Exits** | Measures will be implemented to minimize soil from being tracked onto streets near work sites:<br>1. Methods used to prevent mud from being tracked out of work sites onto roadways include installing a layer of geotextile mat, followed by a 4-inch thick layer of 1 to 3-inch diameter gravel on unsurfaced access roads.<br>2. Access will be provided as close to the work area as possible, using existing ramps where available and planning work site access so as to minimize disturbance to the water body bed and banks, and the surrounding land uses. |
| **WQ-6**<br>**Limit Impact of Concrete Near Waterways** | Concrete that has not been cured is alkaline and can increase the pH of the water; fresh concrete will be isolated until it no longer poses a threat to water quality using the following appropriate measures:<br>1. Wet sacked concrete will be excluded from the wetted channel for a period of four weeks after installation. During that time, the wet sacked concrete will be kept moist (such as covering with wet carpet) and runoff from the wet sacked concrete will not be allowed to enter a live stream.<br>2. Poured concrete will be excluded from the wetted channel for a period of four weeks after it is poured. During that time, the poured concrete will be kept moist, and runoff from the wet concrete will not be allowed to enter a live stream. Commercial sealants (e.g., Deep Seal, Elasto-Deck Reservoir Grade) may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If a sealant is used, water will be excluded from the site until the sealant is dry.<br>3. Dry sacked concrete will not be used in any channel.<br>4. An area outside of the channel and floodplain will be designated to clean out concrete transit vehicles. |

# Hydrology/Water Quality

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| **WQ-7**<br>**Isolate Work in Tidal Areas With Use of Coffer Dam** | For work in tidal areas, It is preferable to isolate one side of the channel with a cofferdam and allow flows to continue on the other side of the creek. If downstream flows cannot be diverted around the project site, the creek waters will be transmitted around the site through cofferdam bypass pipes. By isolating the work area from tidal flows, water quality impacts are minimized.<br>1. Installation of coffer dams will begin at low tide.<br>2. Waters discharged through tidal coffer dam bypass pipes will not exceed 10 percent in areas where natural turbidity is greater than 50 NTU over the background levels of the tidal waters into which they are discharged.<br>3. Coffer dams in tidal areas may be made from earthen or gravel material. If earth is used, the downstream and upstream faces will be covered by a protected covering (e.g., plastic or fabric) and anchored to minimize erosion.<br>4. Cofferdams and bypass pipes will be removed as soon as possible but no more than 72 hours after work is completed. Flows will be restored at a reduced velocity to minimize erosion, turbidity, or harm to downstream habitat. |
| **WQ-8**<br>**Minimize Hardscape in Bank Protection Design** | Bank repair techniques appropriate to a given site based on hydraulic and other site conditions will be selected.<br>1. Biotechnical repair methods include construction with living materials; willow wattling; erosion control blankets; brush matting; and, installation of root wads and boulders in banks.<br>2. The repair will be designed and installed so that it will be self-sustaining and use vegetation that adds structural integrity to the stream bank. |
| **WQ-9**<br>**Use Seeding for Erosion Control, Weed Suppression, and Site Improvement** | Disturbed areas shall be seeded with native seed as soon as is appropriate after activities are complete. An erosion control seed mix will be applied to exposed soils down to the ordinary high water mark in streams.<br>1. The seed mix should consist of California native grasses, (for example *Hordeum brachyantherum*; *Elymus glaucus*; and annual *Vulpia microstachyes*) or annual, sterile hybrid seed mix (e.g., *Regreen*™, a wheat x wheatgrass hybrid).<br>2. Temporary earthen access roads may be seeded when site and horticultural conditions are suitable, or have other appropriate erosion control measures in place. |
| **WQ-10**<br>**Prevent Scour Downstream of Sediment Removal** | After sediment removal, the channel will be graded so that the transition between the existing channel both upstream and downstream of the work area is smooth, and continuous between the maintained and non-maintained areas, and does not present a sudden vertical transition (wall of sediment) or other blockage that could erode once flows are restored to the channel. |

# Hydrology/Water Quality

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| **WQ-11**<br>**Maintain Clean Conditions at Work Sites** | The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials on a daily basis. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways.<br>For activities that last more than one day, materials or equipment left on the site overnight will be stored as inconspicuously as possible, and will be neatly arranged. Any materials and equipment left on the site overnight will be stored to avoid erosion, leaks, or other potential impacts to water quality<br>Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site. |

**WQ-12**

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| **Manage Well or Exploratory Boring Materials** | All materials or waters generated during drilling, well or exploratory boring construction, well development, pump testing, or other activities associated with wells or exploratory borings, will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case will these materials and/or waters be allowed to enter, or potentially enter, on- or off-site storm sewers, dry wells, or waterways. Such materials/waters must not be allowed to move off the property where the work is being completed. |
| **WQ-13**<br>**Protect Groundwater from Contaminates Via Wells or Exploratory Borings** | Any substances or materials that may degrade groundwater quality will not be allowed to enter any well or boring. Lubricants used on drill bits, drill pipe, or tremie pipe will not be comprised of oily or greasy substances or other materials that may degrade groundwater quality.<br>Well openings or entrances will be sealed or secured in such a way as to prevent the introduction of contaminants. |
| **WQ-14**<br>**Backfill Completed Exploratory Borings** | All borings should be backfilled within 24 hours of termination of testing. Borings will not be left in such a condition as to allow for the introduction of surface waters or foreign materials into them. Borings will be secured such that they do not endanger public health.<br>All borings must be properly destroyed by backfilling with acceptable sealing materials. Acceptable sealing materials are:<br>1. 27 sack neat cement (four 94-pound bags/55-gallon drum),<br>2. 10 sack cement sand grout, or<br>3. hydrated high solids 20 percent bentonite slurry.<br>No soil cuttings may be used for backfilling boreholes. No bentonite chips or pellets may be used to backfill borings.<br>Free fall of sealing material will not be allowed if greater than 30 feet or if more than 3 feet of standing water exists in borehole. A tremie pipe must be used to place the cement sealing material if exploratory boring is over 30 feet deep or if more than 3 feet of standing water exists in borehole. Exploratory borings located in Geologic Setting Zone 4 (bedrock) may be backfilled with borehole cuttings from total depth of the boring up to a depth of 50 feet from the surface grade. The top 50 feet of the borehole must |

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| | be backfilled with above described sealing materials. |
| **WQ-15**<br>**Prevent Water Pollution** | Oily, greasy, or sediment laden substances or other material that originate from the project operations and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife will not be allowed to enter, or be placed where they may later enter, any waterway.<br>The project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows:<br>1. where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5 percent;<br>2. where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent;<br>3. where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the project.<br>Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site. Natural watercourse turbidity measurements will be made prior to initiation of project discharges, preferably at least 2 days prior to commencement of operations. |
| **WQ-16**<br>**Prevent Stormwater Pollution** | To prevent stormwater pollution, the applicable measures from the following list will be implemented:<br>1. Soils exposed due to project activities will be seeded and stabilized using hydroseeding, straw placement, mulching, and/or erosion control fabric. These measures will be implemented such that the site is stabilized and water quality protected prior to significant rainfall. In creeks, the channel bed and areas below the Ordinary High Water Mark are exempt from this BMP.<br>2. The preference for erosion control fabrics will be to consist of natural fibers; however, steeper slopes and areas that are highly erodible may require more structured erosion control methods. No non-porous fabric will be used as part of a permanent erosion control approach. Plastic sheeting may be used to temporarily protect a slope from runoff, but only if there are no indications that special-status species would be impacted by the application.<br>3. Erosion control measures will be installed according to manufacturer's specifications.<br>4. To prevent stormwater pollution, the appropriate measures from, but not limited to, the following list will be implemented:<br>• Silt Fences<br>• Straw Bale Barriers<br>• Brush or Rock Filters<br>• Storm Drain Inlet Protection<br>• Sediment Traps or Sediment Basins<br>• Erosion Control Blankets and/or Mats |

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| | • Soil Stabilization (i.e. tackified straw with seed, jute or geotextile blankets, etc.)<br>• Straw mulch.<br>5. All temporary construction-related erosion control methods shall be removed at the completion of the project (e.g. silt fences).<br>6. Surface barrier applications installed as a method of animal conflict management, such as chain link fencing, woven geotextiles, and other similar materials, will be installed no longer than 300 feet, with at least an equal amount of open area prior to another linear installation. |
| **WQ-17**<br>**Manage Sanitary and Septic Waste** | Temporary sanitary facilities will be located on jobs that last multiple days, in compliance with California Division of Occupational Safety and Health (Cal/OSHA) regulation 8 California Code of Regulations 1526. All temporary sanitary facilities will be located where overflow or spillage will not enter a watercourse directly (overbank) or indirectly (through a storm drain). |

# Transportation/Traffic

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| **TR-1**<br>**Incorporate Public Safety Measures** | Fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction, to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof. |

# Bank Protection BMP Suite

AQ-1 Use Dust Control Measures
BI-1 Avoid Relocating Mitten Crabs
BI-2 Minimize Impacts to Steelhead
BI-3 Remove Temporary Fills
BI-5 Avoid Impacts to Nesting Migratory Birds
BI-6 Avoid Impacts to Nesting Migratory Birds from Pending Construction
CU-1 Accidental Discovery of Archaeological Artifacts or Burial Finds
HM-7 Restrict Vehicle and Equipment Cleaning to Appropriate Locations
HM-8 Ensure Proper Vehicle and Equipment Fueling and Maintenance
HM-9 Ensure Proper Hazardous Materials Management
HM-10 Utilize Spill Prevention Measures
HM-11 Ensure Worker Safety in Areas with High Mercury Levels
HM-12 Incorporate Fire Prevention Measures
WQ-1 Conduct Work from Top of Bank
WQ-2 Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms
WQ-3 Limit Impact of Pump and Generator Operation and Maintenance
WQ-4 Limit Impacts from Staging and Stockpiling Materials
WQ-5 Stabilize Construction Entrances and Exits
WQ-6 Limit Impact of Concrete Near Waterways
WQ-7 Isolate Work in Tidal Areas with Use of Coffer Dam
WQ-8 Minimize Hardscape in Bank Protection Design
WQ-9 Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
WQ-10 Prevent Scour Downstream of Sediment Removal
WQ-11 Maintain Clean Conditions at Work Sites
WQ-15 Prevent Water Pollution
WQ-16 Prevent Stormwater Pollution
WQ-17 Manage Sanitary and Septic Waste
TR-1 Use Suitable Public Safety Measures

# Stormwater Management BMP Suite

AQ-1 Use Dust Control Measures
BI-3 Remove Temporary Fills
HM-8 Ensure Proper Vehicle and Equipment Fueling and Maintenance
HM-9 Ensure Proper Hazardous Materials Management
HM-10 Utilize Spill Prevention Measures
WQ-1 Conduct Work from Top of Bank
WQ-2 Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms
WQ-3 Limit Impact of Pump and Generator Operation and Maintenance
WQ-4 Limit Impacts From Staging and Stockpiling Materials
WQ-5 Stabilize Construction Entrances and Exits
WQ-6 Limit Impact of Concrete Near Waterways
WQ-7 Isolate Work in Tidal Areas with Use of Coffer Dam
WQ-9 Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
WQ-10 Prevent Scour Downstream of Sediment Removal
WQ-11 Maintain Clean Conditions at Work Sites
WQ-15 Prevent Water Pollution
WQ-16 Prevent Stormwater Pollution
WQ-17 Manage Sanitary and Septic Waste

# Discharge Activities BMP Suite

BI-2 Minimize Impacts to Steelhead
BI-5 Avoid Impacts to Nesting Migratory Birds
HM-8 Ensure Proper Vehicle and Equipment Fueling and Maintenance
HM-9 Ensure Proper Hazardous Materials Management
HM-10 Utilize Spill Prevention Measures
WQ-3 Limit Impact of Pump and Generator Operation and Maintenance
WQ-5 Stabilize Construction Entrances and Exits
WQ-7 Isolate Work in Tidal Areas With Use of Coffer Dam
WQ-11 Maintain Clean Conditions at Work Sites
WQ-15 Prevent Water Pollution
WQ-16 Prevent Stormwater Pollution
WQ-17 Manage Sanitary and Septic Waste
TR-1 Use Suitable Public Safety Measures

# Grading and Excavation BMP Suite

AQ-1 Use Dust Control Measures
AQ-2 Avoid Stockpiling Odorous Materials
BI-2 Minimize Impacts to Steelhead
BI-3 Remove Temporary Fills
BI-5 Avoid Impacts to Nesting Migratory Birds
BI-6 Avoid Impacts to Nesting Migratory Birds from Pending Construction
CU-1 Accidental Discovery of Archaeological Artifacts or Burial Finds
HM-7 Restrict Vehicle and Equipment Cleaning to Appropriate Locations
HM-8 Ensure Proper Vehicle and Equipment Fueling and Maintenance
HM-9 Ensure Proper Hazardous Materials Management
HM-10 Utilize Spill Prevention Measures
HM-11 Ensure Worker Safety in Areas with High Mercury Levels
HM-12 Incorporate Fire Prevention Measures
WQ-1 Conduct Work from Top of Bank
WQ-2 Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms
WQ-4 Limit Impacts From Staging and Stockpiling Materials
WQ-5 Stabilize Construction Entrances and Exits
WQ-7 Isolate Work in Tidal Areas With Use of Coffer Dam
WQ-9 Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
WQ-11 Maintain Clean Conditions at Work Sites
WQ-15 Prevent Water Pollution
WQ-16 Prevent Stormwater Pollution
WQ-17 Manage Sanitary and Septic Waste
TR-1 Use Suitable Public Safety Measures

# Sediment Removal and Storage BMP Suite

AQ-1 Use Dust Control Measures
AQ-2 Avoid Stockpiling Potentially Odorous Materials
BI-1 Avoid Relocating Mitten Crabs
BI-2 Minimize Impacts to Steelhead
BI-3 Remove Temporary Fills
BI-5 Avoid Impacts to Nesting Migratory Birds
BI-6 Avoid Impacts to Nesting Migratory Birds from Pending Construction
HM-7 Restrict Vehicle and Equipment Cleaning to Appropriate Locations
HM-8 Ensure Proper Vehicle and Equipment Fueling and Maintenance
HM-9 Ensure Proper Hazardous Materials Management
HM-10 Utilize Spill Prevention Measures
HM-11 Ensure Worker Safety in Areas with High Mercury Levels
WQ-1 Conduct Work from Top of Bank
WQ-2 Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms
WQ-3 Limit Impact of Pump and Generator Operation and Maintenance
WQ-4 Limit Impacts from Staging and Stockpiling Materials
WQ-5 Stabilize Construction Entrances and Exits
WQ-7 Isolate Work in Tidal Areas with Use of Coffer Dam
WQ-9 Use Seeding for Erosion Control, Weed Suppression, and Site Improvement
WQ-10 Prevent Scour Downstream of Sediment Removal
WQ-11 Maintain Clean Conditions at Work Sites
WQ-15 Prevent Water Pollution
WQ-16 Prevent Stormwater Pollution
WQ-17 Manage Sanitary and Septic Waste
TR-1 Use Suitable Public Safety Measures

# Vegetation Management and Removal BMP Suite

BI-2 Minimize Impacts to Steelhead
BI-4 Minimize Adverse Effects of Pesticides on Non-target Species
BI-5 Avoid Impacts to Nesting Migratory Birds
BI-6 Avoid Impacts to Nesting Migratory Birds from Pending Construction
BI-7 Minimize Impacts to Vegetation from Survey Work
HM-7 Restrict Vehicle and Equipment Cleaning to Appropriate Locations
HM-8 Ensure Proper Vehicle and Equipment Fueling and Maintenance
HM-9 Ensure Proper Hazardous Materials Management
HM-10 Utilize Spill Prevention Measures
WQ-1 Conduct Work from Top of Bank
WQ-2 Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms
WQ-5 Stabilize Construction Entrances and Exits
WQ-8 Minimize Hardscape in Bank Protection Design
WQ-9 Use Seeding for Erosion Control, Weed Suppression, and Site Improvement e
WQ-11 Maintain Clean Conditions at Work Sites
WQ-17 Manage Sanitary and Septic Waste
TR-1 Use Suitable Public Safety Measures

# Well and Exploratory Boring Construction, Modification, or Destruction BMP Suite

AQ-1 Use Dust Control Measures
BI-5 Avoid Impacts to Nesting Migratory Birds
HM-9 Clean Vehicles and Equipment
HM-8 Ensure Proper Vehicle and Equipment Fueling and Maintenance
HM-9 Ensure Proper Hazardous Materials Management
HM-10 Utilize Spill Prevention Measures
HM-12 Incorporate Fire Prevention Measures
WQ-4 Limit Impacts from Staging and Stockpiling Materials
WQ-11 Maintain Clean Conditions at Work Sites
WQ-12 Manage Well or Exploratory Boring Materials
WQ-13 Protect Groundwater from Contaminates Via Wells or Exploratory Borings
WQ-14 Backfill Completed Exploratory Borings
WQ-15 Prevent Water Pollution
WQ-16 Prevent Stormwater Pollution
WQ-17 Manage Sanitary and Septic Waste
\
TR-1 Use Suitable Public Safety Measures

# References

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-- 1999. Erosion and Sediment Control Field Manual, third edition.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997. Urban Runoff Management Plan.

Santa Clara Valley Water District. 2011. Stream Maintenance Program Update.

-- 2007. Flood Protection Assessment Procedure for Cross-section Survey Work and Vegetation Trimming.

-- 2006. Special Provisions Guidelines, version 08/30/06.

-- 2004. Stream Maintenance Program.

-- 2002. Channel Maintenance Pollution Prevention Guidance Manual.

-- 2001a. District Capital Improvement Project Planning and Inspection Guidance Manual.

-- 2001b. Water Utility Operation and Maintenance Discharge Pollution Prevention Plan.

-- 2001c. Storm Drain Operation and Maintenance Pollution Prevention Plan Guidance Manual.

-- 2000. Urban Runoff Management Plan, Chapter 16.

-- 1999. Technical Report – District Non-Point Source Pollution Control Prioritization Plan.

United States Environmental Protection Agency. 2000. Pesticides and Toxic Substances (H-7506C), Protecting Endangered Species - Interim Measures for Use of Pesticide in Santa Clara County.

California Environmental Quality Act (CEQA) (http://ceres.ca.gov/ceqa/)

Q520D01 – Environmental Management System Environmental Planning (Sections 1 – 5)

Q751D02 – Pesticide Use (On District QEMS)

# Appendix D

Sample Environmental Review Documentation

# DRAFT PERC

**Draft Preliminary Environmental Review Checklist**
*for Pipeline Maintenance Projects*

Valley Water

The PERC is to be completed by the PMP Program Administrator, or equivalent staff level, to identify a project's expected impacts. The PERC will also serve to identify PMP project qualification, confirm compliance with the PMP EIR, and identify any applicable permitting and reporting requirements.
*This is a screening document and administrative record for the project. It is not a decision document.*

## INSTRUCTIONS

*Instructions for each subsection of this form is described.*

**Project Identification**

*Formal Project Name* – Should match what is in Maximo or information provided by the Project Manager.

*Project Number* – Insert Valley Water project number

*Workflow Path* – Select minor or major action. See PMP Figure 4 - *2022 Pipeline Maintenance Program Manual Workflow Diagram*.

*Water Type Project Category* – Select raw, treated, or recycled water type.

*Maintenance Type* – Select Routine/Preventative for maintenance included in a Capital Improvement Plan or in a long-range Asset Management Plan. Select Corrective for maintenance identified as needed or that is not part of any long-range planning.

*Ownership/system* – Identify the system owner and the common name, if applicable.

*County* – Identify the County the work will take place in.

*Location* – Provide coordinates of the general work location.

*PMP Qualified Project* – Clearly state yes or no for easy reference.

**PMP Included Activities**

Select the activities required to perform the maintenance work. Activities not included on this list are not PMP eligible. Reference PMP Manual Section 2.5.2 for descriptions of the activities.

**PMP Included Tasks**

Select the tasks required to complete the above-selected activities. Reference Section 2.5.3 in the PMP Manual for descriptions of the tasks. General procedures, schedules, and required equipment are described for each action.

**Project Questions**

Evaluate the project's CEQA and NEPA applicability and provide a brief explanation supporting the answers. Identify if the project is within any sensitive areas that would require compliance with the Endangered Species Act.

**Environmental Protection Measure Determination Protocol**

Actions listed in this section are identified in the PMP Manual as having the potential to have environmental effects. The effects of these actions have been evaluated in the PMP PEIR. Review the environmental resource areas potentially impacted by the actions. Utilize the space below to describe any project-specific resource information.

**Applicable Permits and Conditions (Ref. Permit No. and Condition No.)**

Identify the applicable permits, local ordinances, etc. that apply to the project. If applicable, enter the permit or condition number in the available text box. Enter any additional applicable conditions in the empty boxes.

Environmental Protection Measures

a. **Valley Water Best Management Practices**
Complete the table with the appliable project BMPs and AMMs as provided in Appendix B of the PMP Manual.

b. **PMP EIR and Reclamation EA Conservation or Mitigation Measures**
Complete the table with the mitigation measure or permit condition number as appropriate. Include the document source (PMP EIR, Reclamation, or Permit).

c. **Valley Habitat Plan (VHP) or San Benito County Conservation Plan (SBCCP) Avoidance, Minimization Measures, and Conditions applicable**
Include any applicable measures from the VHP or SBCCP. Valley Water biological resources staff should be consulted to ensure proper application of any included measures.

d. **Applicable Permits and Conditions**
Check all boxes that apply to the project. Use the text box at the bottom of the page to briefly explain the applicability. If appropriate, complete the table on the following page with the permit condition number.

e. **Post-Project Required Reporting**
Per certain permits, post-project reporting may be required. Indicate any such reporting requirements for the project.

*---END OF INSTRUCTION SECTION--*

# DRAFT PERC

**Draft Preliminary Environmental Review Checklist**
*for Pipeline Maintenance Projects*

Valley Water

| Project Identification | | | |
|---|---|---|---|
| Formal Project Name | Click or tap here to enter text. | Project Number | Click or tap here to enter text. |
| Project or Action Description | Click or tap here to enter text. | | |
| Workflow Path | Choose an item. | Water Type | Choose an item. |
| Maintenance Type | Choose an item. | Ownership/System | Click or tap here to enter text. |
| County | Click or tap here to enter text. | Location | Click or tap here to enter text. |
| PMP Qualified Project? | Click or tap here to enter text. | | |

## PMP Included Activities

| | | | |
|---|---|---|---|
| ☐ | External Inspection | ☐ | Pump Stations and Facility Maintenance |
| ☐ | Internal Inspection | ☐ | Storage Tanks and Facility Maintenance |
| ☐ | Buried and Exposed Pipeline Component Maintenance, Including Pipeline Sections, Valves, and Fittings | ☐ | Surge Tanks & Standpipes Maintenance |
| ☐ | Tunnel Maintenance | ☐ | Access Road and Support Structure Maintenance |
| ☐ | Manholes, Meters, Vaults, and Related Appurtenance Maintenance | ☐ | Bank Stabilization, Erosion Control, and Energy Dissipation Device Maintenance |
| ☐ | System Instrumentation, Controls, and Monitoring | ☐ | Vegetation Management |
| ☐ | Backup Generator Maintenance | ☐ | Repair of Pipeline System Infrastructure |
| ☐ | Non-ground Disturbing Repair | | |

## PMP Included Tasks

| | | | |
|---|---|---|---|
| **General Tasks** | | **Pipeline Draining Tasks** | |
| ☐ | Setup, Staging, and Access | ☐ | Isolation |
| ☐ | Control of Hazardous Energy (Lockout/Tagout and Removal of Lockout/Tagout) | ☐ | Dewatering |
| ☐ | Pump-out of Vaults/Manholes | ☐ | Refilling |
| **Repair Tasks** | | ☐ | Excavation, Backfill, Construction, and other Ground Disturbance |
| ☐ | Repair of Infrastructure | | |
| | Non-ground Disturbing Repair | | |

## Project Questions

### CEQA/NEPA Early Recommendation

| | | |
|---|---|---|
| 1. | Does CEQA Apply? | Choose an item. |
| | *If yes, does PMP EIR cover the project or activity?* | Choose an item. |
| 2. | Does NEPA Apply? | Choose an item. |
| | *If yes, does an existing NEPA decision cover the project or activity?* | Choose an item. |

**Explanation:** Click or tap here to enter text.

### Endangered Species Act (ESA)

| | | |
|---|---|---|
| 3. | Is the project or action within a sensitive area?* | Choose an item. |
| 4. | Is Reclamation going to prepare a Biological Assessment and/or a Biological Opinion? | Choose an item. |

### General

| | | |
|---|---|---|
| 5. | Does the project include work within the VHP boundary or other Habitat Plan or special use area (e.g., San Benito County Conservation Plan)? | Choose an item. |
| 6. | Does the project require an Internal Decision Memo (IDM)? | Choose an item. |
| 7. | Will excavation occur at or near known precontact archaeological sites, TCRs, and/or sites with known Native American burials?** | Choose an item. |

**If a PMP-covered action is proposed in a biologically sensitive area, or contains environmentally sensitive elements, a planner may need to complete an IDM in conjunction with the PERC.*
***If yes, a Native American Monitor must be present during excavation.*

**Environmental Protection Measure Determination Protocol**

Review the following environmental factors and check any boxes where there may be potential impacts requiring avoidance or mitigation. Impacts may be avoided, reduced, or mitigated by permit conditions, mitigation measures, BMPs, or AMMs listed in the following sections.

| | Staging/ Access | Pump-out | Dewater/ Refill | Excavation | Repair | Refilling | Non-Ground Repair* |
|---|---|---|---|---|---|---|---|
| Aesthetics | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Agriculture and Forestry | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Air Quality | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Biological Resources | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Cultural Resources | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Energy | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Geology and Soils | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Greenhouse Gas Emissions | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Hazards and Hazardous Materials | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Hydrology and Water Quality | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Land Use and Planning | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Minerals | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Noise | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Population and Housing | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Public Services | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Recreation | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Traffic and Transportation | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Tribal Cultural Resources | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Utilities and Service Systems | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Wildfire | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

*Reference the most current CEQA Environmental Checklist Form for descriptions of significance for each resource. (Appendix G CEQA Statute and Guidelines, Association of Environmental Professionals)*

## ENVIRONMENTAL PROTECTION MEASURES

### a. Valley Water Best Management Practices (BMPs)

| **BMP No.** | | | |
|---|---|---|---|
| BMP Measure | | Responsible Party | |
| | | Timing of Implementation | |
| Implementation Verification Name | | Date of Field Verification | |
| Notes | | | |

| **BMP No.** | | | |
|---|---|---|---|
| BMP Measure | | Responsible Party | |
| | | Timing of Implementation | |
| Implementation Verification Name | | Date of Field Verification | |
| Notes | | | |

| **BMP No.** | | | |
|---|---|---|---|
| BMP Measure | | Responsible Party | |
| | | Timing of Implementation | |
| Implementation Verification Name | | Date of Field Verification | |
| Notes | | | |

| **BMP No.** | | | |
|---|---|---|---|
| BMP Measure | | Responsible Party | |
| | | Timing of Implementation | |
| Implementation Verification Name | | Date of Field Verification | |
| Notes | | | |

| BMP No. | | | |
|---|---|---|---|
| BMP Measure | | Responsible Party | |
| | | Timing of Implementation | |
| Implementation Verification Name | | Date of Field Verification | |
| Notes | | | |

| BMP No. | | | |
|---|---|---|---|
| BMP Measure | | Responsible Party | |
| | | Timing of Implementation | |
| Implementation Verification Name | | Date of Field Verification | |
| Notes | | | |

| BMP No. | | | |
|---|---|---|---|
| BMP Measure | | Responsible Party | |
| | | Timing of Implementation | |
| Implementation Verification Name | | Date of Field Verification | |
| Notes | | | |

| BMP No. | | | |
|---|---|---|---|
| BMP Measure | | Responsible Party | |
| | | Timing of Implementation | |
| Implementation Verification Name | | Date of Field Verification | |
| Notes | | | |

b. PMP PEIR Specific Avoidance or Minimization Measure

| **Avoidance or Minimization Measure** | | | |
|---|---|---|---|
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| **Avoidance or Minimization Measure** | | | |
|---|---|---|---|
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| **Avoidance or Minimization Measure** | | | |
|---|---|---|---|
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| **Avoidance or Minimization Measure** | | | |
|---|---|---|---|
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| **Avoidance or Minimization Measure** | | | |
|---|---|---|---|
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| | | | |
|---|---|---|---|
| **Avoidance or Minimization Measure** | | | |
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| | | | |
|---|---|---|---|
| **Avoidance or Minimization Measure** | | | |
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| | | | |
|---|---|---|---|
| **Avoidance or Minimization Measure** | | | |
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| | | | |
|---|---|---|---|
| **Avoidance or Minimization Measure** | | | |
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| | | | |
|---|---|---|---|
| **Avoidance or Minimization Measure** | | | |
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

c. Valley Habitat Plan (VHP) or San Benito County Conservation Plan (SBCCP) Avoidance, Minimization Measures, and Conditions Applicable

| **Avoidance, Minimization Measure or Condition:** | | | |
|---|---|---|---|
| Description: (Include Source) | | Responsible Party | |
| | | Timing of Implementation | Click or tap to enter a date. |
| Implementation Verification Name | | Date of Field Verification | Click or tap to enter a date. |
| Notes | | | |

| **Avoidance, Minimization Measure or Condition:** | | | |
|---|---|---|---|
| Description: (Include Source) | | Responsible Party | |
| | | Timing of Implementation | |
| Implementation Verification Name | | Date of Field Verification | |
| Notes | | | |

| **Avoidance, Minimization Measure or Condition:** | | | |
|---|---|---|---|
| Description: (Include Source) | | Responsible Party | |
| | | Timing of Implementation | |
| Implementation Verification Name | | Date of Field Verification | |
| Notes | | | |

## d. Applicable Permits and Conditions (Ref. Permit No. and Condition No.)

| | |
|---|---|
| ☐ Pipeline Shutdown Required | ☐ Drinking Water General Order |
| Click or tap here to enter text. | Click or tap here to enter text. |
| ☐ CDFW RMA | ☐ Recycled Water General Order |
| Click or tap here to enter text. | Click or tap here to enter text. |
| ☐ CWA Section 401 (VHP, SMP, Individual) | ☐ SWPPP (Construction General Permit, 2009-009-DWQ) |
| Click or tap here to enter text. | Click or tap here to enter text. |
| ☐ CWA Section 404 (VHP, SMP, Individual) | ☐ FESA Section 7 |
| Click or tap here to enter text. | Click or tap here to enter text. |
| ☐ Storm Drain Discharge Permit for a Municipality | ☐ Nesting Bird Policy |
| Click or tap here to enter text. | Click or tap here to enter text. |
| ☐ Traffic Encroachment Permits (City, County, Caltrans, VTA) | ☐ Within the VHP Boundary or other Habitat Plan |
| Click or tap here to enter text. | Click or tap here to enter text. |
| ☐ Licensed Dist. Operator for Pipeline Work | ☐ HAZMAT License Req. for Driver to Transport Dechlorination or other chemicals |
| Click or tap here to enter text. | Click or tap here to enter text. |
| ☐ Drinking Water General Order | ☐ Public Notification/ to Residents within 1,000 ft. of site |
| Click or tap here to enter text. | Click or tap here to enter text. |
| ☐ Noise Ordinance Variance | ☐ Traffic Control Permits |
| Click or tap here to enter text. | Click or tap here to enter text. |
| ☐ Local Tree Removal Permitting | ☐ Biological Assessment |
| Click or tap here to enter text. | Click or tap here to enter text. |
| ☐ Section 106 (Reclamation) | ☐ Biological Opinion |
| Click or tap here to enter text. | Click or tap here to enter text. |

**Explain applicability or move to next page for specific permit requirements descriptions:**

Click or tap here to enter text.

**Permits and Conditions**
As applicable from subsection *d* on previous page.

| **Permit Condition No.** | | | |
|---|---|---|---|
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| **Permit Condition No.** | | | |
|---|---|---|---|
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| **Permit Condition No.** | | | |
|---|---|---|---|
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| **Permit Condition No.** | | | |
|---|---|---|---|
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

| **Permit Condition No.** | | | |
|---|---|---|---|
| Implementation Verification Name | | Responsible Party | |
| Notes | | Timing of Implementation | Click or tap to enter a date. |
| | | Date of Field Verification | Click or tap to enter a date. |

## e. Post-Project Required Reporting

| **Report Name** | | | |
|---|---|---|---|
| Permit Reference | | Responsible Party | |
| | | Reporting Deadline | |
| Agency Contact | | | |
| Notes | | | |

| **Report Name** | | | |
|---|---|---|---|
| Permit Reference | | Responsible Party | |
| | | Reporting Deadline | |
| Agency Contact | | | |
| Notes | | | |

| **Report Name** | | | |
|---|---|---|---|
| Permit Reference | | Responsible Party | |
| | | Reporting Deadline | |
| Agency Contact | | | |
| Notes | | | |

| **Report Name** | | | |
|---|---|---|---|
| Permit Reference | | Responsible Party | |
| | | Reporting Deadline | |
| Agency Contact | | | |
| Notes | | | |

# Appendix E

Hydrologic and Geomorphic Conditions Technical Memorandum

Balance Hydrologics

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# Regulatory, hydrologic and geomorphic conditions technical memorandum in support of the Valley Water Pipeline Maintenance Program

October 2023

*Developed for Santa Clara Valley Water District*

*Developed by Balance Hydrologics*

# 1. Introduction

This technical memorandum presents the updated hydrologic and geomorphic basis for the update to the Santa Clara Valley Water District (Valley Water) Pipeline Maintenance Program (PMP) and PMP Program Environmental Impact Report (PEIR).

Valley Water provides water resources management for Santa Clara County. Valley Water manages, owns, and operates a range of facilities including dams, surface water reservoirs, water treatment plants, groundwater recharge facilities, jurisdictional streams, and conveyance systems. Valley Water's conveyance systems include pipelines and related appurtenances for distributing raw, treated, and recycled water. This system requires maintenance, which can include releases to streams within Santa Clara County. Activities conducted under the PMP can also require construction of temporary or permanent bed and bank stabilization projects within stream channels where water is released.

Our technical memorandum updates the background information presented in the original 2007 PMP PEIR and synthesizes new information into updated protocols for Valley Water to use as part of their updated PMP. Updates are based on new review of literature and new or updated regulations.

# 2. Regulatory Setting

This section describes the federal, state, and local regulatory context to be considered for the PMP.

***Federal and State Regulations***

*Section 402 of the Clean Water Act*

The Clean Water Act (CWA) authorizes the U.S. Environmental Protection Agency to regulate water quality in California by controlling the discharge of pollutants to water bodies from point and non-point sources through the National Pollution Discharge Elimination System (NPDES).

Santa Clara County is subject to two regional NPDES permits: the San Francisco Bay Municipal Regional Permit for watersheds that drain to the San Francisco Bay and the Central Coast Water Quality Control Board Phase II NPDES permit for watersheds that drain south to the Pajaro River.

The State Water Resources Control Board (SWRCB) has established a Municipal Regional Stormwater permit (Regional Municipal Permit) for the Bay Area Counties (Order No. R2-2022-0018, NPDES General Permit No. CAS612008) to regulate stormwater discharges in these areas. As a municipal separate storm sewer system (MS4) operator, Valley Water is required to comply with its provisions, which include construction- and post-construction-phase stormwater runoff controls and water quality BMPs. To assist MS4 operators, Santa Clara County developed the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) C.3 Stormwater Handbook (EOA, 2016).

If individual projects completed under the proposed program may disturb more than 1 acre of land (in aggregate, for each individual project), Valley Water would be required to submit a Notice of Intent to the SWRCB and apply for coverage under the NPDES Construction General Permit. Administration of these permits has not been delegated to cities, counties, or Regional Boards but remains with the SWRCB.

Enforcement of permit conditions, however, is the responsibility of Regional Board staff, assisted by local municipal or County staff. The County of Santa Clara will require Valley Water to prepare a Storm Water Pollution Prevention Plan (SWPPP) and submit it for review prior to commencing construction (for maintenance activities requiring excavation). Once ground disturbance begins, the SWPPP must be kept on-site and updated as needed while construction progresses. The SWPPP details the site-specific BMPs to control erosion and sedimentation and maintain water quality during the construction phase. The SWPPP also contains a summary of the structural and non-structural BMPs to be implemented during the post-construction period, pursuant to the nonpoint source practices and procedures encouraged by the SCVURPPP and the Regional Water Quality Control Board San Francisco Bay Region (RWQCB).

*Section 401 of the Clean Water Act*

Under Section 401 of the CWA, the United States Army Corps of Engineers (USACE) administers permitting programs that authorize impacts to "waters of the United States" including "wetlands" and "other waters." Such impacts may not be permitted until the SWRCB, acting through its regional boards, certifies that the activities covered by the permit will not violate water quality standards. Certification must be consistent with the requirements of the federal CWA, California Environmental Quality Act (CEQA) and California Endangered Species Act, and with the SWRCB's mandate to protect beneficial uses of waters of the state.

The San Francisco Bay Regional Water Quality Control Board (RWQCB) has adopted the USACE policy that there shall be "no net loss" of wetlands. Thus, prior to waiving or certifying water quality, the RWQCB requires a proposed project to demonstrate there are no impacts on existing wetlands, or, if such impacts are unavoidable, that they are fully mitigated.

*California Porter-Cologne Act*

The Porter-Cologne Act requires "any person discharging waste, or proposing to discharge waste, within any region that could affect the waters of the State (any surface water or groundwater, including saline waters) to file a report of discharge" with the local RWQCB by applying for waste discharge. The RWQCB determines if a project should be regulated pursuant to this act based on the likelihood that it would pose any "threat" to water quality. The Regional Boards guide and regulate water quality in streams and aquifers through designation of beneficial uses and establishment of water quality objectives that must be met to protect these uses. Beneficial uses and objectives for each region are described in the Water Quality Control Plan or Basin Plan for that region. Areas that drain to the San Francisco Bay are regulated by the Region 2 (San Francisco Bay) Basin Plan which was last updated in 2023 (Region 2 RWQCB, 2023). Areas that drain to the Pajaro River are regulated by the Region 3 Basin Plan which was last updated in 2019 (Region 3 RWQCB, 2019). Beneficial water uses are designated in the Basin Plan for local aquifers, streams, marshes, and rivers, as well as water quality objectives that must be met to protect these uses. Basin Plans are periodically amended and undergo a triennial review process; therefore, Basin Plan updates are likely to occur over the life of the PMP. The PMP would reference and work within limits set by the most up-to-date basin plans. Regional Board policy is to protect uses that might reasonably apply to the tributaries of listed waters.

Table A-1 (Attachment A) summarizes these beneficial uses for Region 2 (San Francisco Bay), while Table A-2 (Attachment A) summarizes beneficial uses for Region 3 (Central Coast). Tables A-3 and A-4 list the water quality objectives established in the Region 2 Basin Plan and Region 3 Basin Plan, respectively, to protect the beneficial uses from the types of potential pollutants that could be generated by the program.

In addition to pollution such as nitrate, mercury, and volatile organic compounds, the San Francisco Bay RWQCB considers the placement of clean fill in waters of the State to constitute "pollution," because it can potentially alter existing water quality, which may adversely affect its beneficial uses.

*303(d) List*

The State of California is required by Section 303(d) of the federal Clean Water Act to provide the USEPA with a list of water bodies considered by the State to be impaired (i.e., not meeting water quality standards and not supporting their beneficial uses). The list also identifies the pollutant or stressor causing impairment, and establishes a schedule for developing a control plan to address the impairment, typically a Total Maximum Daily Load (TMDL). The TMDL specifies the amount of the target pollutant that the waterbody can sustain on a daily or annual basis. The 303(d) list is used by the USEPA to prepare the federal Clean Water Act Section 305(b) Report on Water Quality. Santa Clara County waters included in the 303(d) list identified in 2018 by the USEPA (SWRCB, 2018) are presented in Table A-5. New listings may occur over the life of the PMP and Valley Water will stay current with up-to-date 303d listings. The next set of listings for streams in Santa Clara County is expected to be sent to the USEPA in 2024.

*California Fish and Game Code*

Existing stream channels in California are protected under sections 1600-1603 of the State Fish and Game Code. These regulations specify that it is a landowner's responsibility to obtain a state permit before undertaking any modifications within an existing stream channel up to the top of bank. Stream channels are defined by the California Department of Fish and Wildlife (CDFW) as exhibiting evidence of scour, having a definable bank, or having or being capable of supporting riparian vegetation.

*Sustainable Groundwater Management Act*

In 2014, a new law was signed intended to create a framework for sustainable management of groundwater resources in California. The law, called the Sustainable Groundwater Management Act (SGMA), requires governments and water agencies with management responsivities in medium- and high-priority subbasins to halt groundwater overdraft through development of a Groundwater Sustainability Plan (GSP). Valley Water has prepared two groundwater management plans for the Santa Clara and Llagas Subbasins since SGMA was passed, the first in 2016 and the current version in 2021 (Gurdak and Cook, 2021).

*Local Considerations*

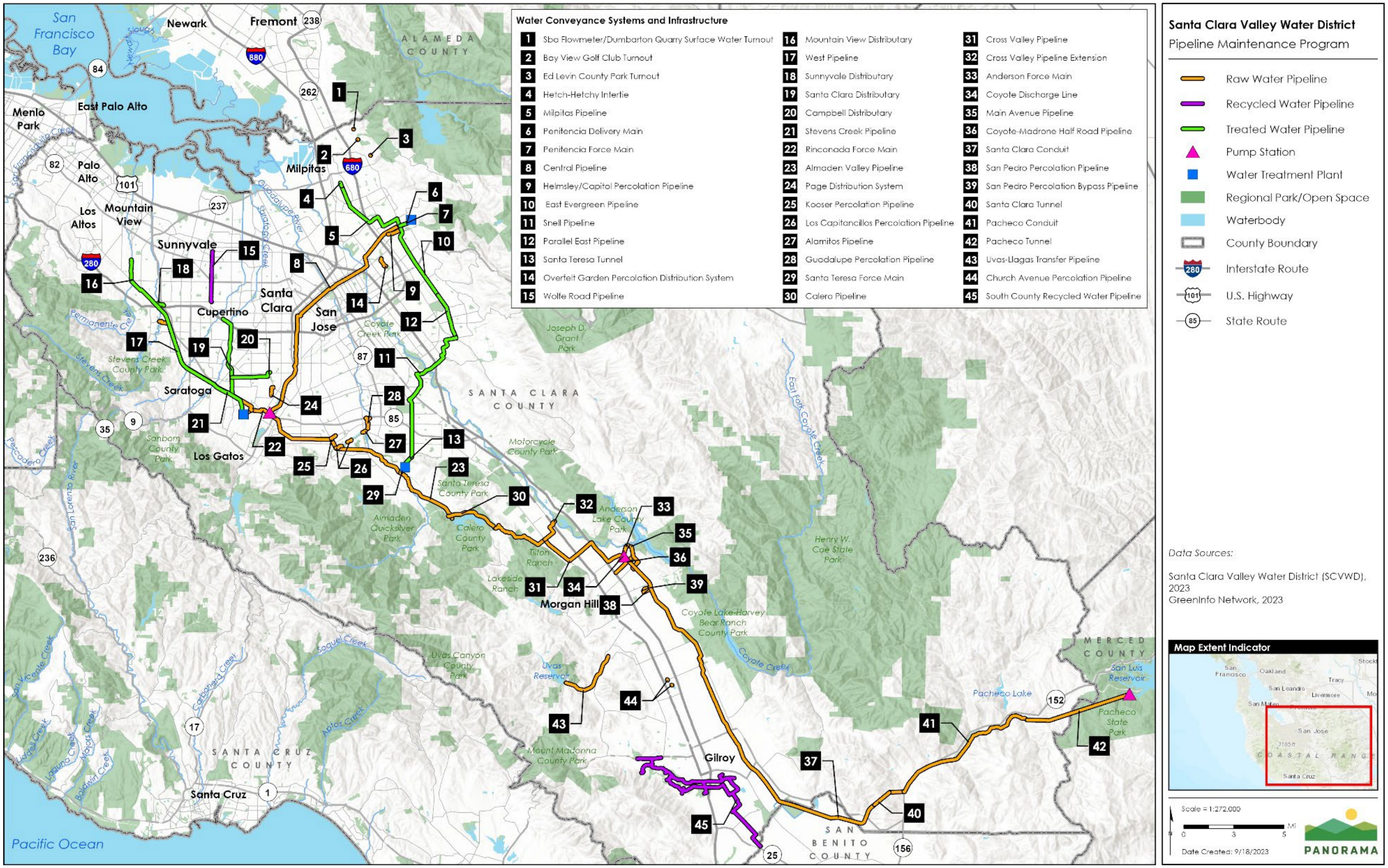
The Santa Clara Valley Water Resources Protection Collaborative (Water Collaborative or SCVWRPC) was established in 2002, bringing together the County of Santa Clara, Valley Water, 15 cities, and various other governmental and non-governmental entities to promote stream protection, and to develop a consensus-based, more unified approach to land use and development near streams. In 2006 they published the Guidelines and standards for land use near streams: A manual of tools, standards and procedures to protect streams and streamside resources in Santa Clara County (SCVWRPC, 2006). Since many of the municipalities in which Valley Water may perform work under the PMP are signatories of this document, it is a useful starting point for work in and near creeks. Additional resources for hydraulic design measures which may be applicable to the PMP include the Valley Water Hydraulic Design Manual (Valley Water, 2009) and the Valley Water Stream Maintenance Program Manual (Williams, 2014).

It should be noted that the state of the science for stream maintenance has evolved and improved since the Water Collaborative document and the Valley Water hydraulic design manual were published, and the SCVURPP C.3 manual (EOA, 2016), CASQA construction manual (CASQA, 2019), and the Stream Maintenance Program guide (Williams, 2014) are more up-to-date.

## 3. Hydro-geomorphic Setting for Pipeline Maintenance Program

### *Setting*

This section describes regional water resources and presents an evaluation of the impacts of the proposed program on hydrology and water quality. The PMP covers routine and corrective maintenance activities for 45 raw, treated, and recycled water conveyance pipelines throughout the Valley Water service area. A map of the Covered PMP pipelines is presented in **Figure 3-1** (courtesy of Panorama Environmental). Because the pipelines traverse several watersheds throughout the Valley Water service area, regional descriptions of water resources are provided here. Depending on specific maintenance needs, entire pipelines or segments of pipelines may be drained to allow access to the interior of the pipeline for maintenance activities. Releases could occur at a number of points along the conveyance system. Maintenance needs may also require ground excavation, including within stream banks, to repair or replace valves and other pipeline plumbing components. Criteria for selecting appropriate BMPs to avoid significant impacts are provided and generally depend on specific characteristics of water resources in the vicinity of the maintenance sites. The rationale for updated BMPs are described in following sections.




## Figure 3-1 PMP Covered Pipeline System Locations

***Groundwater and Surface Water***

<u>Regional Overview</u>

The occurrence and movement of groundwater and surface water in the program region is dictated by regional climate and hydrologic characteristics but to some degree is also managed by Valley Water activities. The northern two-thirds of the program area is located within the Santa Clara Basin, which is comprised of a number of major watersheds, all of which drain north to the San Francisco Bay. The southern portion of the program area is located in the Uvas/Llagas watershed, which drains south to the Pajaro River and Monterey Bay. The program area is underlain by three major, interconnected groundwater sub-basins: the Santa Clara Valley, Coyote, and Llagas sub-basins.

Valley Water is responsible for managing water resources in Santa Clara County. Runoff from primarily rural areas in the Coastal Range is collected in ten reservoirs for storage and/or blending with imported water before being conveyed to groundwater recharge facilities or drinking water treatment plants. Valley Water sells both treated surface water and groundwater to retail agencies that serve the communities within the County via their own distribution systems.

***Climate***

The program area has a Mediterranean climate, with almost all precipitation falling between the months of November and April. Annual average rainfall amounts vary significantly due to topography. Higher elevations in the Santa Cruz Mountains can receive 40 to 60 inches per year, while the valley floor in the vicinity of downtown San Jose receives on average 13 to 14 inches annually (CNRFC, 2022).

Average rainfall conditions are the statistical mean of rainfall totals that show a wide range of values strongly influenced by global weather patterns such as the El Niño Southern Oscillation. Periods of abundant winter precipitation and prolonged periods of drought are both frequent in the historical record. For example, the average annual rainfall for San Jose is approximately 13 inches per year but annual rainfall over the last 10 years has ranged from 5 to over 18 inches (CNRFC, 2022). Evaporation and evapotranspiration rates rise in response to warm summer temperatures and are typically considerably higher than precipitation on an annual basis.

***Groundwater***

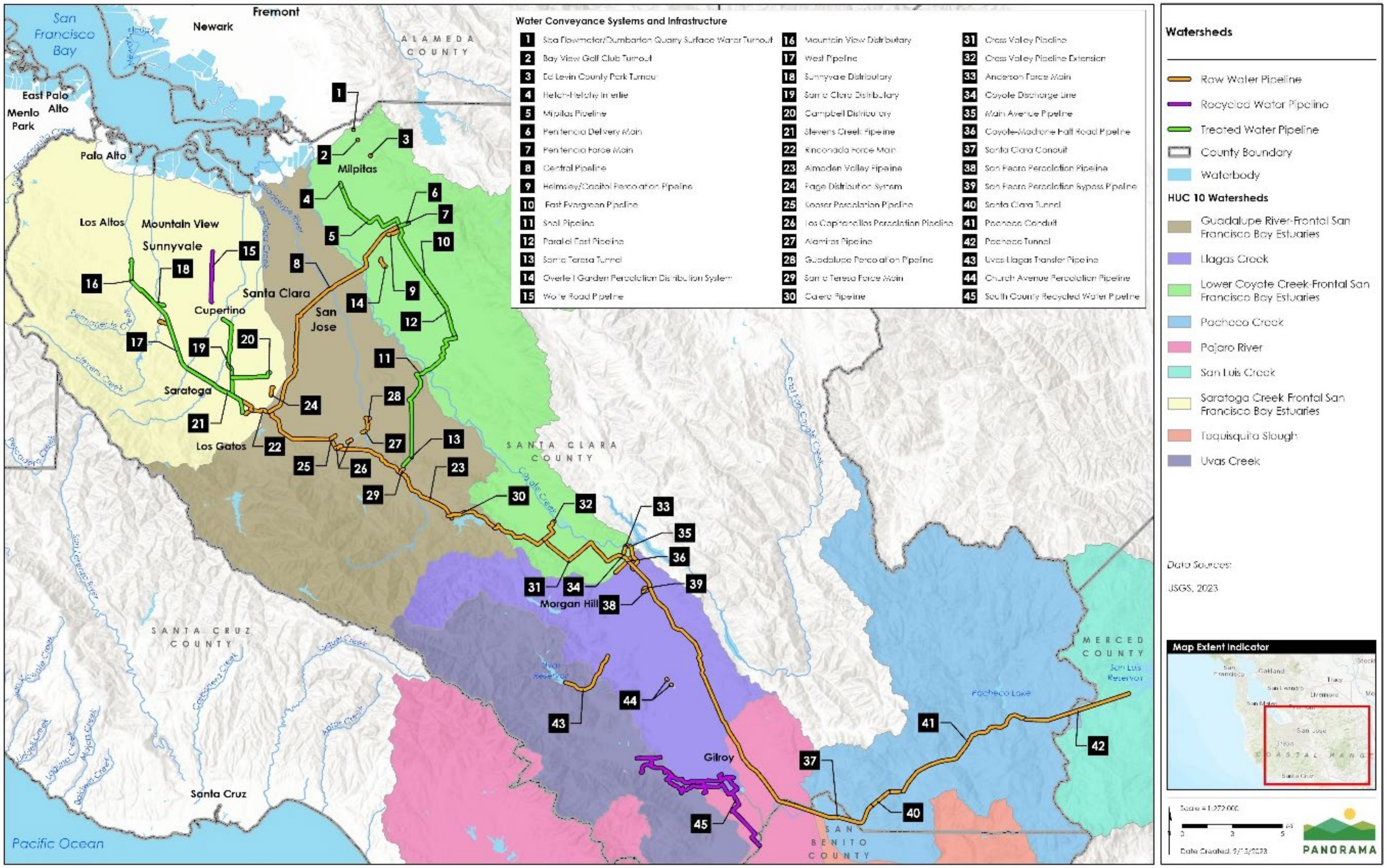
Aquifers (water bearing strata) within the Santa Clara Valley, Coyote, and Llagas groundwater basins supply nearly half of Valley Water's total water supply. The northern (Santa Clara) groundwater sub-basin is the largest and the most important with respect to local water supply. Groundwater replenishment occurs both naturally and through Valley Water efforts to augment natural processes by releasing water from existing reservoirs with the goal of recharging the aquifer through streambed infiltration. Percolation facilities, usually located near the basins' perimeters, are used to increase the recharge of groundwater basins and to compensate for the amount of water withdrawn. Valley Water actively promotes recharge to the aquifer using local and imported water applied to about 300 acres of off-stream percolation ponds located throughout the County (Gurdak and Cook, 2021). Release of imported water to streams augments streamflow conditions that are exploited by fish and wildlife. For the purposes of evaluating potential impacts of the PMP, the only potential pathway by which the planned activities may have an impact on groundwater quality is by impacting surface water quality, which may, in turn, percolate to the underlying aquifer. Valley Water manages both surface water and groundwater quality, and Valley Water maintains stream water quality such that use of surface water for groundwater recharge would not impact the quality of Valley Water's groundwater resources. Therefore, no adverse impact to groundwater quality or quantity is anticipated.

***Major Watersheds and Surface Waters***

The water conveyance pipelines covered in the PMP are widely distributed throughout Valley Water's service area (**Figure 3-1**, courtesy of Panorama Environmental) and traverse most of the major waterways and many smaller tributaries. In the event that maintenance activities require draining the pipelines, many of the County waterways could serve as direct or indirect receiving waters.

Beyond stream and channel crossings, the watershed within which the maintenance activity takes place should also be considered because runoff from the maintenance area could impact local waters, which eventually drain to larger systems. **Figure 3-2** (Courtesy of Panorama Environmental) presents a map of the major watersheds where PMP activities are likely to take place. Major watersheds and named sub-basins likely to receive waters as part of actions taken under the PMP are listed in **Table 3-1**. Major watersheds and sub-basins that are likely to receive waters are described below.

## Figure 3-2 Major Watersheds where PMP activities are likely to take place



## Table 3-1 Named Major Watersheds and Sub-basins in Proximity to Pipelines in the PMP

| **San Francisco Bay Regional Water Quality Control Board Jurisdiction** | | |
|---|---|---|
| ***Major Watersheds*** | ***Sub-Basins*** | |
| Calabazas Creek | Prospect Creek<br>Regnart Creek<br>Rodeo Creek | |
| Coyote Creek | Berryessa Creek<br>Calera Creek<br>Cochran Channel<br>Fisher Creek<br>Flint Creek<br>Los Coches Creek<br>Lower Penitencia Creek<br>Lower Silver Creek<br>Miguelita Creek<br>North Babb Creek | Norwood Creek<br>Quimby Creek<br>Ruby Creek<br>Sierra Creek<br>South Babb Creek<br>Thompson Creek<br>Tularcitos Creek<br>Upper Penitencia Creek<br>Upper Penitencia Diversion<br>Upper Silver Creek |
| Guadalupe River | Alamitos Creek<br>Calero Creek<br>Calero Reservoir<br>Canoas Creek<br>Golf Creek | Guadalupe Creek<br>Lone Hill Creek<br>Los Gatos Creek<br>Randol Creek<br>Ross Creek |
| Permanente Creek | Heney Creek<br>Stevens Creek | |
| San Tomas Aquino Creek | Saratoga Creek<br>Smith Creek<br>Wildcat Creek | |
| **Central Coast Regional Water Quality Control Board** | | |
| ***Major Watersheds*** | ***Sub-Basins*** | |
| Pajaro River Llagas Creek | Alamias Creek<br>Center Creek<br>Church Creek<br>Corrallitos Creek<br>Dexter Creek<br>Foothill Creek<br>Hayes Creek<br>Jones Creek<br>Live Oak Creek<br>Madrone Channel | New Creek<br>Panther Creek<br>Rucker Creek<br>San Martin Creek<br>San Pedro Ponds<br>San Felipe Lake<br>San Ysidro Creek<br>Skillet Creek<br>South Corrallitos Creek<br>Tennant Creek |
| Uvas Creek | Sycamore Creek | |
| Pacheco Creek | Elephant Head Creek<br>Ortega Creek | |

Most watersheds in the program area are similar in geographic structure, with headwaters in relatively rural, undeveloped mountainous areas (Santa Cruz Mountains or Diablo Range) and outlets on the margins of San Francisco Bay where residential and commercial development can be quite dense. The southern portion of the program area is more rural overall and generally drains southward to the Pajaro River, which releases to Monterey Bay. Channel slopes are steep in the headwaters but lessen through the foothills and are relatively flat in downstream reaches where most of the residential and urban development is located. In rural environments, particularly those with low relief, many creeks have been rerouted in an effort to drain and accommodate adjacent farmland. In urban areas, channelization and numerous culverts are common features that were installed to reduce flooding in adjacent uplands. Many of these historical "improvements" removed the hydrologic disconnection between the channel and the floodplains and alluvial fans resulting in impacts such as higher peak flow velocities, erosion problems, reduced riparian habitat values, and flooding in upstream or downstream reaches. Several culverts and channelized sections are now being removed and restored as part of Valley Water programs such as the Clean, Safe Creeks and Natural Flood Protection Plan and the Stream Maintenance Program. Near San Francisco Bay, many streams are tidally influenced and hold varying degrees of brackish and saline water.

***Calabazas Creek Watershed***

The Calabazas Creek watershed (See **Figure 3-2**) covers approximately 20 square miles. Its headwaters are located in the non-urbanized, northeast-facing slopes of the Santa Cruz Mountains. Calabazas Creek is undammed and flows through Saratoga, Sunnyvale, San Jose, and Santa Clara. In addition to receiving water from tributaries listed in **Table 3-1**, Calabazas Creek also receives flow from El Camino storm drain and Junipero Serra Channel.

***Coyote Creek Watershed***

The Coyote Creek watershed (See **Figure 3-2**) covers approximately 320 square miles and is the largest watershed in Santa Clara County. Its headwaters are located in the non-urbanized, west-facing slopes of the Diablo Range. Approximately half of the watershed area is located above Coyote and Anderson Reservoirs, built in 1936 and 1950, respectively. A major retrofit of Anderson Dam is underway that is anticipated to be completed in late 2023. Operations will change as a result of the improvements. The majority of this upper portion of the watershed is legally protected from urban development. Flow below Anderson Reservoir is regulated by Valley Water management activities, which are governed by a number of criteria including Valley Water needs, flooding hazards, and recreation and wildlife concerns. Stream flow is also diverted to several percolation ponds used for groundwater recharge. Without augmentation by Valley Water, the channel reach immediately downstream of the percolation ponds would be dry during most summer and early fall months. Residential and light industrial development comprise the major land uses in the lower reaches of the Coyote Creek watershed and these uses are rapidly expanding in the area between San Jose and Morgan Hill.

Peak flow for the period of record between 1999 and 2023 of 6,670 cubic feet per second (cfs) was recorded at the USGS gage at Highway 237 (11172175) on February 22, 2017. Median flow over the period of record is 14 cfs. Coyote Creek will often flow perennially, but can dry up during drier periods, often in the vicinity of Coyote Valley where Coyote Creek often loses water to the aquifer.

The following subbasins within Coyote Creek may receive waters as a result of actions in the PMP.

> **Fisher Creek**: With its confluence about 8 miles downstream of Anderson Reservoir, is one of about 15 tributaries to Coyote Creek and is the main tributary on the valley floor. Fisher Creek drains an area of approximately 16 square miles on the western side of the Coyote watershed. This seasonally dry channel flows into the Laguna Seca area prior to spilling into Coyote Creek. Laguna Seca was once a swampy basin subject to shallow groundwater conditions. An artificial drainage system installed to create conditions suitable for agriculture now channels water directly to Coyote Creek. Fisher Creek carries runoff from numerous unnamed foothill drainages. Its lower reaches were channelized in the 1970's during construction of the Calero Hills Golf Course and development of the surrounding area. Other reaches of Fisher Creek were likely channelized and/or relocated in earlier decades to accommodate adjacent agriculture practices. There are no major reservoirs in the Fisher Creek watershed.
>
> **The Lower Silver Creek - Thompson Creek**: This subbasin covers approximately 42 square miles in the north central portion of the Coyote Creek watershed. With headwaters in the Diablo Range foothills Thompson Creek drains about 12 square miles. This seasonal stream flows north to join Lower Silver Creek approximately 2 miles upstream of the confluence with Coyote Creek and just south of Highway 101 near McKee. Tributaries to Thompson Creek primarily enter from the east. Because they now drain a high-density residential watershed, many of these tributaries have been placed in pipe culverts. Upper Thompson Creek remains in a natural condition, canyon-like and prone to landslides, with very steep erodible banks. This contrasts sharply with the low-gradient, lower reaches of the watershed that have been realigned in constructed earthen channels to control flooding.
>
> **Upper Penitencia Creek**: This subbasin drains approximately 24 square miles, 22 of which occur within predominantly un-urbanized canyon within the Diablo Range. Cherry Flat Reservoir is a small facility impounding 2.4 square miles upstream of Aguague Creek, the watershed's main tributary. Thus, Upper Penitencia Creek has a significantly unimpaired water and sediment supply. This contrasts sharply with the low-gradient, lower reaches of the watershed that have been realigned in constructed earthen channels to control flooding.

***Guadalupe River Watershed***

The Guadalupe River watershed (See **Figure 3-2**) covers approximately 170 square miles. The river's headwaters are located in the eastern Santa Cruz Mountains, and it drains to the San Francisco Bay through Alviso Slough. The Guadalupe River begins at the confluence of Guadalupe Creek and Alamitos Creek (to which Calero Creek is tributary); downstream from this point the watershed is urbanized. Important tributaries include Ross Creek, Canoas Creek, and Los Gatos Creek. Since the 1800s the Guadalupe River and its tributaries have seen substantial development. In addition, downtown San Jose has historically seen the most land subsidence. As a result, the Guadalupe River and its tributaries have been the focus of several flood control projects. During the period of record between 2002 and 2023, the

USGS gage just below the confluence with Los Gatos Creek (Gage 11169025) a peak flow of 6,340 cfs was recorded in the Guadalupe River on February 21, 2017. Median streamflow over the period of record is 23 cfs. Flows are partially regulated by Valley Water, which operates four major reservoirs in the watershed:

- Almaden Reservoir on Alamitos Creek
- Guadalupe Reservoir on Guadalupe Creek
- Calero Reservoir on Calero Creek
- Lexington Reservoir and Vasona Reservoir on Los Gatos Creek

Valley Water augments dry season flows in Guadalupe River for the purposes of groundwater recharge. Flows are also diverted to several groundwater percolation ponds along Guadalupe Creek, the Guadalupe River, and Los Gatos Creek.

The following subbasins within the Guadalupe River watershed may receive waters as a result of actions in the PMP.

**Los Gatos Creek**, with a subbasin of about 55 square miles, joins the Guadalupe River in downtown San Jose. Flows are regulated by three reservoirs. Vasona Reservoir, the lowermost impoundment with a drainage area of about 44 square miles, is located about 8 miles upstream from the confluence of Los Gatos Creek with the Guadalupe River.

Lexington Reservoir is the largest reservoir, located about 3 miles upstream of Vasona Reservoir. Elsman Reservoir is located in the headwaters of Los Gatos Creek but is not operated by Valley Water.

**Ross Creek** drains a highly urbanized area of about 10 square miles and releases to the Guadalupe River approximately 5 miles upstream of the Los Gatos Creek/Guadalupe River confluence. Almost the entire length of Ross Creek has been placed in concrete-lined or earthen excavated channels.

With a drainage area of approximately 12.4 square miles, **Calero Creek** is a major tributary to Alamitos Creek but a relatively small tributary to Guadalupe River. The **Calero Creek** headwaters in the Santa Cruz Mountains are intermittent. Flows are captured downstream in Calero Reservoir, which was constructed in 1935 and has a subbasin of about 7 square miles. Calero Reservoir is also used to store imported water from sources originating outside the Santa Clara Basin (e.g., San Felipe Project) and from adjacent watersheds (e.g., Almaden Reservoir). Below Calero Reservoir, flows in Calero Creek are regulated by Valley Water.

### *San Tomas Aquino*

The 45-square mile San Tomas Aquino Creek watershed (See **Figure 3-2**) is drained by San Tomas Aquino Creek and its two primary tributaries, Saratoga Creek and Smith Creek. The steep, undeveloped Santa Cruz Mountain headwaters transition to a low-gradient, heavily-urbanized main stem that flows through the cities of Campbell and Santa Clara and releases to Guadalupe Slough. Much of the main stem of San Tomas Aquino Creek is contained within concrete trapezoidal channels and box culverts intended to protect adjacent areas from flooding. Winter flows in San Tomas Aquino Creek are flashy due to the high proportion of impervious surface coverage and the creek is usually dry during summer months.

> The **Saratoga Creek** watershed drains to San Tomas Aquino Creek. Saratoga Creek originates as a steep headwater channel in the Santa Cruz Mountains, covers approximately 17 square miles. Saratoga Creek releases to San Tomas Aquino Creek approximately 5 miles upstream of Guadalupe Slough and 8 miles from the San Francisco Bay. Low flows in Saratoga Creek are regulated by Lake McKenzie, a small reservoir located in the headwaters. Water from the creek is also diverted for municipal use by San Jose Water and the creek is often dry during summer months. According to the 1987 to 2023 period of record from the USGS gage in the City of Saratoga, median streamflow over the period of record is about 0.3 cfs (USGS station number 11169500). The highest peak flow, 2,730 cubic feet per second (cfs), was recorded in December 1955. Saratoga Creek has a history of flooding and at least 3 miles of the 15-mile creek have been channelized and modified for flood flow conveyance.

### *Stevens Creek Watershed*

Stevens Creek (See **Figure 3-2**), with its headwaters in the northeast-facing slopes of the Santa Cruz Mountains, drains a watershed of approximately 38 square miles, including 9 square miles of the Permanente Creek watershed, which have been diverted to Stevens Creek beginning in 1959. Although several short reaches have been placed in culverts, hardened, or realigned (including several reaches downstream of El Camino Real), much of Stevens Creek remains in a relatively natural condition. While perennial flow is maintained by springs and seeps in the headwaters, and by groundwater accretion in the lower reaches, the middle reaches often dry out in summer. Valley Water regulates flow in the 9-mile reach downstream of the Stevens Creek Reservoir just south of the City of Cupertino. The reservoir was built in the 1930's and has a capacity of about 3,500 acre-feet. Summer releases are made with the intent of recharging the groundwater aquifer. Peak flow at the Valley Water stream gage downstream of Steven Creek Reservoir for the period of record from 1961 to 2017 was 5,250 cfs and occurred during February 1996.

### *Pajaro River Watershed*

The Pajaro River watershed (See **Figure 3-2**) drains southwest to the Monterey Bay and covers approximately 1,300 square miles of which about 40 percent is in Santa Clara County. This predominantly (76 percent) agricultural watershed has headwaters in the Santa Cruz Mountains, the Diablo Range, and the Gabilan Range. Flows in the Pajaro River and its tributaries vary from year to year in response to rainfall and follow the same seasonal pattern with high flows often recorded in January and February following major storm events and low flows recorded during the dry season. Pajaro flows are perennial at the Chittenden gage (USGS Station 11159000) where the watershed is about 1,200 square miles. Median streamflow over the period of record from 1988 to 2023 is 6 cfs. The highest recorded flow rate was 25,100 cfs on February 3, 1998 when the lower river overflowed its banks causing widespread flood damage. Flows in the Pajaro and some of its tributaries are partially regulated by reservoir operations, two of which (Uvas Reservoir and Chesbro Reservoir) are located in Santa Clara County. San Felipe Lake (sometimes known as Soap Lake), a natural sag pond formed by the Calaveras fault, is the source of the Pajaro River via Miller's Canal in San Benito County. The lake is filled by inflows from Pacheco Creek and Tequisquita Slough.

> With headwaters in the Diablo Range, **Pacheco Creek** drains an area of about 169 square miles. Land uses in the watershed transition from open space and rangeland in the headwaters to rural residential and agriculture in the foothills. There are industrial and suburban land uses through Hollister and agricultural/rural residential uses in the area surrounding its confluence with Tequisquita Slough. Plans are underway to expand the existing Pacheco Dam, which was purchased by Valley Water. If the plan moves forward, the dam will likely increase the amount of dry season baseflow to support aquatic species and increase recharge.
>
> **Uvas-Carnadero Creek** (Uvas Creek) drains an approximately 90-square mile watershed originating at Loma Prieta Peak on the east slopes of the Santa Cruz Mountains and ending at its confluence with the Pajaro River, southeast of Gilroy. Uvas Creek provides access, spawning, and rearing, in all but extreme drought years, for adult steelhead (Oncorhynchus mykiss) using the Pajaro River as a migration pathway (Donaldson and others, 2018). Uvas Creek is dammed in the Santa Cruz Mountains approximately 15 miles upstream of Gilroy to form Uvas Reservoir. Uvas Creek above the reservoir runs year-round; flows downstream of the dam are regulated by Valley Water. Valley Water maintains two stream gages on Uvas Creek: below Uvas Reservoir with a record dating back to 1990, and at the former USGS gage site in Gilroy, with a flow record beginning in 1959 and ending in 1992 The USGS gage in Gilroy (USGS station number 11154200), with a watershed of 71.2 square miles, shows pre-1991 peak winter storm flows ranging from 1,000 cfs to as high as 6,520 cfs during the 1986 flood, and summer baseflows as low as 0 cfs.
>
> **Llagas Creek** drains a 104-square mile watershed, north of and adjacent to the Uvas Creek watershed. This stream also originates on the east slopes of the Santa Cruz Mountains at Loma Prieta Peak. Llagas Creek flows east of Morgan Hill through the Paradise Valley, before joining the Pajaro River southeast of Gilroy. The upper watershed is mostly underlain by Franciscan serpentines resulting in magnesium-calcium bicarbonate type water. Llagas Creek is also on the adult steelhead migration pathway in the Pajaro River watershed, but steelhead use of this creek is less frequent and less extensive than Uvas Creek (Donaldson and others, 2018).

Llagas Creek is dammed in its upper reaches in the Santa Cruz Mountains forming Chesbro Reservoir. Flow releases from Chesbro reservoir are regulated by Valley Water. Normally, reservoir releases are adjusted to match the percolation capacity of the lower reach, and steelhead passage through the lower reaches of Llagas Creek is commonly blocked by dry streambeds by May or early June. Surface flows are typically maintained in most years from the reservoir, downstream to the Church Avenue percolation ponds just upstream of Highway 101. A Valley Water-maintained gage on Llagas Creek near Gilroy (downstream of Highway 152) has a watershed area of 84.2 square miles. The limited flow record available at the Llagas Creek USGS gage station (11153650) shows that between December 2002 and August 2023, the peak winter storm flow of 3,780 cfs occurred on February 20, 2017. Median flow over the period of record is 1.9 cfs.

***Flood Potential***

<u>Regional Overview</u>

Flooding can be common in Santa Clara County during the rainy season. Tidal flooding along the San Francisco Bay may occur due to levee failure, and its severity is increased in areas that have experienced subsidence due to over-drafting of groundwater basins. More importantly, stormwater flooding has been a long and continuing problem. Approximately 60 square miles of the 300-square mile Santa Clara Valley floor is flood-prone (Santa Clara County, 1994). Levees have been constructed to contain flood flows along some creeks, although flood control measures have demonstrated varying effectiveness. Over the last 40 to 50 years, the amount of urban development in flood-prone areas has also increased the estimates of potential property damage from major flooding. Increased impervious surface coverage from development also exacerbates flooding problems by increasing total stormwater runoff. Analysis and interpretation of large-scale climate prediction models has led the climate science community to agree that the frequency and magnitude of precipitation events and droughts will increase in the future (e.g. Hagos, 2016, Pelletier, et al., 2015).

Valley Water is responsible for flood management in creeks and major drainage channels within Santa Clara County. Local drainage systems, such as storm drains, are the responsibility of cities and counties. The conveyance capacity of channels is maintained and enhanced through implementation of Valley Water's Stream Maintenance Program (SMP, Williams, 2013) which includes three major activities:

1) Sediment removal

2) Vegetation management

3) Bank protection

Although the National Weather Service is responsible for flood warnings, Valley Water assists the process by maintaining and providing access to data generated by the Automated Local Evaluation in Real Time (ALERT) system. The ALERT system is a network of rain gages, streamflow gages, and reservoir gages. Flood thresholds are identified for some areas impacted by the program and are presented in **Table 3-2**. Data are made available on Valley Water's web site (https://alert.valleywater.org/map). On stream gage webpages for individual stations, real time stage, streamflow, and flood hazard threshold information is listed.

### Table 3-2 Thresholds for Moderate Flooding at Relevant Valley Water ALERT Stations

| ALERT Station Number | Station Description | Watershed | Flood Stage (cfs) |
|---|---|---|---|
| 5012 | Coyote Creek below Coyote Reservoir (USGS) | Coyote | 3750 |
| 5058 | Coyote Creek at Edenvale | Coyote | 3750 |
| 5082 | Coyote Creek at Madrone | Coyote | 3750 |
| 5083.1 | Upper Penitencia Creek at Dorel Dr | Coyote | 1500 |
| 5097 | Coyote Creek at CA-237 (USGS) | Coyote | 3750 |
| 5098 | Coyote Creek at William St | Coyote | 3750 |
| 5100.1 | Lower Penitencia Creek at Machado Ave | Coyote | 850 |
| 5127 | Coyote Creek at Berryessa Rd | Coyote | 3750 |
| 5136.2 | Berryessa Creek at Old Piedmont Road | Coyote | 500 |
| 5013 | Calero Creek below Calero Reservoir | Guadalupe | 350 |
| 5023.2 | Guadalupe River above Almaden Expwy | Guadalupe | 5500 |
| 5050 | Los Gatos Creek at Lincoln Ave | Guadalupe | 7000 |
| 5051 | Ross Creek at Cherry Ave | Guadalupe | 1250 |
| 5059 | Los Gatos Creek at Lark Ave | Guadalupe | 6000 |
| 5067 | Los Gatos Creek below Lexington Reservoir (Low Flow) | Guadalupe | 3000 |
| 5109 | Guadalupe River at US-101 (USGS) | Guadalupe | 14000 |
| 5138 | Guadalupe River at Alma Ave | Guadalupe | 5800 |
| 5032 | Permanente Creek above Berry Ave | Lower Peninsula | 1600 |
| 5035 | Stevens Creek above CA-85 near Central Ave | Lower Peninsula | 6000 |
| 5044 | Stevens Creek below Stevens Creek Reservoir | Lower Peninsula | 3000 |
| 5112 | San Francisquito Creek at Stanford (USGS) | Lower Peninsula | 5500 |
| 5120 | Permanente Creek at Rancho San Antonio Park | Lower Peninsula | 1250 |
| 5086 | Uvas Creek at W Luchessa Ave | Pajaro | 6800 |
| 5117 | West Little Llagas below Edmundson Ave | Pajaro | 600 |
| 5024 | San Tomas Creek above Williams Rd | West Valley | 3500 |
| 5033 | Hale Creek near Magdalena Ave | West Valley | 400 |
| 5074 | Sunnyvale East Channel at Bayshore Frontage Rd | West Valley | 750 |

Valley Water and other agencies are frequently updating FEMA flood mapping data. The most up-to-date FEMA mapping is accessible at the FEMA Map Service Center website (https://msc.fema.gov/). **Figure 3-3** presents mapped FEMA floodplains and floodways within the area of potential PMP activities.

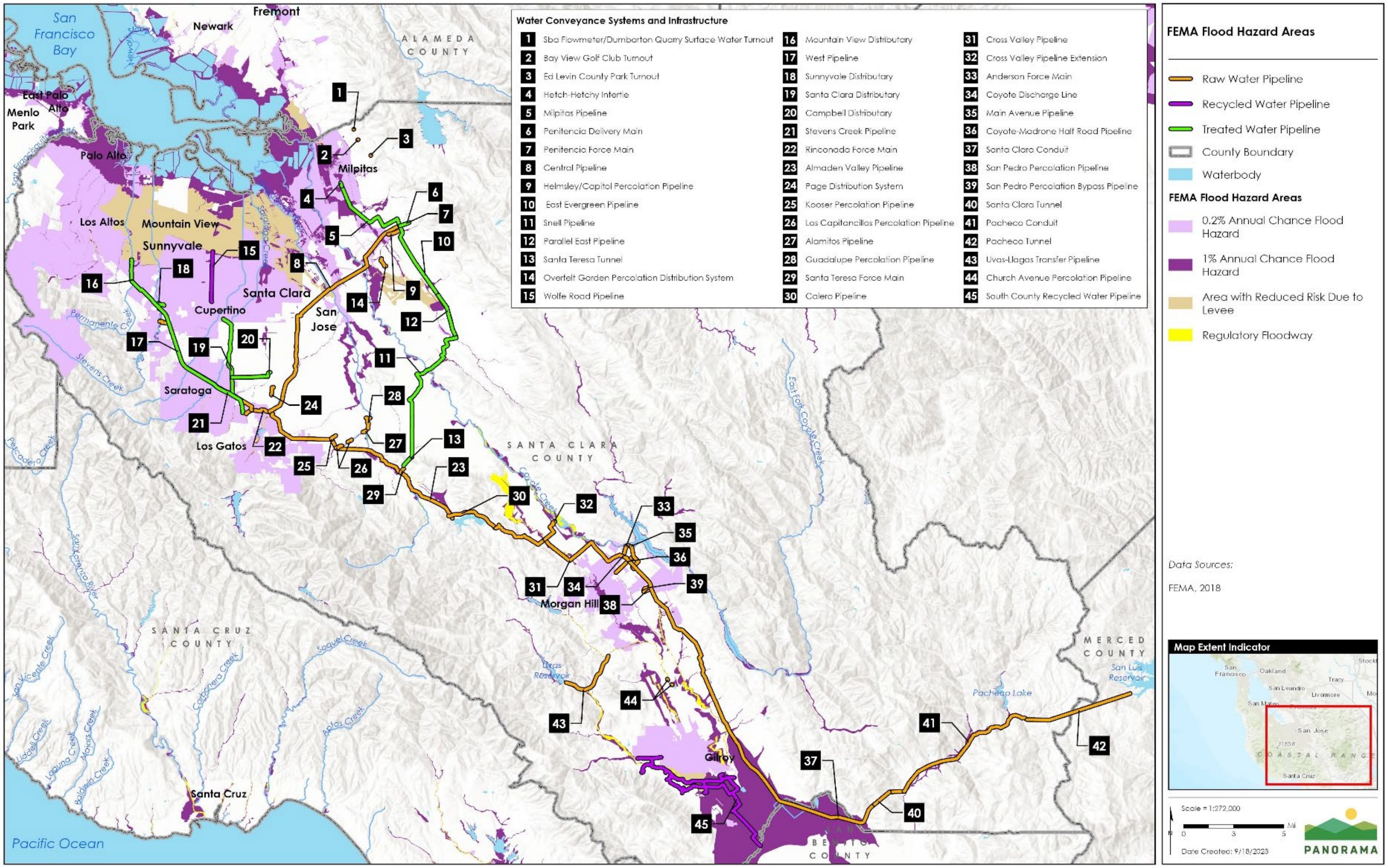



**Figure 3-3 Mapped FEMA floodplains and floodways within the area of potential PMP activities**

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Enclosures: Tables A-1 through A-5

## ATTACHMENT A

**Regulatory, hydrologic and geomorphic conditions technical memorandum in support of the Valley Water Pipeline Maintenance Program**

**Table A-1: Region 2 Existing and Potential Beneficial Uses of Receiving Waters in the Program Area**

| Beneficial Use | Calabazas Creek | Coyote Creek | Berryessa Creek | Calera Creek | Fisher Creek | Flint Creek | Los Coches Creek | Lower Penitencia Creek | Lower Silver Creek | North Babb Creek | Quimby Creek | South babb Creek | Thompson Creek | Tularcitos Creek | Upper Penitencia Creek | Upper Silver Creek | Guadalupe River | Alamitos Creek | Calero Creek | Calero Reservoir | Canoas Creek | Guadalupe Creek | Los Gatos Creek | Ross Creek | Permanente Creek | Stevens Creek | San Tomas Aquino Creek | Saratoga Creek | Santa Clara Valley and Coyote GW Basins |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Agricultural Supply (AGR) | E | | | | | | | | | | | | | | | | | | | | | | | | | | | E | E |
| Municipal and Domestic Supply (MUN) | | | | | | | | | | | | | | | | | | | | E | | | E | | | | | | E |
| Freshwater Replenishment (FRSH) | | E | | | | | | | | | | | | | E | | | E | E | | | E | E | | | E | | E | |
| Groundwater Recharge (GWR) | E | E | | | | | | | | | | | | | E | | E | E | | E | | E | E | E | E | E | | E | |
| Industrial Service Supply (IND) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | E |
| Industrial Process Supply (PROC) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | E |
| Ocean Commercial and Sport Fishing (COMM) | | E | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shellfish Harvesting (SHELL) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cold Freshwater Habitat (COLD) | E | E | | | | | | | | | | | | | E | | E | E | E | | | E | E | | E | E | E | E | |
| Estuarine Habitat (EST) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Marine Habitat (MAR) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fish Migration (MIGR) | | E | | | | | | | | | | | | | E | | E | E | E | | | E | P | | | E | | | |
| Preservation of Rare and Endangered Species (RARE) | | E | | | | | E | | | | | | | | E | E | E | E | E | | | E | E | | E | E | E | | |
| Fish Spawning (SPWN) | | E | | | | | | | | | | | | | E | | E | E | E | E | | E | P | | E | E | | | |
| Warm Freshwater Habitat (WARM) | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | |
| Wildlife Habitat (WILD) | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | |
| Water Contact Recreation (REC1) | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E* | E | E | E | E | E | E | E | E | |
| Noncontact Water Recreation (REC2) | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | E | P | E | E | E | E | E | |
| Navigation (NAV) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**Notes:**

1. "E" indicates existing beneficial water uses and "P" denotes potential beneficial water uses.

E*: Water quality objectives apply; water contact recreation is prohibited or limited to protect public health

2. Information taken from the SF Bay Basin Plan (Region 2) Water Quality Control Plan (SFRWQCB, 2023).

3. It is consistent with Regional Board policy to protect uses that might reasonably apply to the tributaries of these waters as well.

4. Surface water bodies for which beneficial uses have not been specifically designated with be protected for municipal and domestic water supply, recreation, and aquatic life.

**Table A-2: Region 3 Existing and Potential Beneficial Uses of Receiving Waters in the Program Area**

| Identified Uses of Inland Surface Waters | Pajaro River Llagas Creek | Llagas Creek (above Chesbro) | Llagas Creek (below Chesbro) | Alamias Creek | Corralitos Creek | Live Oak Creek | San Felipe Lake | San Ysidro Creek | Uvas Creek, upstream | Uvas Creek, downstream | Sycamore Creek | Pacheco Creek |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Municipal and Domestic Supply (MUN) | | E | E | E | E | E | E | E | E | E | E | E |
| Agricultural Supply (AGR) | | E | E | E | E | E | E | | | E | E | E |
| Industrial Process Supply (PROC) | | | | | | | | | | | | |
| Industrial Service Supply (IND) | | | E | | E | | | | | E | | |
| Groundwater Recharge (GWR) | | E | E | E | E | E | E | E | E | E | E | E |
| Water Contact Recreation (REC1) | | E | E | E | E | E | E | E | E | E | E | E |
| Noncontact Water Recreation (REC2) | | E | E | E | E | E | E | E | E | E | E | E |
| Wildlife Habitat (WILD) | | E | E | E | E | E | E | E | E | E | E | E |
| Cold Freshwater Habitat (COLD) | | E | E | E | E | E | E | | E | E | E | E |
| Warm Freshwater Habitat (WARM) | | E | E | E | E | E | E | E | | E | E | E |
| Fish Migration (MIGR) | | | E | E | E | E | E | | E | E | E | E |
| Fish Spawning (SPWN) | | | E | E | E | | | | E | E | E | E |
| Preservation of Biological Habitats of Special Significance (BIOL) | | | | | | | | | | | | E |
| Preservation of Rare and Endangered Species (RARE) | | E | E | | | | | | E | E | E | E |
| Estuarine Habitat (EST) | | | | | | | | E | | | E | |
| Freshwater Replenishment (FRSH) | | E | | | | | E | E | E | | E | E |
| Navigation (NAV) | | | | | | | E | | | | | |
| Hydropower Generation (POW) | | | | | | | | | | | | |
| Ocean Commercial and Sport Fishing (COMM) | | E | E | E | E | E | E | E | E | E | E | E |
| Aquaculture (AQUA) | | | | | | | | | | | | |
| Inland Saline Water Habitat (SAL) | | | | | | | | | | | | |
| Shellfish Harvesting (SHELL) | | | | | | | | | | | | |

**Notes:**

1. "E" indicates existing beneficial water uses and "P" denotes potential beneficial water uses.
2. Information taken from the Central Coast (Region 3) Water Quality Control Plan (CCRWQCB, 2019).
3. It is consistent with Regional Board policy to protect uses that might reasonable apply to the tributaries of these waters as well.
4. Surface water bodies for which beneficial uses have not been specifically designated with be protected for municipal and domestic water supply, recreation, and aquatic life.

**Table A-3: Summary of Region 2 Basin Plan Qualitative and Quantitative Water Quality Objectives for the Protection of Beneficial Uses**

| Parameter | General Objectives for All Inland Surface Waters, Enclosed Bays, and Estuaries | |
|---|---|---|
| Dissolved Oxygen | Cold water habitat | 7.0 mg/L minimum |
| | Warm water habitat | 5.0 mg/L minimum |
| | The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation. | |
| Salinity | Controllable water quality factors shall not increase the total dissolved solids or salinity of waters of the state so as to adversely affect beneficial uses, particularly fish migration and estuarine habitat. | |
| Suspended solids and settleable matter | Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses. Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses | |
| Sediment | The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. Controllable water quality factors shall not cause a detrimental increase in the concentrations of toxic pollutants in sediments or aquatic life. | |
| Turbidity | Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 NTU | |
| pH | The pH shall not be depressed below 6.5 nor raised above 8.5. Controllable water quality factors shall not cause changes greater than 0.5 units in normal ambient pH levels. | |
| Un-ionized ammonia | The discharge of wastes shall not cause receiving waters to contain concentrations of un-ionized ammonia in excess of the following limits (in mg/L as N): | |
| | Annual Median | 0.025 mg/L N |
| | Maximum, Central Bay and upstream | 0.16 mg/L N |
| | Maximum, Lower Bay | 0.4 mg/L N |
| Oil and Grease | Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses. | |
| Floating material | Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses. | |
| Temperature | The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8°C) above natural receiving water temperature | |
| Toxic pollutants | All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rate and decreased reproductive success of resident or indicator species. There shall be no acute toxicity in ambient waters. Acute toxicity is defined as a median of less than 90 percent survival, or less than 70 percent survival, 10 percent of the time, of test organisms in a 96-hour static or continuous flow test. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community. The health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors. | |
| Sulfide | All water shall be free from dissolved sulfide concentrations above natural background levels. | |
| Bacteria | Water quality objectives for bacteria presented in the SF Basin Plan shall be strictly applied except when otherwise provided for in a TMDL | |
| Radioactivity | Radionuclides shall not be present in concentrations that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life. Waters designated for use as domestic or municipal supply shall not contain concentrations of radionuclides in excess of the limits specified in the SF Basin Plan | |
| Population and community ecology | All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors. | |
| Bioaccumulation | Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered. | |
| Biostimulatory substances | Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. | |
| Taste and odors | Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses. | |
| Specific Chemical Constituents | Surface waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use. | |

**Table A-4: Summary of Region 3 Basin Plan Qualitative and Quantitative Water Quality Objectives for the Protection of Beneficial Uses**

| Parameter | General Objectives for All Inland Surface Waters, Enclosed Bays, and Estuaries |
|---|---|
| Dissolved Oxygen | For waters not mentioned by a specific beneficial use, dissolved oxygen concentration shall not be reduced below 5.0 mg/L at any time. Median values should not fall below 85 percent saturation as a result of controllable water quality conditions |
| Salinity | Controllable water quality factors shall not increase the total dissolved solids or salinity of waters of the state so as to adversely affect beneficial uses, particularly fish migration and estuarine habitat. |
| Suspended solids and settleable matter | Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses. Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses |
| Sediment | The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. Controllable water quality factors shall not cause a detrimental increase in the concentrations of toxic pollutants in sediments or aquatic life. |
| Turbidity | Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.<br><br>Increase in turbidity attributable to controllable water quality factors shall not exceed the following limits:<br><br>1. Where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases shall not exceed 20 percent.<br>2. Where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU.<br>3. Where natural turbidity is greater than 100 NTU, increases shall not exceed 10 percent.<br>Allowable zones of dilution within which higher concentrations will be tolerated will be defined for each discharge in discharge permits. |
| pH | For waters not mentioned by a specific beneficial use, the pH value shall not be depressed below 7.0 or raised above 8.5. |
| Oil and Grease | Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses. |
| Floating material | Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses. |
| Temperature | The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses. The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8°C) above natural receiving water temperature |
| Toxic pollutants | All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rate and decreased reproductive success of resident or indicator species. There shall be no acute toxicity in ambient waters. Acute toxicity is defined as a median of less than 90 percent survival, or less than 70 percent survival, 10 percent of the time, of test organisms in a 96-hour static or continuous flow test. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community. The health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors. |
| Bacteria | Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200/100 mL, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 mL. |
| Radioactivity | Radionuclides shall not be present in concentrations that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life. Waters designated for use as domestic or municipal supply shall not contain concentrations of radionuclides in excess of the limits specified in the SF Basin Plan |
| Taste and odors | Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses. |
| Specific Chemical Constituents | Where wastewater effluents are returned to land for irrigation uses, regulatory controls shall be consistent with Title 22 of the California Code of Regulations and other relevant local controls. |
| Pesticides | No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.<br>For waters where existing concentrations are presently nondetectable or where beneficial uses would be impaired by concentrations in excess of nondetectable levels, total identifiable chlorinated hydrocarbon pesticides shall not be present at concentrations detectable within the accuracy of analytical methods prescribed in Standard Methods for the Examination of Water and Wastewater, latest edition, or other equivalent methods approved by the Executive Officer. |
| Color | Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. Coloration attributable to materials of waste origin shall not be greater than 15 units or 10 percent above natural background color, whichever is greater. |

**Table A-5: 303d listed waters within Santa Clara County with constituent of concern based on most recent listing (2020) of impaired waters.**

| Water Body | Pollutant | Sources | Region | TMDL Note (2020 RWQCB Status) |
|---|---|---|---|---|
| San Francisquito Creek | Diazinon | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| | Trash | A Source Unknown | SF Bay | Being addressed by action other than TMDL |
| | Sedimentation/ Siltation | A Source Unknown | SF Bay | TMDL still needed |
| Alamitos Creek | Mercury | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| Almaden Lake | Mercury | Atmospheric Deposition, Mine Tailings | SF Bay | Being addressed by EPA TMDL |
| Almaden Reservoir | Mercury | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| Anderson Reservoir | Mercury | A Source Unknown | SF Bay | TMDL still needed |
| | PCBs | A Source Unknown | SF Bay | TMDL still needed |
| Calabazas Creek | Diazinon | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| Calero Reservoir | Mercury | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| Coyote Reservoir | Mercury | A Source Unknown | SF Bay | TMDL still needed |
| Coyote Creek | Diazinon | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| | Trash | A Source Unknown | SF Bay | Being addressed by action other than TMDL |
| | Toxicity | A Source Unknown | SF Bay | TMDL still needed |
| Guadalupe Creek | Mercury | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| Guadalupe Reservoir | Mercury | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| Guadalupe River | Diazinon | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| | Trash | A Source Unknown | SF Bay | TMDL still needed |
| | Mercury | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| Guadalupe Slough | Toxicity | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| Las Animas | Diazinon | Urban Runoff/Storm Sewers | SF Bay | Being addressed by EPA TMDL |
| Lexington Reservoir | Mercury | A Source Unknown | SF Bay | TMDL still needed |
| Los Gatos Creek | Diazinon | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| | Diazinon | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| | Temperature | A Source Unknown | SF Bay | TMDL still needed |
| Matadero Creek | Diazinon | Urban Runoff/Storm Sewers | SF Bay | Being addressed by EPA TMDL |
| Matadero Creek | Trash | A Source Unknown | SF Bay | Being addressed by action other than TMDL |
| Oiger Quarry Ponds | Mercury | A Source Unknown | SF Bay | TMDL still needed |
| Permanente Creek | Diazinon | Urban Runoff/Storm Sewers | SF Bay | Being addressed by EPA TMDL |
| Permanente Creek | Selenium | A Source Unknown | SF Bay | TMDL still needed |
| Permanente Creek | Trash | A Source Unknown | SF Bay | Being addressed by action other than TMDL |
| Permanente Creek | Toxicity | A Source Unknown | SF Bay | TMDL still needed |
| San Tomas Aquinas Creek | Trash | A Source Unknown | SF Bay | Being addressed by action other than TMDL |
| Saratoga Creek | Diazinon | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| Saratoga Creek | Trash | A Source Unknown | SF Bay | Being addressed by action other than TMDL |
| Silver Creek | Trash | A Source Unknown | SF Bay | Being addressed by action other than TMDL |
| Stevens Creek | Diazinon | A Source Unknown | SF Bay | Being addressed by EPA TMDL |
| Stevens Creek | Temperature | A Source Unknown | SF Bay | TMDL still needed |
| Stevens Creek | Toxicity | A Source Unknown | SF Bay | TMDL still needed |
| Stevens Creek | Trash | A Source Unknown | SF Bay | Being addressed by action other than TMDL |
| Carnadero Creek (Uvas Creek below Bloomfield Road) | Turbidity | A Source Unknown | Cen. Coast | TMDL still needed |
| | E. coli | Collection System Failure, Domestic Animals/Livestock, Urban Runoff/Storm Sewers | Cen. Coast | Being addressed by EPA TMDL |
| | Fecal Coliform | Collection System Failure, Domestic Animals/Livestock, Urban Runoff/Storm Sewers | Cen. Coast | Being addressed by EPA TMDL |
| | DO | A Source Unknown | Cen. Coast | TMDL still needed |
| | Nitrate | A Source Unknown | Cen. Coast | TMDL still needed |
| Chesbro Reservoir | Mercury | A Source Unknown | Cen. Coast | TMDL still needed |
| Furlong Creek | Fecal Coliform | Collection System Failure, Domestic Animals/Livestock, Urban Runoff/Storm Sewers | Cen. Coast | Being addressed by EPA TMDL |
| | E. coli | A Source Unknown | Cen. Coast | TMDL still needed |
| | Nitrate | A Source Unknown | Cen. Coast | TMDL still needed |
| | Turbidity | A Source Unknown | Cen. Coast | TMDL still needed |
| Llagas Creek (above Chesbro Reservoir) | Temperature | A Source Unknown | Cen. Coast | TMDL still needed |
| | pH | A Source Unknown | Cen. Coast | TMDL still needed |

**Table A-5 continued: 303d listed waters within Santa Clara County with constituent of concern based on most recent listing (2020) of impaired waters.**

| Water Body | Pollutant | Sources | Region | TMDL Note (2020 RWQCB Status) |
|---|---|---|---|---|
| Llagas Creek (below Chesbro Reservoir) | Chloride | A Source Unknown | Cen. Coast | TMDL still needed |
| | Sodium | A Source Unknown Nonpoint Source | Cen. Coast | TMDL still needed |
| | E. coli | Collection System Failure, Domestic Animals/Livestock, Urban Runoff/Storm Sewers | Cen. Coast | TMDL still needed |
| | Specific Conductivity | A Source Unknown | Cen. Coast | TMDL still needed |
| | Chlorpyrifos | Agriculture | Cen. Coast | Being addressed by EPA TMDL |
| | Total Dissolved Solids | A Source Unknown | Cen. Coast | TMDL still needed |
| | Turbidity | A Source Unknown | Cen. Coast | TMDL still needed |
| | DO | Agriculture, Domestic Animals/Livestock, Natural Sources, Urban Runoff/Storm Sewers | Cen. Coast | TMDL still needed |
| | Nitrate | Agriculture | Cen. Coast | Being addressed by EPA TMDL |
| | Sedimentation/ Siltation | Agriculture-grazing, Habitat Modification, Hydromodification, Irrigated Crop Production, Land Development, Resource Extraction, Silviculture | Cen. Coast | Being addressed by EPA TMDL |
| | Fecal Coliform | Collection System Failure, Domestic Animals/Livestock, Urban Runoff/Storm Sewers | Cen. Coast | Being addressed by EPA TMDL |
| Pacheco Creek | Turbidity | A Source Unknown | Cen. Coast | TMDL still needed |
| | Fecal Coliform | Collection System Failure, Domestic Animals/Livestock, Urban Runoff/Storm Sewers | Cen. Coast | Being addressed by EPA TMDL |
| | Oxygen, Dissolved | A Source Unknown | Cen. Coast | TMDL still needed |
| Uvas Creek (above Uvas Reservoir) | pH | A Source Unknown | Cen. Coast | TMDL still needed |
| | Temperature | A Source Unknown | Cen. Coast | TMDL still needed |
| | Turbidity | A Source Unknown | Cen. Coast | TMDL still needed |
| | DO | A Source Unknown | Cen. Coast | TMDL still needed |
| Uvas Reservoir | Mercury | A Source Unknown | Cen. Coast | TMDL still needed |

# Appendix F

Fossil Content and Paleontological Potential by Geologic Unit

## Fossil Content and Paleontological Potential by Geologic Unit

| Map Symbol | Discussion | Paleontological Potential |
|---|---|---|
| **Palo Alto 30′ x 60′ Quadrangle** | | |
| Qhsc<br>Qhaf | Qhsc consists of sand, silt, silty sand, or sandy gravel with minor cobbles and deposited in stream channels. Qhaf represents alluvial fan and fluvial deposits consisting of gravelly sand or sandy gravel grading upward to sandy or silty clay; distal deposits comprise sand fining upward to sandy or silty clay (Brabb et al. 2000).<br>In general, units of Holocene age are not considered sensitive for paleontological resources, mainly because Holocene strata less than about 5,000 years old are too young to contain materials that qualify as fossils (e.g., SVP 2010). In some cases, however, documented finds or other evidence warrant a more conservative approach.<br>The UCMP database contains five records for Holocene units in Santa Clara County: two for unspecified invertebrates, one for pollen grains, and two for which the nature of the find is not identified. There are no specimens from any of these localities in the UCMP collections (University of California Museum of Paleontology 2023), and none of these finds suggests unusual sensitivity.<br>However, in 2005, remains of a Rancholabrean (early Pleistocene) Columbian mammoth (*Mammuthus columbi*) were discovered along Valley Water's Guadalupe River right-of-way (ROW) in San Jose (University of California Museum of Paleontology 2005; (Andersen et al. 2008), within strata identified as Holocene by published geologic maps (e.g., Wentworth et al. 1999). The find included a partial skull, femur, partial pelvis, ribs, toe bones, and portions of two tusks (University of California Museum of Paleontology 2005; Maguire and Holroyd 2016).<br>Although the mammoth find was in part surface-exposed, the bones were embedded in situ within apparently coherent sedimentary strata. Because the remains are almost certainly not of Holocene age, either the sediments in which they were found are actually of Rancholabrean rather than Holocene age, or the bones were reworked from older deposits during Holocene time.[b] In either case, the find indicates that Holocene-mapped units in the Santa Clara Valley—and possibly also in adjacent areas—may have the potential to contain significant fossil materials, including vertebrate remains. This also raises the possibility that some strata mapped as Holocene in this area may actually be of Pleistocene age, and therefore are more sensitive than current geologic mapping implies. Thus, an extra degree of caution is likely warranted when dealing with Holocene-mapped materials in the Santa Clara Valley area, and particularly in the northern portion of the Valley, in proximity to the site of the 2005 mammoth find. This degree of caution should probably be extended to adjacent areas until further work clarifies the degree of risk involved. | Low potential (with caveat; refer to discussion in Section 3.2 of EIR) |
| Qpaf | Qpaf consists of gravelly and clayey sand or clayey gravel fining upward to sandy clay and represents alluvial fan deposits. This unit locally contains freshwater mollusk fossils as well as vertebrate remains (Brabb et al. 2000). The potential presence of vertebrate materials warrants treatment as paleontologically sensitive. | High potential |

| Map Symbol | Discussion | Paleontological Potential |
|---|---|---|
| QTsc | The Santa Clara Formation in the Palo Alto 30′ x 60′ quadrangle consists of poorly indurated conglomerate, sandstone, and mudstone, typically showing irregular or lenticular bedding (Brabb et al. 2000).<br>Regionally, the Santa Clara Formation contains a wide range of plant, invertebrate, and vertebrate fossils. Plant taxa represented in the UCMP holdings include the cotype of the fern *Pteridium* [*Pteris*] *calabazensis*, as well as alder (*Alnus merriami*), sarvisberry (*Amelanchier* sp.), incense cedar (*Calocedrus* sp.), buckthorn (*Ceanothus chaneyi*), mountain-mahogany (*Cercocarpus cuneatus*), pine (*Pinus* sp.), chokecherry (*Prunus merriami*), oak (*Quercus hannibali*, an extinct analogue to modern *Q. chrysolepis*; Waggoner and Poteet 1996), and currant (*Ribes stanfordianum*). Invertebrates include the paratypes for two gastropods of Pliocene age, *Fluminicola sanmateoensis* and *Parapholyx durhami*. Vertebrates include remains of Pliocene and Pleistocene horses (*Equus* spp.), bison (*Bison latifrons*), bony fish, and other mammalian remains of Pleistocene age (University of California Museum of Paleontology 2023). Brabb et al. (2000) also report carbonized wood fragments up to about 24 inches in diameter from the Santa Clara Formation at Coal Mine Ridge west of Mountain View. Both the presence of vertebrates and the overall diversity and abundance of the fossil assemblage warrant treatment as paleontologically sensitive. | High potential |
| **San Jose 30′ x 60′ Quadrangle** | | |
| **Quaternary Units**[a] | | |
| Qa | This unit represents undifferentiated alluvial sediments of Quaternary age. Locally, therefore, it may be of either Holocene or Pleistocene age, or both.<br>Where it is Holocene, the sensitivity assessment for Holocene units in the Palo Alto 30′ x 60′ quadrangle applies (refer to above).<br>Terrestrial units of Pleistocene age are typically treated as sensitive for paleontological resources in California, because of their extensive history of producing vertebrate fossil finds. As discussed in more detail below, the Pleistocene of the Santa Clara Valley is no exception. Consequently, where this unit is of Pleistocene age, it should be treated as sensitive until or unless shown otherwise.<br>Because of the uncertainty surrounding the age of this unit—and therefore the significance of any materials it may contain—its paleontological potential is considered undetermined pending further investigation at the project level. | Undetermined |
| Qhc<br>Qha<br>Qls<br>Qhb<br>Qhfp<br>Qhl<br>Qhf1 | These units record alluvial, fluvial, and basinal deposition on the Santa Clara Valley floor (Wentworth et al. 2000). Specific environments by unit are shown in Table 3.2-2.<br>For paleontological sensitivity of all units except Qls (landslide deposits), refer to the discussion for Holocene units of Palo Alto 30′ x 60′ quadrangle above; the same reasoning, and the same caveats, apply to the Holocene units of the San Jose 30′ x 60′ quadrangle, particularly in the northern portion of the quadrangle, in the vicinity of the 2005 mammoth find.<br>The unit mapped as Qls represents landslide deposits consisting of materials derived from local bedrock (Wentworth et al. 1999). The UCMP database | All units except QLs: low potential (with caveat; refer to discussion in Section 3.2 of EIR)<br>Qls: low potential |

| Map Symbol | Discussion | Paleontological Potential |
|---|---|---|
| | contains no listings for fossil localities in landslide deposits of the Santa Clara Valley region (University of California Museum of Paleontology 2023), although where the source materials are fossiliferous, some possibility exists that landslide deposits could contain fossils. However, any such materials would be out of their stratigraphic context because of the physical disruption associated with landslides; therefore, their informational potential is expected to be compromised. The paleontological sensitivity of the landslide deposits is accordingly evaluated as low. | |
| Qhf2<br>Qpf<br>Qof | These units comprise alluvial fan sediments deposited at the Valley margins and on the Valley floor (Wentworth et al. 1999).<br>As noted above, terrestrial units of Pleistocene age are typically treated as paleontologically sensitive in California because of their history of producing vertebrate fossil finds. Moreover, the UCMP database documents multiple vertebrate finds from Pleistocene alluvial units in Santa Clara County; additional materials are in U.S. Geological Survey collections (Maguire and Holroyd 2016; University of California Museum of Paleontology 2023). These include the following:<br>• From a site on the Lawrence Expressway in San Jose, partial mammoth (*Mammuthus* sp.) pelvis<br>• From the “Babcock’s Bones” site on the Guadalupe River near the 2005 mammoth find (discussed above), remains of bison (*Bison* sp.), extinct camel (*Camelops* sp.), dwarf pronghorn (*Capromeryx* sp.), horse (*Equus* sp.), Harlan’s ground sloth (*Paramylodon harlani*), and various unidentified mammals<br>• From a site on Calabazas Creek, horse (*Equus* sp.)<br>• From a site on Scott Creek, horse (*Equus* sp.) and unidentified bony fish(es)<br>• From the Stanford University Molecular Medicine Building site, bison (*Bison* sp. or *B. latifrons;* refer to discussion in Maguire and Holroyd 2016)<br>• From the Alma Street Underpass at Page Mill Road in Palo Alto, remains of extinct camel *Camelops*, horse (*Equus* sp.), and mammoth (*Mammuthus* sp.)<br>• From Matadero Creek in Palo Alto, harvest mouse (*Reithrodontomys* sp.) as well as unidentified ungulate, rabbit or hare, reptile, rodent, and squirrel remains<br>• From the Veterans’ Hospital site in Palo Alto, dwarf pronghorn, horse (*Equus* sp.), an unidentified cat, Harlan’s ground sloth, mammoth (*Mammuthus* sp.), dusky-footed woodrat (*Neotoma fuscipes*), harvest mouse (*Reithrodontomys* sp.), and cottontail (*Sylvilagus* sp.); this site also yielded shells of a high-spired mud snail<br>• From the Mountain View landfill, numerous mammals, including bison (*Bison* sp. cf. *B. latifrons*), camel (*Camelops* sp., *C. hesternus*), Harlan’s ground sloth, mammoth (*Mammuthus* sp.), and deer (*Odocoileus* sp.)<br>• From sites in Sunnyvale, bison (*Bison* sp.), camel (*Camelops* sp.), horse (*Equus* sp.), and squirrel (*Urocitellus* sp.)<br>• From a site near Coyote Creek in Milpitas, bison (*Bison* sp.) | High potential |

| Map Symbol | Discussion | Paleontological Potential |
|---|---|---|
| | Based on their production of diverse vertebrate remains from multiple locations in the program region, all of the Pleistocene alluvial units in the San Jose 30′ x 60′ quadrangle should be treated as paleontologically sensitive. | |
| **Alum Rock Block** | | |
| Tcc | In the San Jose 30′ x 60′ quadrangle, the Claremont Formation consists of interbedded chert and siliceous shale (Wentworth et al. 1999).<br>The UCMP database shows no holdings from the Claremont Formation in Santa Clara County (University of California Museum of Paleontology 2023), although Wentworth et al. (1999) indicate that locally it contains abundant foraminifera and fish scales. In addition, Barron 1989 has reported numerous diatoms—including *Actinoptychus senarius* Ehrenberg, *Coscinodiscus* sp., and *Stephanopyxis* spp. collected in the Fremont area—from the Claremont Formation, although he was not able to locate diatoms in the Claremont of the San Jose area.<br>Elsewhere in the Bay Area, the Claremont Formation has produced numerous finds, including remains of barnacles, bivalves—including *Acila* sp. and a hypotype of *Lucinoma annulatum*—scaphopods (*Dentallum mcganna*), foraminifera (*Baggina californica*, *Bolivina advena ornata*, *B. advena striatella*, *Bulimella curta*, *Buliminella californica, B. subsusiformis*, *Dentalina communis*, *D. obliqua*, *Globulina gibba*, *Gyroidina soldanii rotundimargo*, *Nonion mediocostatum, N. costiferum*, *Pulvinulinella subperuviana*, *Robulus smileyi*, *Siphogenerina branneri*, *S. reedi*, *Sphaeroidina bulloides*, *Uvigerinella californica*, *Valvulineria californica obesa*, and *V. californica californica),* both cartilaginous and bony fishes, and marine mammals (Powell et al. 2019; University of California Museum of Paleontology 2023).<br>Because of its potential to produce vertebrate fossils, the Claremont Formation should be treated as paleontologically sensitive until or unless shown otherwise. Because of their potential to provide geochronologic information bearing on the relationship between the Claremont Formation in the South Bay region and Miocene marine strata elsewhere in the Bay Area, this unit's invertebrates and microfossils may also qualify as significant paleontological resources per the SVP's criteria. | High potential |
| Kbs | The Berryessa Formation comprises an upper sandstone and mudstone unit (mapped as Kbs; surface-exposed within the program footprint) and an underlying conglomerate unit (mapped as Kbc; not surface-exposed along any of the program alignments) (Wentworth et al. 1999).<br>Little information is available on fossil content in the Berryessa Formation. Wentworth et al. (1999) report no fossil content for this unit. The UCMP database lists six fossil localities in the Berryessa Formation. All are identified as | Undetermined potential; possibly high potential |

| Map Symbol | Discussion | Paleontological Potential |
| --- | --- | --- |
| | producing unspecified invertebrates, and no specimens exist from any of the localities in the UCMP collections (University of California Museum of Paleontology 2023).<br>Crittenden (1951), who proposed the name Berryessa formation (uncapitalized because the name was at that time not formal) for "the sandstone, siltstone, and shale between the Lower Cretaceous Oakland conglomerate and the Tertiary Monterey formation" (also uncapitalized because of the informal status in his area of study), reported the bivalves Aucella [Buchia] piochii Gabb and Pecten complixicosta Gabb as well as two cephalopods, the belemnoid Belemnites sp., and the ammonoid Hoplites sp., based on information published by other workers.<br>The Cretaceous stratigraphy of the greater Bay Area is somewhat understudied and less well understood than other portions of the sedimentary record in the region. Additional fossil finds in the Berryessa Formation could contribute to filling this gap, and in this case would represent significant paleontological resources—but the potential for such finds in the program area is uncertain. Further evaluation at the project level is needed and should include field assessment of potentially affected strata by a qualified paleontologist. | |
| **New Almaden Block** | | |
| QTsc | The Santa Clara Formation in the San Jose 30′ x 60′ quadrangle consists of fluvially deposited boulder to pebble conglomerate, sandstone, and siltstone with minor thin-bedded lacustrine mudstone interbeds (Wentworth et al. 1999).<br>For fossil content, refer to the discussion of the Santa Clara Formation in the Palo Alto 30′ x 60′ quadrangle section of this table. | High potential |
| fpv | This unit mainly consists of pillow basalt and basaltic flow breccia, but a tuff unit is locally present near the top of the sequence (Wentworth et al. 1999). The basalts and flow breccias are highly unlikely to contain significant fossil materials, but tuffs commonly preserve fossil remains. Therefore, the paleontological potential of this unit is considered undetermined, pending further investigation at the project level. | Undetermined potential |
| fms | This unit consists primarily of coherently bedded, locally conglomeratic lithic graywacke assigned to the Franciscan complex (Permanente terrane). Melange and pebbly to bouldery mudstone are locally present (Wentworth et al. 1999).<br>The UCMP database identifies one fossil locality within the Franciscan complex in Santa Clara County, which yielded unspecified invertebrates. There are no specimens in the UCMP collections from this locality (University of California Museum of Paleontology 2023).<br>Elsewhere in California, additional UCMP records exist, including unspecified invertebrates and/or trace fossils from localities in Marin, San Francisco, San Mateo, Monterey, Stanislaus, Lake, and San Luis Obispo counties, remains of the bivalve *Buchia crassacollis* from Tehama County, and unspecified plant remains from San Luis Obispo and Monterey counties. A locality in Humboldt County has yielded multiple trace fossils, including a holotype and paratypes of the branching pellet-filled burrow *Melatercichnus* [*Phymatoderma*] *burkei*; hypotypes of the feeding traces *Cosmoraphe tremens*, *Helminthoida crassa* | Undetermined; possibly high potential |

| Map Symbol | Discussion | Paleontological Potential |
|---|---|---|
| | [*Nereites irregularis*], and *Phycosiphon* sp.*;* and the burrows *Palaeophycus tubularis* and *Taenidium* sp.; as well as unspecified clay/fecal-filled burrows (University of California Museum of Paleontology 2023; refer to Miller [2011] for reassignment of *M. burkei* to the ichnogenus *Phymatoderma*). In addition, the type specimen of the Jurassic ichthyosaur (*Ichthyosaurus franciscanus*) was recovered from the Corral Hollow area (Diablo Range) in western San Joaquin County, and remains of the plesiosaur (*Plesiosaurus hesternus*) were found at Oakley Ranch in San Luis Obispo County (University of California Museum of Paleontology 2023).<br><br>Clearly, detrital sedimentary rocks of the Franciscan complex have the potential to produce a fairly diverse assemblage of fossils, including scientifically important vertebrates as well as invertebrates that may have some utility for geochronology and correlation, and thus would likely also qualify as significant paleontological resources. However—despite the “sensitive anywhere, sensitive everywhere” rule—the relevance of fossil finds outside the immediate program region to paleontological potential along individual program alignments is unclear. The Franciscan complex is commonly subdivided into multiple terranes, based on differences in lithology and stratigraphy across structural boundaries (e.g., among many others, Blake et al. 1984; also refer to the recently published summary in Delattre et al. 2023). As noted above, Franciscan graywacke in the New Almaden structural block is thought to be allied with the Permanente terrane (Wentworth et al. 1999); finds from other areas/terranes may or may not imply a similar level of sensitivity within the New Almaden block. Therefore, the paleontological potential of the fms unit is considered undetermined, pending further evaluation at the project-specific level. However, this evaluation should consider the documented potential for preservation of significant fossils within Franciscan graywackes overall. | |
| fmc | This unit consists of chert containing radiolarian remains, assigned to the Franciscan complex (Marin Headlands terrane) (Wentworth et al. 1999). Radiolaria are planktonic marine protozoans with mineralized—usually siliceous—exoskeletons, and they have been a primary source of information on the age and genetic relationships of Franciscan complex units (e.g., Murchey and Jones 1984, Wakabayashi 2017, among many others). Thus, in the context of the Franciscan complex, they likely meet the SVP’s criteria for significant paleontological resources. However, whether additional information of importance can be obtained from the fmc unit in the program area is unclear, because the age of this unit appears to be well constrained (e.g., Wentworth et al. 1999). Therefore, the paleontological potential of the fmc unit is considered undetermined, pending further evaluation at the project-specific level. This evaluation should consider current outstanding issues in Franciscan complex structure, genesis, and correlation. | Undetermined; possibly high potential |
| **Sierra Azul Block (Outlier)** | | |
| Tls | Little information is available on the fossil content of the sandstone and shale of Loma Chiquita Ridge, and the UCMP database shows no holdings associated with this unit name (University of California Museum of Paleontology 2023). Wentworth et al. (1999) indicate that the age of the unit was determined based on “scattered” foraminiferan localities and “sparse” mollusk fossils but do not | Undetermined potential |

| Map Symbol | Discussion | Paleontological Potential |
|---|---|---|
| | identify whether fossils have been recovered from the sandstone and shale strata mapped as Tls (Wentworth et al. 1999).<br>Microfossils and molluscan fossils are not typically considered inherently significant, unlike vertebrate remains; unless they represent new taxa or are otherwise out of the ordinary, their scientific importance typically derives from their geochronologic and correlative utility. Because strata of Eocene age are comparatively rare in the greater Bay Area, it could be argued that any fossil content in this unit would be important, both geo-chronologically and for its potential to document paleoenvironmental conditions during a little-studied (and poorly represented) time interval. However, because fossil content appears to be comparatively sparse in this unit, its paleontological sensitivity is considered undetermined, pending further investigation at the project level. | |
| Tcm | As noted above, the UCMP database contains no information on fossil finds from the portion of the sandstone and shale of Loma Chiquita Ridge that is mapped as Tls. However, Wentworth et al. (1999) report that the mudstone and sandstone mapped as Tcm ("mudstone and sandstone of Mt. Chuai" informal member) include a bioclastic unit containing fragmental shallow marine macrofossils. This is overlain by a mudstone containing a deep marine foraminiferal fauna. As discussed above for the Tls unit, the scientific importance of the microfossil and molluscan faunas of the Tcm unit is uncertain; therefore the unit's paleontological sensitivity is also considered undetermined, pending further investigation at the project level. | Undetermined potential |
| Jsp | This unit consists of metamorphosed ultramafic igneous rocks (Wentworth et al. 1999) that have no potential to contain fossils. It is not considered paleontologically sensitive. | No potential |
| fm | This unit, assigned to the Franciscan complex and thought to be allied with the Central Belt, comprises melange with blocks of metagraywacke, shale, chert, serpentinite, greenstone, amphibolite, tuff, eclogite, quartz schist, greenschist, basalt, marble, conglomerate, and blueschist in a sheared matrix of argillite, graywacke, and metagraywacke (Wentworth et al. 1999). Graywacke and chert blocks may have some potential to yield fossils (refer to the discussion for fms Franciscan graywacke and fmc Franciscan chert units above), as may the tuff, shales, tuffs, and conglomerates, but because of the stratigraphic disruption associated with melange formation, their context and scientific utility is likely compromised. In addition, regional-scale geologic mapping does not clarify whether the program alignments could involve potentially fossiliferous blocks or would be restricted to other rock types that have little or no paleontological sensitivity, such as serpentinite, greenstone, amphibolite, eclogite, basalt, and the various schists. Therefore, this unit's paleontological sensitivity is considered uncertain, pending further investigation at the project level, which should include a field assessment of the rock types within the anticipated disturbance footprint. | Undetermined; possibly low potential |
| **Coyote and Mt. Hamilton Blocks** | | |
| Qhg | This unit appears to have been inadvertently omitted from Wentworth et al. (1999) explanatory materials. The only indicator of its age is the use of the "Q" abbreviation—indicating Quaternary—in the map symbol. Consequently, the | Undetermined potential |

| Map Symbol | Discussion | Paleontological Potential |
|---|---|---|
| | rationale applied to the undifferentiated Qa unit discussed above for the San Jose 30′ x 60′ quadrangle as a whole is also considered to apply for Qhg. Its paleontological potential is considered undetermined, pending further investigation at the project level, which should include an assessment of its age along the program alignment(s). | |
| Tsl | This unit comprises basalt flows with minor pyroclastic (ash) interbeds (Wentworth et al. 1999). The basalts are highly unlikely to contain significant fossil materials, but volcanic ashes commonly preserve fossil remains. Because no information on fossil content in the ash beds is readily available, the paleontological potential of this unit is considered undetermined, pending further investigation at the project level. | Undetermined potential |
| Tlt | This unit consists of siltstone and sandstone that at least locally contains fossil twigs, leaves, molluscan remains, and fish scales (Wentworth et al. 1999). Based on the potential to produce vertebrate remains, it is considered paleontologically sensitive until or unless shown otherwise. | High potential |
| fm | Like the fm unit discussed above, the fm unit mapped in the Mt. Hamilton block consists of melange assigned to the Franciscan complex. However, the fm of the Mt. Hamilton block—which is thought to be allied with the Eastern Belt rather than the Central Belt—differs lithologically. The matrix consists of sheared argillite, metagraywacke, and tuff; blocks include abundant greenstone and radiolarian chert, as well as graywacke, conglomerate, and metagraywacke likely derived from adjacent Franciscan sources allied with the Burnt Hills and Yolla Bolly terraces. Blueschist blocks are also locally present (Wentworth et al. 1999).<br><br>Despite the lithologic differences, the same paleontological considerations discussed above for the fm unit of the Sierra Azul Block (Outlier) apply to the fm unit in the Mt. Hamilton block. Unmetamorphosed and less-metamorphosed sedimentary blocks and matrix—including graywacke, conglomerate, and chert (which is known to contain radiolaria at least locally)—may have the potential to yield fossils, some of which could be scientifically useful; volcanic and higher-grade metamorphic blocks—such as higher-grade metagraywackes and blueschist—do not.<br><br>As discussed above, the context and utility of any fossil finds may be compromised by the chaotic, disrupted nature of the melange unit. In addition, regional-scale geologic mapping does not clarify whether the program alignments would involve potentially fossiliferous blocks or would be restricted to other rock types that have little or no paleontological sensitivity. Therefore, the paleontological sensitivity of the fm unit in the Mt. Hamilton block is considered uncertain, pending further investigation at the project level, which should include field assessment of the rock types within the anticipated disturbance footprint. | Undetermined; possibly low potential |
| fy3 | This unit consists of metagraywacke, slaty mudstone, and lesser amounts of metaconglomerate that have been assigned to the Franciscan complex Yolla Bolly terrane, although they are distinguished from other Yolla Bolly Franciscan units by stronger development of metamorphic fabric, the presence of jadeite | Undetermined; possibly high potential |

| Map Symbol | Discussion | Paleontological Potential |
|---|---|---|
| | sprays (indicating significant metamorphic recrystallization), and abundant quartz/aragonite or quartz/albite veins (Wentworth et al. 1999).<br>In general, increasing metamorphic grade decreases the likelihood of significant fossil finds in metasedimentary rocks. However, Saja et al. (2009) have documented tubes of the foraminifer *Bathysiphon* cf. *aaltoi* Miller, 1986 in blueschist-facies Franciscan rocks at Pacheco Pass—not far from the location of the Pacheco Tunnel—and have made a good case that they provide paleoenvironmental, paleocurrent, and geopetal (stratigraphic orientation) data and may also be useful as a marker bed for mapping and correlation in otherwise challenging Franciscan terranes. This qualifies them as significant paleontological resources per SVP criteria (Society of Vertebrate Paleontology 2010). Franciscan units at Pacheco Pass also produced wood fragments and trace fossils, resembling the horizontal burrow *Planolites* (Saja et al. 2009).<br>The same general considerations discussed above for other Franciscan units likely apply to the fy3 unit. However, the presence of significant fossil remains near the location of program facilities indicates that an extra degree of caution, and further investigation at the project- and site-specific level may be warranted. The paleontological sensitivity of the fy3 unit accordingly has been evaluated as undetermined, pending further assessment, which should include field assessment by a qualified paleontologist familiar with foraminiferal remains and Franciscan mapping and correlation issues. | |
| **Monterey 30′ x 60′ Quadrangle** | | |
| Q<br>Qb | The unit mapped as Q consists of unconsolidated stream and basin deposits with grain sizes ranging from clay to boulders. The unit mapped as Qb consists of silty clay basin deposits (Wagner et al. 2002).<br>For paleontological sensitivity, refer to the discussion on the Holocene units of the Palo Alto 30′ x 60′ quadrangle above; the same reasoning, and the same caveats, apply to the Holocene units of the Monterey 30′ x 60′ quadrangle. | Low potential (with caveat; refer to discussion in Section 3.2 of EIR) |
| Qo | The Qo unit consists of older, dissected alluvial units (Wagner et al. 2002).<br>Wagner et al. (2002) report no fossil content for this unit. However, as noted above, Pleistocene terrestrial units in California are typically treated as paleontologically sensitive, based on their extensive history of producing vertebrate remains. In addition, the UCMP database documents multiple finds of Pleistocene age in San Benito County, including remains of horse (*Equus* sp.) and two species of mammoth (*Mammut pacificus*, *Mammuthus columbi*). Based on documented vertebrate finds, the Pleistocene alluvial strata in San Benito County are considered paleontologically sensitive. | High potential |
| Ku | The Ku unit consists of marine sandstone, siltstone, shale, and conglomerate assigned to the Great Valley Sequence (Wagner et al. 2002).<br>*Great Valley Sequence* is a general, collective term referring to a thick section of marine sedimentary units—generally co-evaluated with the Franciscan complex—exposed along the western margin of the San Joaquin Valley and westward into the Coast Ranges (e.g., Ingersoll and Dickinson 1981. Regionally, it comprises multiple formations with differing lithologies and potential for fossil content and is typically used as a map unit only on regional-scale geologic | High potential |

| Map Symbol | Discussion | Paleontological Potential |
|---|---|---|
| | maps. More detailed mapping of the portion of the program area identified by Wagner et al. as situated on Ku (Great Valley Sequence) assigns these outcrops to the Panoche Formation (Dibblee 2006).<br>The current UCMP database contains numerous listings for plant fossils from the Panoche Formation in Kern County, although no specimens appear to be in the collections (University of California Museum of Paleontology 2023). UCMP searches conducted in prior years identified a more diverse assemblage associated with the Panoche Formation, including various microfossils, bivalves (*Cymbophora stantoni*, *Yaadia leana*, *Yaadia* cf. *Y. tryonia*, *Corbula* cf. *C. parilis*, and *Glycymeris* sp.), gastropods (*Tessarolax teleos* and *Tessarolax* cf. *T. distorta*), and cephalopods (*Baculites rex*, *Baculites* aff. *B. yokoyamai*, and *Glyptoxoceras indicum*), as well as a single unidentified reptilian tooth (Buising 2011). The Natural History Museum of Los Angeles County (NHMLA) also has important holdings from the Panoche Formation, including multiple fish specimens from fossil "clusters" in Madera and Fresno counties. Additional fish specimens in the NHMLA collection include *Bramletteia chicoensis* and holotypes of *Driverius cretaceus*, *Goudkoffia delicata*, *Paraberyx californica*, *Rankinia macrouriformis*, and *Rothwellia trachichthyiformes* (McLeod and Rue 2011).<br>The diversity of fossils recovered from the Panoche Formation and its documented production of vertebrate remains indicate that this unit should be treated as paleontologically sensitive. | |

[a] The same Quaternary stratigraphy is used across the entirety of the San Jose 30′ x 60′ quadrangle; older units are separated by structural block. Structural blocks are omitted from this table if no units older than Quaternary are identified as potentially affected in Table 3.2-2.

[b] Andersen et al. (2008) provide a nuanced alternate summary of the stratigraphic/chronologic issues posed by the mammoth find. The issues are further addressed by Maguire and Holroyd (2016).

*Sources: refer to in-text citations in Section 3.2, Geology and Soils*

# Appendix G

Special-Status Plant Species Determined to Be Absent from the Program Area

# Appendix G. Special-Status Plant Species Determined to Be Absent from the Program Area

| Scientific Name | Common Name | No Suitable Habitat | Outside of the Species' Known Geographic or Elevation Range | Believed to be Extirpated from the Program Area | Lack of Necessary Microhabitat or Edaphic Characteristics | Widely Distributed CNPS List 3 and 4 Species |
|---|---|---|---|---|---|---|
| *Acanthomintha lanceolata* | Santa Clara thorn-mint | | | | | x |
| *Allium howellii* var. *howellii* | Howell's onion | | | | | x |
| *Allium peninsulare* var. *franciscanum* | Franciscan onion | | | | x | |
| *Amsinckia lunaris* | bent-flowered fiddleneck | | x | x | | |
| *Androsace elongata* ssp. *acuta* | California androsace | | | | | x |
| *Arctostaphylos andersonii* | Anderson's manzanita | | x | | | |
| *Astragalus tener* var. *tener* | alkali milk-vetch | x | | | | |
| *Atriplex depressa* | brittlescale | | | x | | |
| *Atriplex minuscula* | lesser saltscale | | | x | | |
| *Balsamorhiza macrolepis* | big-scale balsamroot | | | | x | |
| *Calandrinia breweri* | Brewer's calandrinia | | | | | x |
| *Calyptridium parryi* var. *hesseae* | Santa Cruz Mountains pussypaws | | x | | | |
| *Calystegia collina* ssp. *venusta* | South Coast Range morning-glory | | x | | | x |

| Scientific Name | Common Name | No Suitable Habitat | Outside of the Species' Known Geographic or Elevation Range | Believed to be Extirpated from the Program Area | Lack of Necessary Microhabitat or Edaphic Characteristics | Widely Distributed CNPS List 3 and 4 Species |
|---|---|---|---|---|---|---|
| *Castilleja affinis* var. *neglecta* | Tiburon paintbrush | | | | x | |
| *Castilleja rubicundula* var. *rubicundula* | pink creamsacs | | | x | | |
| *Ceanothus ferrisiae* | Coyote ceanothus | | | | x | |
| *Chlorogalum pomeridianum* var. *minus* | dwarf soaproot | | x | | | |
| *Chloropyron maritimum* ssp. *palustre* | Point Reyes salty bird's-beak | x | | | | |
| *Chorizanthe douglasii* | Douglas' spineflower | | | | | x |
| *Chorizanthe robusta* var. *robusta* | robust spineflower | x | | | | |
| *Clarkia breweri* | Brewer's clarkia | | x | | | x |
| *Clarkia concinna* ssp. *automixa* | Santa Clara red ribbons | | | | | x |
| *Clarkia lewisii* | Lewis' clarkia | | | | | x |
| *Collinsia multicolor* | San Francisco collinsia | x | | | | |
| *Convolvulus simulans* | small-flowered morning-glory | | | | | x |
| *Cryptantha rattanii* | Rattan's cryptantha | | x | | | x |
| *Cypripedium fasciculatum* | clustered lady's-slipper | x | | | | x |
| *Dirca occidentalis* | western leatherwood | | | | x | |
| *Eleocharis parvula* | small spikerush | | | x | | x |

| Scientific Name | Common Name | No Suitable Habitat | Outside of the Species' Known Geographic or Elevation Range | Believed to be Extirpated from the Program Area | Lack of Necessary Microhabitat or Edaphic Characteristics | Widely Distributed CNPS List 3 and 4 Species |
|---|---|---|---|---|---|---|
| *Eriogonum argillosum* | clay buckwheat | x | | | | x |
| *Eriogonum elegans* | elegant wild buckwheat | | x | | | x |
| *Eriophyllum jepsonii* | Jepson's woolly sunflower | | x | | | x |
| *Eryngium spinosepalum* | spiny-sepaled button-celery | | | x | | |
| *Erysimum franciscanum* | San Francisco wallflower | | | | | x |
| *Erythranthe diffusa* | Palomar monkeyflower | | x | | | x |
| *Galium andrewsii* ssp. *gatense* | phlox-leaf serpentine bedstraw | | | | | x |
| *Grindelia hirsutula* var. *maritima* | San Francisco gumplant | | | | | x |
| *Hosackia gracilis* | harlequin lotus | | | | | x |
| *Iris longipetala* | coast iris | | | | | x |
| *Isocoma menziesii* var. *diabolica* | Satan's goldenbush | x | | | | x |
| *Lasthenia conjugens* | Contra Costa goldfields | x | x | | | |
| *Legenere limosa* | legenere | x | | | | |
| *Leptosiphon ambiguus* | serpentine leptosiphon | | | | | x |
| *Leptosiphon aureus* | bristly leptosiphon | | | | | x |
| *Leptosiphon grandiflorus* | large-flowered leptosiphon | | | | | x |

| Scientific Name | Common Name | No Suitable Habitat | Outside of the Species' Known Geographic or Elevation Range | Believed to be Extirpated from the Program Area | Lack of Necessary Microhabitat or Edaphic Characteristics | Widely Distributed CNPS List 3 and 4 Species |
|---|---|---|---|---|---|---|
| *Lessingia hololeuca* | woolly-headed lessingia | | | | x | x |
| *Lessingia tenuis* | spring lessingia | | x | | | x |
| *Lomatium parvifolium* | small-leaved lomatium | | | | | x |
| *Malacothamnus arcuatus* | arcuate bush-mallow | | x | x | | |
| *Mielichhoferia elongata* | elongate copper moss | | | | | x |
| *Penstemon rattanii* var. *kleei* | Santa Cruz Mountains beardtongue | | x | | | |
| *Piperia michaelii* | Michael's rein orchid | | | x | | x |
| *Plagiobothrys chorisianus* var. *hickmanii* | Hickman's popcornflower | | | | | x |
| *Plagiobothrys glaber* | hairless popcornflower | x | | | | |
| *Puccinellia simplex* | California alkali grass | | x | | | |
| *Ravenella exigua* | chaparral harebell | | x | | | |
| *Sagittaria sanfordii* | Sanford's arrowhead | | x | x | | |
| *Sanicula saxatilis* | rock sanicle | | x | | | |
| *Senecio aphanactis* | chaparral ragwort | | x | | | |
| *Sidalcea malachroides* | maple-leaved checkerbloom | x | | | | x |
| *Streptanthus callistus* | Mt. Hamilton jewelflower | | x | | | |

| Scientific Name | Common Name | No Suitable Habitat | Outside of the Species' Known Geographic or Elevation Range | Believed to be Extirpated from the Program Area | Lack of Necessary Microhabitat or Edaphic Characteristics | Widely Distributed CNPS List 3 and 4 Species |
|---|---|---|---|---|---|---|
| *Suaeda californica* | California seablite | x | | | | |
| *Trifolium buckwestiorum* | Santa Cruz clover | x | | | | |

# Appendix H

Cultural Resources Study

# Cultural Resources Study in Support of Santa Clara Valley Water District's (Valley Water's) Updated Pipeline Maintenance Program (PMP), Subsequent Program Environmental Impact Report (SPEIR), and Permitting Project, Santa Clara, San Benito, and Merced Counties, California

*By:*
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July 2024

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# Cultural Resources Study in Support of Santa Clara Valley Water District's (Valley Water's) Updated Pipeline Maintenance Program (PMP), Subsequent Program Environmental Impact Report (SPEIR), and Permitting Project, Santa Clara, San Benito, and Merced Counties, California


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## INTRODUCTION

*This report was prepared exclusively for an internal study and includes confidential archaeological site locations, as well as other sensitive and confidential results that will be shared with the Santa Clara Valley Water District (Valley Water), but not distributed publicly.*

The Santa Clara Valley Water District (Valley Water) owns, operates, and maintains raw, treated, and recycled water conveyance pipelines throughout Santa Clara County and within small portions of San Benito and Merced counties, California. Two of the raw water pipelines in Valley Water's jurisdiction are owned by the US Bureau of Reclamation (BOR). In 2007, Panorama Environmental, Inc., (Panorama; predecessor company MHA Environmental Consulting) on behalf of the Valley Water, prepared a procedural manual known as the Santa Clara Valley Water District Pipeline Maintenance Program (PMP), and a corresponding Program Environmental Impact Report (Program EIR) in compliance with the California Environmental Quality Act (CEQA). In addition to defining several measures and practices to protect the environment, including cultural resources, the PMP was designed to provide guidance for routine water supply conveyance system inspections and protocols and procedures for carrying out preventative and corrective maintenance procedures on Valley Water's pipeline facilities (MHA Environmental Consulting 2007b). This necessary maintenance ensures Valley Water, a water purveyor, meets its obligation of delivering safe and reliable service.

Over the last 15 years, Valley Water, as the CEQA Lead Agency, has successfully implemented the PMP; however, various limitations to the PMP have become evident and some conditions have changed, including maintenance processes, tracking systems, and the regulatory and physical environment. An update to the 2007 PMP will reflect Valley Water's latest field procedures and address changes in environmental and regulatory conditions, which will increase the utility and effectiveness of the PMP. From 2022 through 2024, Panorama, in concert with Valley Water staff, drafted an updated PMP manual, bringing it to current field and regulatory practices and expanding its scope. Panorama is also preparing a corresponding Subsequent Program Environmental Impact Report (Subsequent Program EIR), which will require review under CEQA. The Subsequent Program EIR will tier from the 2007 Program EIR developed for the initial PMP and evaluate the potential environmental impacts of the updated PMP and establish measures to mitigate impacts.

In 2007, Far Western Anthropological Research Group, Inc., (Far Western) was contracted by Panorama to assist with the cultural resources analyses for the initial Program EIR. The previous scope of work included an assessment of the potential for buried archaeological resources on 24 of Valley Water's pipelines and cultural studies on three of the 24 lines; Calero Pipeline, Central Pipeline, and Cross Valley Pipeline. These three lines accounted for 19 percent of Valley Water's pipeline management area. Detailed tasks included a literature review; a search of the Sacred Lands File maintained by the Native American Heritage Commission (NAHC); outreach with tribal representatives identified by the NAHC; and recommended best management practices for dealing with cultural resources on Valley Water's pipeline system.

Far Western is assisting Panorama and Valley Water with the cultural resources section of the 2024 Subsequent Program EIR; Far Western's technical report has been prepared for compliance with CEQA. The scope of work for the updated PMP, encompassing 46 pipelines (Figure 1), includes an update to the buried site sensitivity assessment that was developed for the 2007 Program EIR; a search of the Sacred Lands File maintained by the NAHC; outreach with tribal representatives identified by the NAHC; outreach in support of Valley Water's obligations under California Public Resources Code 13 PRC § 21080.3.1 (formerly Assembly Bill 52 [AB 52]); and as necessary, updated protocols for dealing with cultural

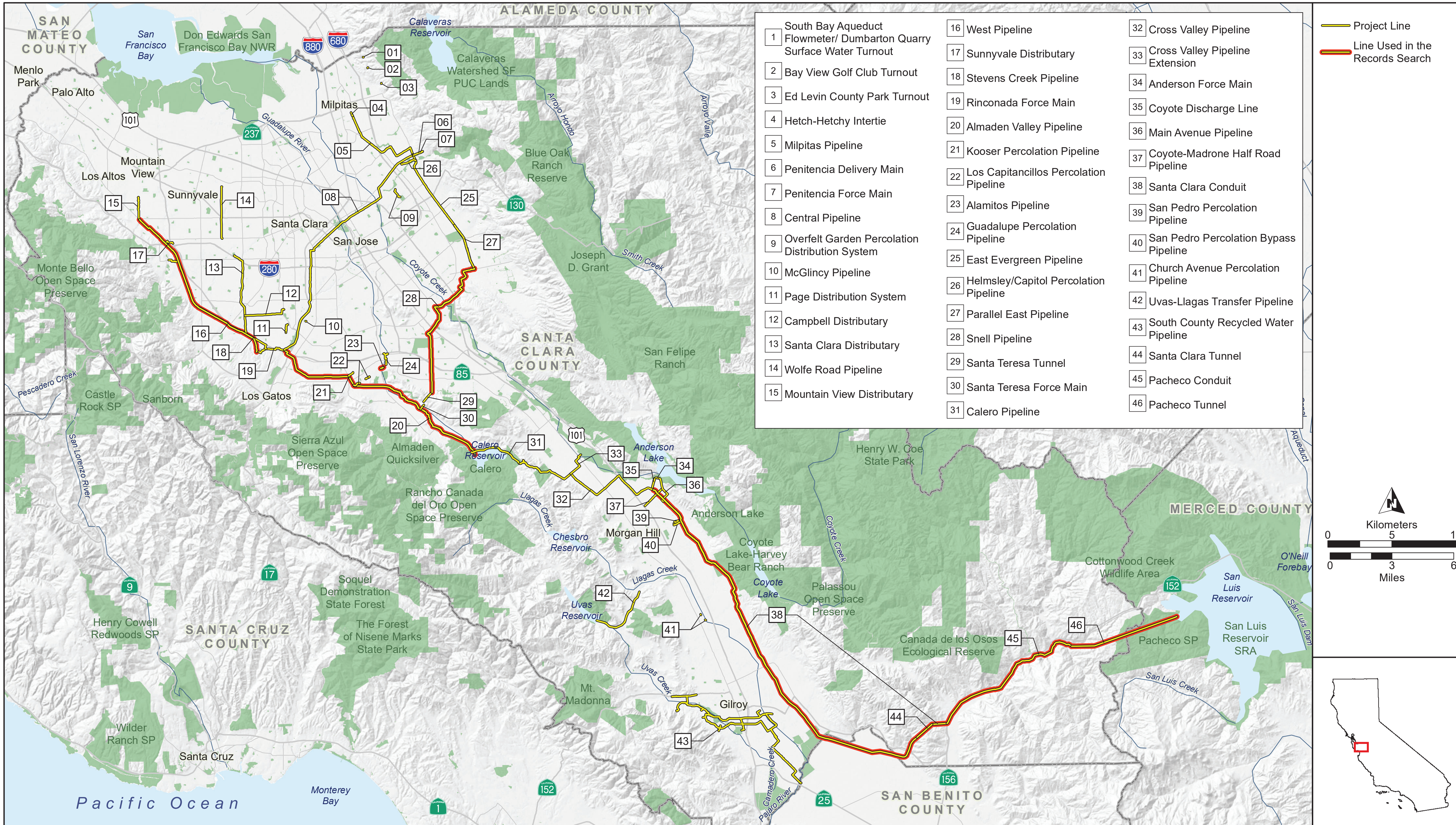


Figure 1. Pipeline System Locations throughout the Santa Clara Valley.

resources on Valley Water's pipeline system. Additionally, Far Western conducted a literature and archival review for eight of the 46 Valley Water pipelines anticipated to need work within the foreseeable future; Alamitos Pipeline, Almaden Valley Pipeline, Pacheco Conduit, Pacheco Tunnel, Santa Clara Conduit, Santa Clara Tunnel, Snell Pipeline, and West Pipeline (Figure 2).

JRP Historical Consulting, Inc., (JRP) has been contracted by Panorama to provide historic resource evaluations of the pipelines included in the 2024 updated PMP. JRP's scope of work includes the preparation of an historical context for Valley Water's pipeline system; survey and evaluation of the pipelines, which is limited to structures visible at the surface; and preparation of up to 14 California Department of Parks and Recreation (DPR) 523 forms for pipelines that are more than 45 years old or presumed to be more than 45 years old. If JRP determines that any of the pipelines are historical resources, they will provide a cultural impact assessment, as per CEQA Guidelines Section 15064.5(b).

This report begins with a brief project overview and a description of the relevant regulatory background. Next, we provide environmental and cultural background information as a basis for understanding the types and potential significance of cultural resources that are located in the program area. The program area for this project encompasses all 46 water conveyance pipelines and associated infrastructure within Valley Water's jurisdiction, primarily in Santa Clara County, with a small portion of pipeline in San Benito and Merced counties. Records search information is then presented for eight of Valley Water's pipelines anticipated to need work within the foreseeable future, followed by the updated buried site sensitivity assessment and a discussion of outreach efforts (including AB 52) for the entire pipeline system. Lastly, recommended best management practices for cultural resources are discussed, this includes actions to be employed by Valley Water prior to ground-disturbing maintenance activities and steps for addressing cultural resources when found on future individual projects.


Figure 2. Lines Used in the Records Search Location.

## PROJECT LOCATION AND DESCRIPTION

The updated PMP and Subsequent Program Environmental Impact Report (PEIR) apply to the raw, treated, and recycled water pipelines in Valley Water's jurisdiction; primarily in Santa Clara County, with a small portion of pipeline in San Benito and Merced counties (see Figure 1). The PMP and PEIR address the activities that apply to all water conveyance pipelines and associated infrastructure within Valley Water's system. The work area subject to the updated PMP includes the areas around the water conveyance pipeline systems, including pump stations, blow-offs, turnouts, and vaults. Most of the water conveyance pipeline components are located within Valley Water's right-of-way or in public utility easements on streets, except in the case of the Santa Clara Conduit and Pacheco Conduit, both are owned by the Bureau of Reclamation (BOR). The program area also includes the streams, fields, storm drains, and channels where discharge of water during pipeline draining will occur (MHA Environmental Consulting 2007).

## REGULATORY BACKGROUND

The regulatory framework that mandates consideration of cultural resources in project planning includes federal, state, and local governments. Cultural resources include precontact and historic-era archaeological sites and objects, as well as extant historic-era structures, buildings, and locations of important historical events or sites of traditional and/or cultural importance to various groups. Archaeological or architectural resources may be determined significant under national, state, or local criteria. The BOR owns the property easements for the Santa Clara Conduit and the Pacheco Conduit, two of the pipelines addressed in the updated PMP; as such, when work is conducted within these easements (a federal undertaking), compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 (36 CFR §800, as amended 2006) is required. The BOR serves as the lead federal agency and adheres to Section 106. Additionally, for any work conducted on the two BOR-owned pipelines, compliance with the National Environmental Policy Act (NEPA) is also required. In addition to federal regulations, all projects undertaken by a public agency are subject to CEQA (Public Resources Code, Section 21000 et seq., revised 2005) and its implementing guidelines and regulations (California Code of Regulations (CCR), Title 14, Chapter 3, Sections 15000 et seq.). In addition, AB 52 (Public Resources Code §21080.3.1) establishes the requirements of Native American consultation under CEQA.

### FEDERAL REGULATIONS

Section 106 of the NHPA of 1966, as amended, requires that federal agencies account for the effects of their undertakings on properties eligible for listing in the National Register of Historic Places (National Register) within a study area. Under 36 CFR Section 800, federal agency officials shall make a "reasonable and good faith effort" to identify historic properties as well as the nature and extent of potential impacts on historic properties. An undertaking may have an adverse effect on historic properties when it directly or indirectly alters any of the characteristics of a historic property that qualify it for inclusion in the National Register through the diminishing of location, design, setting, materials, workmanship, feeling, and/or association.

#### National Historic Preservation Act

Section 106 of the NHPA (36 CFR §800) requires that projects undertaken by federal agencies (and/or federally funded projects or projects requiring federal approval) consider the effects of their actions on properties that may be eligible for listing or are listed in the National Register. To determine whether an undertaking could affect National Register-eligible properties, cultural resources (including archaeological and architectural properties) must be inventoried and evaluated for listing in the National Register. Although compliance with Section 106 is the responsibility of the lead federal agency, others may undertake the work necessary to comply with Section 106. The Section 106 process entails four primary steps, listed below:

1. Initiation of consultation with consulting parties (36 CFR §800.3).
2. Identification and evaluation of historic properties within the Area of Potential Effects (APE; 36 CFR §800.4).
3. Assessment of adverse effects on historic properties within the APE (36 CFR §800.5).
    - If there are historic properties that will be affected, consult with the California State Historic Preservation Officer (SHPO) regarding adverse effects on historic properties.
    - If there are no historic properties that will be affected, implementation of the project in accordance with the findings of no adverse effect shall proceed (36 CFR 36 §800.5[d][1]).

4. Resolution of adverse effects and proceeds in accordance with the Memorandum of Agreement, if determined appropriate (36 CFR §800.6).

**National Register of Historic Places Criteria for Evaluation**

The significance of cultural resources is determined using the National Register's four Criteria for Evaluation (Criteria A–D) at 36 CFR §60.4, which state that a historic property is any site, building, structure, or object that:

(A) Is associated with events that made a significant contribution to the broad patterns of our history (Criterion A);

(B) Is associated with the lives of persons significant to our past (Criterion B);

(C) Embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction (Criterion C); and/or,

(D) Has yielded, or may be likely to yield, information important in prehistory or history (Criterion D).

If the SHPO determines that a cultural resource is eligible for inclusion in the National Register, then it is automatically eligible for the California Register of Historical Resources (California Register). If a resource does not have the level of integrity necessitated by the National Register, it may still be eligible for the California Register, which allows for a lower level of integrity.

**National Register of Historic Places Seven Aspects of Integrity**

Cultural resources integrity is determined using the National Register's seven aspects of integrity at 36 CFR §60.4, which state that a historic property must not only be shown to be significant under the National Register criteria, but it also must retain historic integrity. The seven aspects of integrity include location, design, setting, materials, workmanship, feeling, and association. A property must meet one or more of the Criteria for Evaluation before a determination can be made about its integrity.

**STATE REGULATIONS**

Under California law, effects to significant cultural resources—archaeological remains, historic-era structures, and traditional cultural properties—must be considered as part of the environmental analysis of a proposed project. Criteria for defining significant cultural resources are stipulated in CEQA (revised 2005). CEQA pertains to all proposed projects that require state or local government agency approval, including the enactment of zoning ordinances, the issuance of conditional use permits, and the approval of development project maps. Under CEQA, the lead non-federal agency (state, county, city, or other) must consider potential effects from a project to important or unique cultural resources. The CEQA Statutes and Guidelines (14 CCR §15064.5) include procedures for identifying, analyzing, and disclosing potential adverse impacts to historical resources, which include all resources listed in or formally determined eligible for the National Register, the California Register, or local registers. CEQA further defines a "historical resource" as a resource that meets any of the following criteria:

- A resource listed in, or determined to be eligible for listing in, the National or California Register.

- A resource included in a local register of historical resources, as defined in §5020.1(k) of the Public Resources Code (PRC), unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- A resource identified as significant (rated 1–5) in a historical resource survey meeting the requirements of PRC §5024.1(g) DPR Form 523, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
- Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the determination is supported by substantial evidence in light of the whole record. Generally, a resource is considered "historically significant" if it meets the criteria for listing on the California Register.

**California Register of Historical Resources**

The California Register is a listing of State of California resources that are significant within the context of California's history, and includes all resources listed in or formally determined eligible for the National Register. The criteria used to determine the significance of an impact to a "historical resource" (important archaeological or built-environment resources) are based on Appendix G of the CEQA Guidelines. California regulations require that effects to cultural resources be considered only for resources meeting the criteria for eligibility to the California Register, as outlined in PRC §5024.1. The California Register is intended to encourage and promote recognition and protection of cultural resources, including buildings and structures. CEQA recognizes two types of significant archeological resources: "unique" archeological resources (PRC §21083.2) and archeological resources that qualify as "historic resources" (PRC §21084.1 and CEQA Guidelines §15064.5), and the latter may include California Register-eligible archeological resources as well as archeological resources "in a local register of historical resources." The California Register identifies resources considered to be important for state and local planning purposes and affords certain protection under CEQA. Resources must possess physical integrity, as well as integrity of setting, and meet at least one of the following criteria (CEQA Guidelines, CCR §15064.5).

A resource that is eligible to the California Register is one that:

1. is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. is associated with the lives of persons important in California's past;
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic value; or
4. has yielded, or may be likely to yield, information important in prehistory or history.

A project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. Under CEQA Guidelines, effects to cultural resources may be considered significant if a project alternative would result in any of the following:

- cause a substantial adverse change in the significance of a historical resource (CCR §15064.5);
- cause a substantial adverse change in the significance of an archaeological resource (CCR §15064.5); or

- disturb any human remains, including those interred outside formal cemeteries.

In addition, a project that has potential to impact tribal cultural resources such that it would cause a substantial adverse change constitutes a significant effect on the environment unless mitigation reduces such effects to a less-than-significant level.

**California Public Resources Code § 21080.3.1 and Assembly Bill 52 (AB 52)**

AB 52 amended CEQA to address California Native American tribal concerns regarding how cultural resources of importance to tribes are treated under CEQA. With the addition of AB 52, CEQA now specifies that a project that may cause a substantial adverse change in the significance of a "tribal cultural resource" [as defined in PRC 21074(a)] is a project that may have a significant effect on the environment. According to the AB 52, tribes may have expertise in tribal history and "tribal knowledge about land and tribal cultural resources at issue should be included in environmental assessments for projects that may have a significant impact on those resources."

The AB 52 process entails the following:

- The CEQA lead agency must begin consultation with a California Native American tribe(s) that is traditionally and culturally affiliated with the geographic area of the proposed project, if the tribe(s) requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area and the tribe(s) requests consultation.
- Notice of proposed projects shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation.
- The California Native American tribe(s) must responds, in writing, within 30 days of receipt of the formal notification by the lead agency, and request consultation. When responding to the lead agency, the California Native American tribe(s) shall designate a lead contact person. If the California Native American tribe does not designate a lead contact person, or designates multiple lead contact people, the lead agency shall defer to the individual(s) listed on the contact list maintained by the Native American Heritage Commission for the geographic area of the proposed project.
- The lead agency shall begin the consultation process within 30 days of receiving a California Native American tribe's request for consultation.
- A proposed Negative Declaration, Mitigated Negative Declaration (MND), or a Draft EIR cannot be released for public review before the tribe(s) has had the opportunity to request consultation.
- If the tribe(s) requests formal consultation, a MND cannot be released for public review until consultation between the tribe(s) and the lead agency is completed and mitigation measures acceptable to the tribe(s) are incorporated into the MND and the related Mitigation Monitoring or Reporting Program.

AB 52 further defines the following legislative terms:

**Tribal Cultural Resource**: The passage of AB 52 created a new category of resource called a "tribal cultural resource" (TCR). The statute clearly identifies a TCR as a separate and distinct category of resource, separate from a historical resource. PRC §21074 defines a TCR as any of the following under its subsections (a) through (c):

(a) Tribal cultural resources are either of the following:

(1) Sites, features, places, and objects with cultural value to descendant communities or cultural landscapes that are any of the following:

- Included or determined to be eligible for inclusion in the California Register of Historical Resources.
- Included in a local register of historical resources as defined in subdivision (k) of PRC §5020.1.

(2) A resource determined by a lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC §5024.1.

(b) A cultural landscape that meets the criteria of subdivision (a) is a TCR to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.

(c) A historical resource described in PRC §21084.1, a unique archaeological resource as defined in subdivision (g) of PRC §21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of PRC §21083.2 also may be a TCR if it conforms with the criteria of subdivision (a).

**California Native American Tribe**: PRC §21073 defines a "California Native American Tribe" to mean a Native American tribe located in California that is on the contact list maintained by the NAHC. This definition is broader than the concept of a "federally recognized tribe" that is typically used in implementing various federal laws, including the National Environmental Policy Act.

**Formal Tribal Consultation**: Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification notice that includes a brief description of the proposed project and its location as well as the lead agency contact information, and a notification statement that the California Native American tribe has 30 days to request consultation.

**Treatment of Mitigation Measures and Alternatives**: PRC §21080.3.2 provides that as part of the consultation process, parties could propose mitigation measures. If the California Native American tribe requests consultation to include project alternatives, mitigation measures, or significant effects, the consultation would be required to cover those topics. PRC 21082.3 provides that any mitigation measures agreed upon during this consultation "shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring program" if determined to avoid or lessen a significant impact on a TCR.

## ENVIRONMENTAL AND CULTURAL BACKGROUND (by Jeffrey Rosenthal)

This section reviews the relevant environmental, precontact, ethnographic, and historical contexts for the general program area as a basis for understanding the types and potential significance of cultural resources which might be located in the program area.

### ENVIRONMENTAL SETTING

The program area lies primarily within the Santa Clara Valley, a wide plain bounded by the Santa Cruz Mountains on the west, the Diablo and Gabilan ranges on the east and south, and San Francisco Bay on the north. The valley includes two drainage catchments. The northern portion of the valley drains northward into San Francisco Bay through the parallel, axial drainages of Coyote Creek and Guadalupe River. Numerous other tributary streams feed these drainages entering the northern valley from the adjacent Diablo range and coastal mountains.

The southern Santa Clara Valley (which begins near Morgan Hill) drains into the Pajaro River which ultimately reaches Monterey Bay north of Moss Landing. Key tributaries include Llagas and Uvas-Carnadero creeks, on the west, and Dexter and Tennant creeks, on the east. A small portion of the program area extends eastward across the Diablo range to the foothills of the San Joaquin Valley, just north of Pacheco Peak.

Valley floor elevations rise from sea level at the edge of San Francisco Bay, to 145 meters above mean sea level (amsl) near the break in drainage catchments at Morgan Hill, declining southward to 45 meters amsl near the confluence of Llagas Creek and the Pajaro River. Given the nature of adjacent alluvial fans and terraces, elevations vary widely along margins of the valley. For example, the Santa Cruz Mountains range in elevation from 500 to 1,000 meters.

The northern portion of the Santa Cruz Mountains consists of Franciscan sandstone and agglomerates with pockets of serpentine, limestone, and alluvium (Jennings 1977). In contrast, the southern portion is characterized by poorly consolidated continental gravels and sands, marine fossiliferous gravel, and Monterey sandstone. The Diablo Range on the east is a complex accumulation of sedimentary rocks. These include Franciscan Sandstone, shale, and a sandstone and shale conglomerate.

The local climate is Mediterranean, consisting of cool wet winters and dry warm summers. The lowest temperatures occur in December and January (when they can drop into the mid-30s (Fahrenheit), while yearly maximum temperatures may reach near 100 degrees Fahrenheit between May and July. Annual rainfall averages 500 millimeters near Gilroy and rises significantly in the adjacent mountains.

Much of the eastern slopes of the Santa Cruz Mountains is covered by Mixed Hardwood Forest (largely coast live oak [*Quercus agrifolia*], madrone [*Arbutus menziesii*], and several shrubby species such as coyote brush [*Baccharis pilularis*], toyon [*Heteromeles arbutifolia*], and poison oak [*Toxicodendron diversilobum*]). To the east, the Diablo Range contains a more open association of Blue Oak-Gray Pine Forest. Other important plants include valley oak *(Quecurs lobata)*, coast live oak, toyon, and hollyleaf cherry *(Prunus ilcifolia)*. Chaparral occurs sporadically in both upland areas and is typically dominated by various forms of manzanita *(Arctostaphylos* spp.) and ceanothus *(Ceanothus* spp.) as well as chamise *(Adenostoma fasciculatum)*, toyon, and hollyleaf cherry. The lower foothills and fans surrounding the valley are covered by Valley Oak Savanna characterized by scattered valley oaks and open grasslands. This area was originally dominated by a variety of native bunch grasses (needle grass, *Nassella* spp.), and other grasses and forbes such as wild rye *(Elymus* spp.) lupine *(Lupinus* spp.), wild onion *(Allium* spp.), Indian potato *(Dichelostemma* spp.*)*, red maids *(Calandrinia ciliate)*, and soap root *(Chlorogalum pomeridianum).*

The valley floor was originally composed of a mosaic of Valley Oak Savanna, Riparian Forest, and Marshlands. All major watercourses had a Riparian Forest that included cottonwood *(Populus* spp.), sycamore *(Platanus racemosa),* willow *(Salix* spp.), alder *(Alnus* spp.), and many shrubs such as blackberry *(Rubus ursinus)* and wild grape *(Vitis californica).* Tule Marsh was largely removed from the valley in the early twentieth century and was originally dominated by tule *(Scripus* spp.) and cattail *(Typha* spp.) and several types of sedge *(Carex* spp.) and rush *(Juncus* spp.).

This diversified mix of vegetation supported a range of animals. Notable mammals included tule elk *(Cervus elaphus nannodes),* deer *(Odocoileus hemionus),* pronghorn *(Antilocapra americana),* bear *(Ursus* spp.), coyote *(Canis latrans),* rabbits *(Sylvilagus* spp.), and various rodents. The local fishery is thought to have included the anadromous steelhead trout *(Onocorhynchus mykiss),* possibly silver salmon *(Onocorhynchus kisutch),* as well as Sacramento pike minnow *(Archoplites interruptus),* hardhead *(Mylopharodon conocephalus),* sucker *(Catostomus* spp.), and Sacramento perch *(Rhacochils vacca).* Migratory waterfowl were seasonally abundant in wetland areas, the most important being snow geese *(Chen caerulescens),* Canada geese *(Branta canadensis),* various diving ducks, and grebes. Many wetland areas also supported freshwater mussels and turtles.

The northern edge of the valley included an extensive tidal wetland of freshwater marshes, salt marshes, mud flats, and sloughs leading to the open water of San Francisco Bay (Schoenherr 1992). This incredibly productive estuary was the habitat of marine mammals (such as sea lions, sea otters, and harbor seals); invertebrates (notably California horn snail *[Cerithidea californica],* bay mussel *[Mytilus edulis],* oyster *[Ostrea lurida]* and clams *[Macoma nausta* and *Tivela stultoru]),* fish (such as leopard sharks *[Triakis semifasciata],* Pacific herring *[Clupea harengus],* Pacific sardine *[Sardinops sagax],* sturgeon [*Acipenser* spp.], and bat rays *[Myliobatus californica]),* and migratory as well as resident waterbirds and shorebirds (notably ducks, geese, gulls, pelicans, cormorants, rails, egrets, and great blue herons).

## ARCHAEOLOGICAL CONTEXT

The Santa Clara Valley landscape has changed significantly during the 13,000 or more years since humans first occupied the region. Large, deeply incised drainages once flowed from the program area out through the Golden Gate during the late Pleistocene. The lower end of these drainages was inundated by rising ocean waters when continental glaciers began to melt with the onset of the Holocene. Sea-level rise was quite rapid between 12,000 and 6,000 calibrated years before the present (cal BP), roughly two centimeters per year, resulting in the development of the San Francisco Bay estuary. After 6000 cal BP, the rate of glacier melting slowed, and Holocene terrestrial sedimentation outpaced the rate of sea-level rise, resulting in the extensive tidal marshes and mudflats we see today at the south end of the bay (Rosenthal and Meyer 2004a).

Throughout the Holocene, floodplains and alluvial fans of the Santa Clara Valley experienced repeated cycles of deposition, erosion, and stability, processes that have strongly influenced the preservation of the local archaeological record. Geoarchaeological studies of the Santa Clara Valley-San Francisco Bay area indicate that a large portion of the early and middle Holocene archaeological record lies deeply buried under more recent alluvial deposits. In fact, more than 60 percent of recorded archaeological sites in portions of the Santa Clara Valley are buried. Most of these sites are associated with buried soils located near major drainages (e.g., Guadalupe River, Coyote Creek; Allen et al. 1999; Rosenthal and Meyer 2004). The low frequency of sites dating to the early and middle Holocene has led some researchers to conclude (perhaps, incorrectly) that human populations were lower during that time span. In contrast, archaeological sites from the late Holocene (<4000 cal BP) are numerous and well documented in the Santa Clara Valley, reflecting one of the most complex hunter-gatherer records in North America.

### Cultural Chronology

The pre-contact cultural sequence for central California was defined largely based on stylistic variation in artifacts from graves excavated in the lower Sacramento Valley (Lillard et al. 1939). Beardsley (1948) later extended this sequence (now referred to as the Central California Taxonomic System) to include the Bay Area. Although three primary time segments continue to be recognized—Early, Middle, and Late—the timing, extent, and cultural-historical implications of each has changed greatly over the years (e.g., Bennyhoff and Hughes 1987; Fredrickson 1974; Heizer 1958). Widespread evidence for distinct cultural traditions and perhaps separate ethnic groups in the wider central California region has required that the measure of time (particularly changes in artifact style horizons [e.g., Groza et al. 2011]) be divorced from particular culture-historical sequences and adaptive patterns (e.g., Fredrickson 1973; Hughes 1994; Milliken et al. 2007), which vary between subregions.

The most recent and refined cultural chronology for central California, used herein, is referred to as Scheme D (Groza 2002; Groza et al. 2011; Milliken et al. 2007). It reflects distinct shell bead style horizons associated with the three-part, pre-contact cultural sequence first identified by Bennyhoff and Hughes (1987)—Early, Middle, and Late Periods—but with several shorter phases making up each period (Table 1). This chronology is primarily a Late Holocene sequence (post-4200 cal BP). For time periods prior to 4200 cal BP, we use general geological terms—Terminal Pleistocene (22,000–11,700 cal BP), Early Holocene (11,700–8200 cal BP), and Middle Holocene (8200–4200 cal BP).

## CULTURAL CONTEXT

The following culture history largely follows summaries by Byrd and colleagues (2017) and Meyer and Rosenthal (2007), drawing on recent overviews by Lightfoot and Luby (2002), Milliken and colleagues (2007), and Rosenthal and colleagues (2007; see also Elsasser 1978; Fredrickson 1974a; and Moratto 1984).

### Terminal Pleistocene (13,500–11,700 cal BP)

Currently there is growing consensus that indigenous people entered the New World via multiple migrations using both coastal and inland routes (Erlandson et al. 2007a; Goebel et al. 2008). Most scholars view this as a post-glacial maximum process (after 22,000 cal BP), although some have argued for pre-glacial maximum incursions (Madsen 2004). The coastal route, referred to by Erlandson and others (2007b) as "the kelp highway," entailed travel by boat and the exploitation of this corridor's highly productive marine resources.

The Terminal Pleistocene is largely contemporaneous with the Clovis and Folsom Periods of the Great Plains and the Southwest and is generally thought to be associated with wide-ranging, mobile hunters and gatherers who periodically exploited large game (Haynes 2002). Throughout California, Terminal Pleistocene occupation is infrequently encountered and poorly understood, and most often represented by isolated fluted points (Erlandson et al. 2007a; Rondeau et al. 2007).

No fluted points or archaeological deposits dated to the Terminal Pleistocene have been documented in the Santa Clara Valley or wider Bay Area. The Borax Lake site (CA-LAK-36) situated near Clear Lake in the North Coast Ranges is the closest locality to the program area where numerous fluted points have been found (Meighan and Haynes 1970; Moratto 1984:82–85). Isolated fluted points have also been documented at Tracy Lake in the Delta (Heizer 1938) and at the Wolfsen Mound (MER-215), a major Late Holocene site along the middle San Joaquin River (Peak and Weber 1978).

Table 1. Central California Cultural Sequence Based on Shell Bead Style Horizons.

| CAL BP | EXTENT (YEARS) | CALENDAR YEARS | DATING SCHEME D (GROZA ET AL. 2011) | | CULTURAL PATTERN [c] |
|---|---|---|---|---|---|
| | | | SHELL BEAD PERIOD [a] | ARRAY OF DIAGNOSTIC *OLIVELLA* BEAD TYPES [b] | |
| 180–115 | 65 | AD 1770–1835 | Post-contact/Mission (H) | Needle drilled (H) | None |
| 430–180 | 250 | AD 1520–1770 | Late-Phase 2 (L2) | Lipped (Class E) | Augustine |
| 685–430 | 255 | AD 1265–1520 | Late-Phase 1 (L1) | Normal sequin (M1a)<br>Pendant (M2)<br>Callus cupped (K1)<br>End-ground (B2) | |
| 930–685 | 245 | AD 1020–1265 | Middle/Late Transition (MLT) | Normal sequin (M1a)<br>Split drilled/oval (C2/3)<br>Split punched (Class D)<br>Split amorphous (C7)<br>Tiny saucer (G1)<br>Wide sequin, occasional (M1d) | |
| 1200–930 | 270 | AD 750–1020 | Middle-Terminal (M4) | Normal narrow saddle (F3a)<br>Rectanguloid/Oval saddle-smooth edges (F4c/d)<br>Full saddle-smooth edges (F4a/b) | Upper Berkeley |
| 1365–1200 | 165 | AD 585–750 | Middle-Late (M3) | Small narrow saddle (F3b)<br>Normal narrow saddle (F3a)<br>Irregular saucer (occasional; G5) | |
| 1530–1365 | 165 | AD 420–585 | Middle-Intermediate (M2)[c] | Normal narrow saddle (F3a)<br>Rectanguloid/Oval saddle-chipped edges (F2c/d)<br>Full/Round saddle-chipped edges (F2a/b)<br>Full saddle-smooth edges (F4) | |
| 2150–1530 | 620 | 200 BC–AD 420 | Middle-Early (M1) | Saucer (Class G)<br>Split-drilled/oval (C2/3)<br>Oval saddle (F1) | |
| 2550–2150 | 400 | 600–200 BC | Early/Middle Transition (EMT) | Split beveled (C1), Saucers (Class G) – rare wall beads? | |
| >4050–2550 | 1500+ | +2100–600 BC | Early Period (E) | Thick rectangle (Class L) | Lower Berkeley |

Note: [a] Bead horizon abbreviations in parentheses. [b] Listed by relative predominance. [c] Fredrickson (1994).

The absence of Terminal Pleistocene archaeological remains is undoubtedly the result of several factors, most notably the likelihood that initial human populations were small, highly mobile, and traveled rapidly across the continent. Therefore, their archeological signature on the landscape must have been faint and widely spaced. For coastal areas, sea-level rise, coastal erosion, and localized subsidence and widespread deposition, have further reduced the likelihood of documenting initial occupation of the region.

### Early Holocene (11,700–8200 cal BP)

Well-preserved Early Holocene archaeological deposits are rare in Santa Clara Valley. The first appearance of milling tools and diverse faunal and floral assemblages are associated with sites of this age and reflect broad-spectrum economies. Changes in California's climate resulted in the expansion of oak woodland and grassland prairie at the expense of conifer forests. Alluvial fans and floodplains throughout the lowlands of central California responded with a significant period of deposition after about 11,000 cal BP. This episode of landscape evolution capped many late Pleistocene alluvial landforms and resulted in a clear stratigraphic boundary between the late Pleistocene and Holocene (Meyer and Rosenthal 2008;

Rosenthal and Meyer 2004b). In a similar manner, changes in climate at the beginning of the middle Holocene provoked another cycle of fan and floodplain deposition around 7000–6800 cal BP. This latter event capped many of the earliest archaeological deposits known from central California (Meyer and Rosenthal 2008; Rosenthal and Meyer 2004a, 2004b).

Six Early Holocene sites are documented from the broader Santa Clara Valley region, including two at Los Vaqueros Reservoir (CCO-696 and CCO-637) in the East Bay, the Laguna Creek site (P-48-000897) near Lagoon Valley on the western margin of the Delta, ALA-684 near Fremont, the Blood Alley site (SCL-178) in the Coyote Narrows in the central portion of the Santa Clara Valley, and SCR-177 at Scott's Valley in the Santa Cruz Mountains (Cartier 1993; Hildebrandt 1983; Hildebrandt et al. 2012; Meyer 2019; Meyer and Rosenthal 1997). All were identified in buried terrestrial contexts (Hildebrandt et al. 2012; Rosenthal and Meyer 2004:30–32); no sites from this period have yet been documented in bay shore settings.

Perhaps the most significant characteristic of post-Pleistocene, indigenous economies in central California is a clear reliance on plant foods. Milling tools are among the most common artifact class from Early Holocene sites (Rosenthal and Fitzgerald 2012), characteristically including handstones and millingslabs along with other cobble-based pounding, chopping, and scraping implements (Cartier 1993; Hildebrandt et al. 2012; La Jeunesse and Pryor 1996d; Meyer 2019; Meyer and Rosenthal 1997; Peak and Crew 1990). By 10,500 years ago (cal BP), these expedient tools became the predominant extractive and processing technology employed from coastal California to the uplands of the North Coast Ranges and Sierra Nevada (Fitzgerald and Hildebrandt 2002; Fitzgerald and Jones 1999; Hildebrandt 1983; Jones et al. 2002; La Jeunesse and Pryor 1996a, 1996c; Meyer and Rosenthal 1997; Rosenthal and Fitzgerald 2012; White et al. 2002).

Often characterized by dense accumulations of handstones and millingslabs, so-called "millingstone" sites appear to represent frequently re-used encampments, part of a mobile, yet seasonally structured settlement system (Basgall and True 1985; McGuire and Hildebrandt 1994; Moratto 2002; Rosenthal and Fitzgerald 2012; Rosenthal and McGuire 2004). In central California, nut crops associated with expanding woodlands were a primary focus of seasonal plant exploitation and not simply small seeds, as traditionally believed (Basgall 1987; McGuire and Hildebrandt 1994; Rosenthal and Hildebrandt 2019; Rosenthal and McGuire 2004). Carbonized plant remains from Los Vaqueros site CCO-696 and the skyrocket site (CAL-629/630) in the Sierra foothills, are dominated by acorn and pine nuts, indicative of fall-winter occupation, while those from the Laguna Creek site (P-48-000897) and ALA-684 are primarily summer-ripening seeds, consistent with the idea that these early foragers moved seasonally to take advantage of cyclically abundant foods.

In addition to milling tools, Early Holocene sites in central California frequently contain large broad-stemmed projectile or spear points with convex or flat to indented bases and broad stems, resembling Borax Lake points from the North Coast Ranges and those typical of terminal Pleistocene and early Holocene sites in the Great Basin (La Jeunesse and Pryor 1996c; Meyer and Rosenthal 1997; Peak and Crew 1990). This may not be surprising, as we know the crest of the Sierra was regularly crossed during the Early Holocene by people who presumably lived both east and west of this imposing topographic divide. Shell beads from coastal California are found in Early Holocene deposits in the western and central Great Basin (Bennyhoff and Hughes 1987; Fitzgerald et al. 2005), and obsidian from eastern Sierra quarries makes up a large portion of non-local flaked stone tools and tool-making debris at early Holocene sites on both sides of the Central Valley (Meyer and Rosenthal 1997; Peak and Crew 1990).

Identified dietary bone is varied and includes deer, elk, rabbit, ground squirrel, coyote, and grizzly bear, along with freshwater fish and pond turtle (Fitzgerald and Porcasi 2003; Meyer 2019; Meyer and Rosenthal 1997). The majority of identified remains, however, belong to small mammals (Meyer 2019; Rosenthal and Fitzgerald 2012). A high degree of residential mobility is further indicated by the recovery of marine shellfish from the Early Holocene component at SCL-178 (located near Coyote Narrows). This material originates from a comparatively long distance, including the outer coast and perhaps Elkhorn Slough (Hildebrandt 1983). Connections between the Santa Clara Valley and outer coast during the Early Holocene are also indicated by the presence of *Olivella* spire-lopped beads at SCL-178 (Fitzgerald et al. 2005; Hildebrandt 1983).

**Middle Holocene (8200–4200 cal BP)**

The beginning of the Middle Holocene (ca. 8200 cal BP) in Central California is marked by a substantial change to warmer and drier conditions. Tulare Lake shrank in size and eventually desiccated, matching similar declines at Clear Lake and lake basins in the eastern Sierra Nevada. Oak woodlands expanded upslope and conifer forests moved into alpine zones in the Sierra. Although conditions were generally arid, significant new wetland habitats were forming in central California as sea-level rise was forcing development of San Francisco Bay and the Sacramento-San Joaquin Delta along with associated marshlands. Substantial changes also occurred to the geomorphic landscape. Following an initial period of upland erosion and lowland deposition, about 6200 cal BP, fans and floodplains stabilized. This period of landscape stability is represented by middle Holocene-age buried soils found in alluvial landforms throughout central California. Many of the best documented Middle Holocene archaeological deposits are associated with these buried paleosols (Meyer and Rosenthal 2008; Rosenthal and Meyer 2004).

Middle Holocene occupations are much more ubiquitous than those from earlier time segments. More than 30 Bay Area archaeological sites have produced radiocarbon dates indicating occupation during the Middle Holocene. Both surface and buried sites are present, including a number of substantial residential settlements. Notable is a series of buried sites with diverse cultural assemblages including burials, such as ALA-483 in the Livermore Valley, the Marsh Creek Site (CCO-18/548) in the northern Diablo Range, and MRN-17 on de Silva Island in Richardson Bay (Rosenthal 2010; Pahl 2003; Rosenthal and Meyer 2004; Wiberg 1996). In the Santa Clara Valley, a grouping of three Middle Holocene burials was recently identified in a buried deposit just south of Milpitas at SCL-928 (Kaijankoski and Rosenthal 2019). Although the site had been levelled decades earlier, a small artifact assemblage included an *Olivella* shell Barrel bead, several side-notched dart points, a possible atlatl weight, charmstones, stone pendants, and other modified stone objects, dated to about 6000 cal BP. In addition, several isolated, Middle Holocene human burials have been found in the northern Santa Clara Valley (such as SCL-33, -484, -674, and -832) and on the San Francisco peninsula (SFR-28 and SMA-273).

Artifact assemblages are varied and include ground stone (some only with millingslabs and handstones, some with mortars and pestles, and some with both); side-notched dart points, cobble-based chopping, scraping, and pounding implements, and shell beads and ornaments (Fitzgerald 1993; Meyer and Rosenthal 1998). Type N grooved rectangular *Olivella* beads are present at the San Bruno Mountain Mound site (SMA-40), the Inigo mound site (SCL-12), and at CCO-474/H along the eastern edge of San Pablo Bay (Clark 1998; Estes et al. 2002; Fitzgerald et al. 2018). These beads are firmly dated to the Middle Holocene across a large region, from the northwestern Great Basin to San Clemente Island, and indicate the presence of an extensive regional interaction sphere (Byrd and Raab 2007:220–221; Fitzgerald et al. 2018; Vellanoweth 2001).

The presence of multi-season residential sites, including the basal layers of some bay margin shell mounds, suggests higher population levels, more complex adaptive strategies, and more permanent occupation than during the Early Holocene.

**Late Holocene, Early Period (4200 cal BP–2770 cal BP)**

Early Period sites in the Santa Clara Valley remain poorly documented compared to adjacent regions, including the east bay area, northern Diablo Range, and San Joaquin Valley. In fact, one of the few previously reported Early Period sites from the Santa Clara Valley, SCL-354, subsequently proved to date, at least partially, to the Middle Period (cf. Hylkema 2002; Groza 2002; Groza et al. 2011). Currently, the best example of an Early Period site in the Santa Clara Valley is University Village, SMA-77, where Gerow (1968) first reported evidence for a cultural tradition contemporaneous with "Early Horizon" Windmiller sites in the Delta region. However, the flexed burial posture of the numerous graves found at University Village was unlike those from the Delta. In addition, associated objects included a number of distinct socio-ceremonial artifacts, such as "charmstones," unmodified stone crescents, and other modified stone objects, which provide a direct link to recently identified Middle Holocene traditions in the same region (Kaijankoski and Rosenthal 2018).

As noted by Hildebrandt and Darcangelo (2004:10), Early Period occupation of the southern Santa Clara Valley is well-documented at three sites located on the western edge of the valley (SCL-308/H, -577/H, and -698). All three sites appear to represent residential settlements given the wide range of tools, diversified floral and faunal remains, and, in some cases, human burials. Seasonal mobility is indicated by the abundant presence of bay mussel, probably reflecting regular trips to Elkhorn Slough through the Pajaro River gap. Other subsistence resources include deer, rabbits, acorns, a variety of grasses, and chenopods, while wetland-oriented resources such as tule elk, waterfowl, freshwater mussel, fish, turtles, and tule seeds were of marginal importance. Seasonal indicators reflect occupations beginning in spring and continuing through fall (i.e., spring/summer small seeds and fall acorns), while sites appear to have been abandoned or minimally used in winter due to the lack of migratory waterfowl.

A related, but different Early Period culture appears to have developed along the eastern edge of the Diablo Range at the base of Mount Diablo. Originally called the Meganos Tradition, these sites include high proportions of both extended and flexed burials (Bennyhoff 1994) but only occasional mortuary offerings. Bennyhoff (1994) first recognized this mixed burial tradition as a Middle Period complex (see also Hylkema 2002:245–247; Wiberg 1988), however, radiocarbon dates ranging between 5700 and 2800 cal BP from sites CCO-18/548, -696, and -637, demonstrate the Meganos Tradition is as early, if not earlier than, all known Windmiller sites in the eastern Delta (Eerkens et al. 2013; Meyer and Rosenthal 1997; Ragir 1972; Rosenthal 2010; Schulz 1981; Wiberg 2010), suggesting it is a distinct Early Period cultural variant (Fitzgerald 2020).

Sites from the Early Period of the late Holocene appear to represent among the first sedentary or semi-sedentary settlements in the northern Santa Clara Valley region and include large numbers of flexed burials often associated with red ochre, *Olivella* spire-lopped and rectangular (L-series) beads, geometric shell ornaments, side-notched and leaf-shaped projectile points, cobble-core tools, notched net weights, and numerous bone tools including whistles, scapula saws, and elk antler wedges.

Use of the mortar and pestle is first apparent in the lowlands of central California by 6500 cal BP, particularly in marsh-side and riparian settings (Meyer and Rosenthal 1997; Ragir 1972; Rosenthal and Hildebrandt 2019; Rosenthal and McGuire 2004). In the narrow valley of the northern Diablo Range, mortars and pestles remained the predominant or exclusive milling technology used from the Early through the Late Precontact Periods (Fredrickson 1966; Meyer and Rosenthal 1997; Rosenthal and Hildebrandt 2019). In the Santa Clara Valley, it seems, handstones and millingslabs continued to be used, alongside mortars and pestles, well into the Middle Period (Hylkema 2002).

Various lines of evidence suggest that the shift to mortar and pestle accompanied more intensive subsistence practices and increased residential stability (Basgall 1987; Rosenthal and Hildebrandt 2019). Residentially stable occupations in the Santa Clara Valley and adjacent regions were probably facilitated by the convergence of habitats containing economically important plants, terrestrial animals, waterfowl, and fish, concentrated spatially, but dispersed seasonally (Jones 1991, 1997; Rosenthal et al. 2007). These latter characteristics alleviate some of the scheduling conflicts that occur in environments such as the Sierra Nevada, where important resources are seasonally and geographically structured by elevation, and are best accommodated through residential mobility (e.g., Rosenthal 2011a). Fishing may have taken on new importance at interior sites by the Early Period, as fishing gear and fish remains are abundant at some sites dating to this time period (Broughton 1994; Meyer and Rosenthal 1997; Ragir 1972; Wiberg 2010, White 2003b). Heavy reliance on the emerging mosaic of marshes, riparian forests, and adjacent grasslands in the Santa Clara Valley is further indicated by the composition of faunal assemblages attributed to the Early Period. Tule elk and deer are both represented, as are smaller rabbits and hares, various water birds, turtle, coyote, and several other terrestrial carnivores, raptors, and rodents (Broughton 1994; Gerow 1968).

The transition in milling technologies and increasing sedentism in the Santa Clara Valley region during the Early Period does not coincide with a wholesale shift to new plant foods. Instead, these changes appear related to increasing storage of acorns and other nut crops (Rosenthal and Hildebrandt 2019; Wohlgemuth 2004). The exchange of commodities such as obsidian, shell beads and ornaments, and perhaps other perishable items, was well established by the Early Period. People living in the Santa Clara Valley became important consumers of obsidian quarried from the Napa Valley and east side of the Sierra Nevada, along with *Olivella* shell beads, manufactured by coastal people in southern and central California (Bennyhoff and Hughes 1987).

**Late Holocene, Middle Period (2770–930 cal BP)**

Indigenous sites from the Middle Period are widespread in the Santa Clara Valley, particularly those dating to the last 2,000 years. Holocene landscape evolution has greatly biased the archaeological record toward these younger sites, adding to a perception of substantial human population increase during the Late Holocene (Basgall 1987; Rosenthal et al. 2007). Earlier sites are commonly buried by an episode of regional fan and floodplain deposition which occurred between about 3000 to 2800 cal BP (Banks et al. 1984; Rosenthal and Meyer 2004a, 2004b).

Perhaps as a result of greater temporal resolution and a much larger archaeological record, economic, technological, and socio-cultural developments are much better understood for the Middle Period than for preceding time periods. Cultural diversity first apparent in the Early Period became much more pronounced in the Middle Period, indicated by a geographic mosaic of distinct socio-political entities marked by contrasting burial postures, artifact styles, and other material culture elements (Bennyhoff and Fredrickson 1994; Elsasser 1978; Moratto 1984; Rosenthal 1996; Rosenthal et al. 2007). These sites often contain extensive accumulations of habitation debris, including robust faunal and floral assemblages, various kinds of residential features, and hundreds of human graves—all connoting year-round occupation (Bouey 1995; Byrd and Berg 2009; Milliken et al. 2007; Hylkema 2002; Rosenthal et al. 2007).

Along the Bayshore, this time interval is considered to have been the heyday of mound building and correlated with greater social complexity and ritual elaboration (Lightfoot 1997; Lightfoot and Luby 2002). Middle Period sites are found in a greater number of locations in the northern Santa Clara Valley and are typically composed of well-developed midden deposits containing hundreds of flexed burials and residential features. Most assemblages include a well-developed bone tool and ornament industry, numerous saucer and saddle-shaped *Olivella* beads, and abalone ornaments and pendants. Projectile points are dominated by shouldered lanceolates, though side-notched and contracting-stemmed forms also exist.

At San Felipe Lake in the southern Santa Clara Valley, elk, fish, and freshwater mussel are added to a diet previously dominated by a more dryland assemblage of deer, rabbits, and carnivores. The addition of probable winter indicators (i.e., ducks and geese) suggests year-round settlement of the area. Longer-term occupations may also be indicated by substantial structures at some Middle Period sites (e.g., well-developed house floors). A similar trend starting in the Middle Period—sedentary settlements and intensive use of the local habitat—has been posited by Linda Hylkema (2005) for the upland valleys of the Diablo Range.

Throughout Central California, the Middle Period is associated with the development and proliferation of many specialized technologies, including new types of bone tools, including harpoons, shaft wrenches, and awls. Mortars and pestles were widely used in conjunction with an increased focus on processing acorns through active leaching (Byrd et al. 2017; Rosenthal and Hildebrandt 2019; Wohlgemuth 1996). Most residential sites dating to the Middle Period include large quantities of fish bone and fishing implements, as well as a diverse assortment of mammal and bird bones. Shellfish (oyster and horn snail) continued to be common around the south Bay, with significant amounts moved several kilometers to the interior. Terrestrial mammals remained important (principally elk, deer, and canids), but these species begin to decline in frequency relative to sea otter along the bay shore.

Well-defined exchange relationships are evident throughout central California during the Middle Period. Large quantities of shell beads manufactured in southern California and along the central California coast are found in residential sites throughout the Santa Clara Valley. *Olivella* wall-beads predominate through most of the Middle Period (Bennyhoff and Hughes 1987), along with various types of *Haliotis* ornaments and pendants. Obsidian artifacts reach peak proportions, including items originating from Napa Valley and eastern Sierra sources, such as Bodie Hills and Casa Diablo, continuing a pattern first observed in the Early Period.

A cultural expansion out of the northern San Joaquin Valley is evident in the northern Diablo Range beginning about 1,500 years ago. Known as the "Meganos intrusion" (Wiberg 1988), cemeteries with extended and flexed burials have been identified at late Middle Period sites throughout the east bay area, including the Livermore, San Ramon, and Walnut Creek valleys, continuing as far west as the Fremont plain by 1,100 years ago (Bennyhoff 1968, 1987; Eerkens and Bartelink 2019; Hylkema 2002; Meyer and Rosenthal 1997; Wiberg 1988).

**Late Holocene, Middle/Late Transition (930–685 cal BP) and Late Period (685–180 cal BP)**

A substantial shift in material culture is evident after about 930 years ago (cal BP), marking the beginning of what Fredrickson (1973, 1974) referred to as the Emergent Period. Three subperiods are typically recognized by archaeologists, including the Middle/Late Transition (MLT) Period, Late Period, Phase 1, and Late Period, Phase 2. The MLT Period is marked by important technological changes and ritual practices, coinciding with epic droughts in the Sacramento River watershed (Meko 2001) and across the American west (Jones et al. 1999). By about 700 years ago (cal BP), the most unique arrow point style in California was in use among the Bay Miwok and Ohlone of the Bay-Delta region, known as the Stockton Serrated point. While other point styles found in the Sierra, Sacramento Valley, and North Coast Ranges have morphological similarities to arrow points in adjacent regions, and may have been adopted from neighboring groups, the Stockton Serrate style is clearly an independent invention. By Phase 2 of the Late Period, Desert Side-notched points were widely used in the western Sierra Nevada and San Joaquin Valley, but never completely replaced Stockton Serrated points in the northern Santa Clara Valley region.

Throughout the Late Period, large villages were established on alluvial ridges and levees throughout the Santa Clara Valley. Although the practice of cremation and pre-interment grave-pit burning became common, beginning in Phase 1 of the Late Period, it seems to have continued a tradition that can be traced back to the Early Period in this region (e.g., Gerow 1968; Heizer 1949). Mortuary features from the Late Period often contain utilitarian objects such as mortars and pestles, but also large quantities of personal items such as shell beads and ornaments. By Phase 2 of the Late Period, *Olivella* wall beads were supplemented by clam shell disk beads in the Delta region, but were not widely used in the Santa Clara

Valley, where various types of *Olivella* beads remained common (Milliken et al. 2007; Rosenthal 2011b). Coiled basketry appears to have become more important during the Late Period as basketry awls are more common in these sites and burned coiled basketry and other perishables have occasionally been found (Lillard et al. 1939; Olsen 1963; Pritchard 1970; Tremaine and Farris 2009).

Fishing was an important component of the indigenous economy during the Late Period in some regions of the Bay, as bone from resident freshwater and marine fish is abundant, and fishing equipment is common, including several types of bone spears and harpoons, J-shaped hooks, bi-pointed gorges, and bone mesh gauges for making nets. Mortars and pestles were used almost exclusively during the Late Period. There is substantial archaeobotanical evidence suggesting that small seeds, in addition to acorns, were stored for off-season use, and became one of the primary types of plant foods eaten by Santa Clara Valley people during the Late Period (Byrd et al. 2017; Kaijankoski and Rosenthal 2019; Wohlgemuth 1996, 2004). Most residential sites dating to this time period also include abundant large and small mammal bones, as well as remains of water birds (e.g., Broughton 1994; Simons 1992, 2007).

Late Period sites in the southern Santa Clara Valley demonstrate an almost complete inland resource focus, as coastal shell essentially disappears from the record (Hildebrandt and Mikkelsen 1993). The frequency of waterfowl, freshwater mussel, turtle, and tule seeds all increased relative to terrestrial mammals and acorns during this interval. Expansion in the use of wetland resources is also paralleled by an increase in the relative frequency of ground and battered stone tools, suggesting more intensive use of local plant products.

Extensive trade relations appear to have flourished with neighboring groups during this period, although the long-range acquisition of eastern Sierra obsidian declined. Sometime after about 700 years ago, a significant change in obsidian production and exchange is evident throughout central California. In the southwestern delta and east Bay Area, this change is identified through shifts in obsidian frequencies. Napa Valley obsidian becomes the primary material used in this region, making up as much as 80–90 percent of all tools and tool-making debris, supplanting local cherts as the dominant toolstone (Jackson 1974). In the Santa Clara Valley, access to obsidian may have declined by Phase 2 of the Late Period, as this material is largely absent at some sites (Kaijankoski and Rosenthal 2019). Although clam shell disk beads manufactured north of the Bay were widely traded in the Delta region (Rosenthal 2011a), they are not found in Santa Clara Valley sites (Milliken et al. 2007), indicating the south bay may have developed as a distinct regional interaction sphere at that time.

## ETHNOGRAPHIC CONTEXT

The Santa Clara Valley falls within the traditional territory of Ohlone-speaking Native Americans (Levy 1978). To the east, on the other side of the Diablo Range, were Yokuts speakers who lived in the northern San Joaquin Valley. Drawing on a range of sources (most notably Bean 1994; Levy 1978; Milliken 1995, 1997; and Fredrickson et al. 1997), the following summary provides a general ethnographic overview of Ohlone-speaking people, and highlights aspects of particular relevance to archaeologists.

The *Ohlone* (historically referred to as Costanoan) language group is either considered a distinct language family, comprised of eight languages (Levy 1978), or represents a distinct branch of the same language family that also includes Bay, Coast, and Plains Miwok; Native groups who occupied adjacent lands to the north and northeast (Milliken 1996, drawing on Shipley 1978:82–83). Golla (2007, 2011) concurs with the latter, grouping Ohlone and Miwok with the Yokuts, as a related family of Yok-Utian languages (based on Callahan 1997, 2001). Levy (1978:485) distinguished two Costanoan languages within the Santa Clara Valley: the Tamyen or Santa Clara Costanoan, spoken in the northern valley; and Mutsun, spoken in the southern valley along the Pajaro River and Monterey Bay region.

As important, if not more so, than these linguistic patterns, was the basic territorial and political structure of the region. Historically referred to as tribelets (Bean 1978; Kroeber 1925), these politically autonomous communities were typically made up of one or more villages that controlled a well-defined territory (the foraging area of a group). Population sizes of *Ohlone* communities typically ranged from 50 to 400 people (Levy 1978:487). Territorial boundaries defined the range of resources that could be exploited during the annual cycle. Based on Milliken's (2010) reconstructions, each tribal community controlled an estate ranging from 13 to 19 kilometers across (Milliken 2006). Population densities are estimated to have ranged between about two and four people per square mile (Milliken 2006:Figure 5).

Tribal communities were effectively autonomous socio-political and economic entities within which certain individuals held positions of power and authority (although the extent of their authority is subject to speculation, debate, and varied interpretation). These social positions included chiefs, a council of elders, shamans, healers, and war leaders. Some positions appear to have been inherited patrilineally. Social organization included patrilineal descent, patrilocal residence, and sororal polygynous marriage and co-residence. Clans and moieties were also present. Households ranged from 10 to 15 individuals, and houses were domed and included a central hearth and a rectangular door.

A wide range of ceremonial activities were carried out within and between communities, including dances (often inside brush enclosures with restricted access), ritual offerings (generally placed on pole tops), and myth telling with singing and music. Burial practices included destroying/burying items of personal ownership, varied within the *Ohlone* area, and cremations were more widespread than inhumations in the *Chochenyo* area. Sweat houses and menstruation houses, situated outside the village, were also important venues of structured social interaction. Sacred places on the landscape, such as nearby Mt. Diablo and Brushey Peak, also played an important role in ceremonial activities.

Subsistence activities included gathering wild foods such as acorns and various nuts, seeds, roots, and berries, hunting large and small mammals, waterfowl and other birds, and fishing in perennial streams and along the estuary. For near-shore and bay inhabitants a range of marine resources were also collected. Baskets of varied design were used in all stages of plant gathering and processing, while the bow and arrow was a common hunting weapon, animals and birds were frequently taken with traps, nets, and cooperative hunts. The tule balsa was the primary watercraft, used with a double-bladed paddle.

Given the lack of evidence for political entities larger than the tribal community, regional interaction was undoubtedly highly varied, subject to inherent instability, and required considerable attention and persistent negotiation. Thus, it is not surprising that inter-tribelet warfare was not uncommon and territorial transgressions were dealt with severely (including displaying the heads of the vanquished on pikes within villages). Regional trade, however, was pervasive and included dietary staples (such as shellfish, fish, pine nuts, and salt) as well as raw materials and finished products such as shell beads. Trade also crosscut linguistic borders. Moreover, there appears to have been intermarriage between tribelets (e.g., Milliken 1997:40–42). The extent, social rules, and precise function of these marital patterns remain unclear.

## HISTORICAL CONTEXT

Sixteenth-century sea-going European explorers were the first to reach the outer coastline of the San Francisco Bay Area. It was not until the late eighteenth century that Spanish colonizers visited the Santa Clara Valley as an initial step toward founding missions, presidios, and pueblos. The famous 1769 Spanish expedition led by Gaspar de Portolá and Juan Crespí traversed the northern portion of the valley, as a prelude to the founding in 1770 of the first of seven Spanish missions established in the region. Two years later, Crespí returned to the valley with Don Pedro Fages, taking a more southern route. Father Crespí noted that the valley had many marshes and tule patches (Allen et al. 1999).

The 1776 expedition led by Juan Bautista de Anza and Pedro Font traversed the northern portion of the valley and made observations regarding the natural setting and Native American villages in preparation for the establishment of new Spanish outposts (Bolton 1927, 1930). They established the Presidio and Mission of San Francisco later that year. José Joaquin Moraga and Fray Tomas de la Pena followed and established the Mission Santa Clara de Asis on the west bank of the Guadalupe River in 1777, at the northeastern edge of Tamien tribal territory. The river soon flooded this location, and the mission was relocated twice to higher ground.

Later that same year, Governor Don Felipe de Neve was given the task of forming an agricultural town to provision the military presidios in San Francisco and Monterey. He recruited settlers from San Francisco and placed the townsite across the river from Mission Santa Clara. This townsite, el Pueblo de San José de Guadalupe, was placed too close to the Guadalupe, and also had to be moved to firmer ground. The pueblo initially consisted of 14 families and was the first civil settlement established by the Spanish in California. The colonists planted corn, beans, wheat, hemp, and flax, and cultivated vineyards and orchards. A portion of the harvests went to support the presidios and to provision ships; the surplus food was traded in Monterey for manufactured goods shipped from Mexico and Spain. The Spanish Crown retained ownership of the pueblo, and the settlers could not sell or divide the lots. Thus, these lots stayed in the families of colonists for generations until the mid-nineteenth century (Gilreath and Detlefs 2002).

The establishment of the missions, pueblos, and presidios marked the onset of active coercement and resettlement of Native Americans into the mission feudal system. Local populations began to decline, due in large part to introduced diseases. Environmental changes were also a significant factor, as the Spanish altered the landscape into one more suitable for livestock grazing and farming. Traditional resources were increasingly curtailed; not only was wild game forced to compete with the great Spanish cattle herds, but the damage done by overgrazing had severe consequences for vegetal and freshwater resources (Milliken 1995). Local streams and creeks near the mission were diverted and claimed for the farms and orchards. Eventually, population decline, and landscape alteration forced people into the mission system, and the survivors learned to adapt to the new economy. By 1795, all of the Tamien villages had been abandoned and their inhabitants had been baptized (Milliken 1995).

The outbreak of civil unrest in Mexico beginning in 1810 caused disruptions to Spain's fledgling colony. Shipping traffic from Mexico was erratic, encouraging illegal trading with foreign ships for needed supplies. When Mexican Independence was achieved in 1822, control of California passed from Spain to Mexico. The new Mexican government instituted many changes to develop their new colony. Foreign trade was legalized, opening up a lucrative hide and tallow market which drove California's economy during this period. Secularization of the missions in 1834 redistributed some of the church's vast land holdings to California citizens, and large ranchos were established in the late 1820s and 1830s to support the vast cattle herds. In the Santa Clara Valley, 38 land grants were issued between 1833 and 1845 (Gilreath and Detlefs 2002). Each rancho was typically self-supporting, with cultivated fields, vineyards, and grazing land, as well as tanneries, grist mills, and other small-scale industrial endeavors.

The Mexican government also relaxed immigration rules in 1828, which allowed more foreigners, including Americans, to settle in California. Their numbers increased following the first overland migration to California in 1841, and by 1845, some 900 Americans lived in the pueblo. The increasing "hordes" of American immigrants alarmed the Mexican government, and tensions escalated into the Mexican American War in 1846. In 1848, the United States acquired California under the Treaty of Guadalupe Hidalgo.

The Gold Rush began soon after this event, bringing even more people to California. Many of these would-be miners stayed in California and attempted to settle in the fertile valleys as farmers and ranchers. These new immigrants, believing that the territory ceded by Mexico in the treaty was now public domain, squatted on the land grants and attacked the legality of the Mexican land titles (Gilreath and Detlefs 2002).

The California Land Claims Commission was formed in 1851 to resolve these disputes and determine legal ownership. The cumbersome bureaucratic procedures imposed on the land grant holders often resulted in decisions which favored the squatters.

The Gold Rush also sparked interest in the cinnabar deposits south of San Jose in the Santa Cruz Mountains. These deposits, the New Almaden Mines, contain mercury, which was necessary to help separate gold from ore. Although mining had begun in 1845 during the Mexican era, they were intensively worked following the discovery of gold, and were the largest mercury mines in North America.

The great influx of Gold Rush-era immigrants created new economic opportunities for the farmers and ranchers of Santa Clara Valley. Livestock continued to be the greatest market, only the focus changed from hides and tallow to meat to feed the Sierran mining camps. Initially, cattle were allowed to range over the large ranches, but as more farmers settled the valley and broke up these large land holdings, cattle raising became concentrated in the foothills. The fertile valley was also favorable for wheat crops, and Santa Clara County produced 30 percent of California's total wheat crop by 1854 (Gilreath and Detlefs 2002). Other grain crops such as barley and oats were also important crops in Santa Clara Valley (Gilreath and Detlefs 2002), as well as hay for cattle feed, and several mills were constructed beginning in 1848. Wheat's economic importance declined following the completion of the transcontinental railroad in 1869, as farmers found themselves competing with midwestern wheat growers, who could produce and ship their crops more cheaply. After about 1875, horticulture became the favored pursuit, with fruit production gaining in prominence. The best known of these crops was the prune, and by 1932, Santa Clara Valley supplied one-third of the global market. Horticulture continued to drive the county's economy until the advent of the high-technology industry during the postwar era.

The City of San Jose developed rapidly in the mid-nineteenth century, especially once the Guadalupe River had been sufficiently channelized to reduce the threat of flooding. A railroad extended to San Francisco by 1864, followed by the transcontinental railroad in 1869, opened up new markets. These expanding markets stimulated new industries. One of the earliest was the San Jose Woolen Mills, which was established in 1869. This proved to be a poorly timed enterprise, as the peak for woolen products had passed with the end of the Civil War, and the mill closed in 1910 (Allen et al. 1999).

In 1887, a fire destroyed the city's Chinatown in downtown San Jose, and its residents resettled in two areas north of downtown. One was built near the mill in 1887, and it came to be known as the Woolen Mills Chinatown. The other Chinatown was named Heinlenville after its landowner. The Woolen Mills Chinatown burned down in 1902 (Allen et al. 1999).

A far more successful industrial enterprise that benefited from the transcontinental railroad was fruit canning, which dominated the local economy by the beginning of the twentieth century (Gilreath and Detlefs 2002). The Del Monte cannery in Midtown was the largest employer in the city for many years. Other industries flourished which supported the fruit industry, such as box, basket, ice, and can factories and machinery shops. One such business, Food Machinery Corporation, was founded in 1883. It later received the city's first federal defense contract to build armored vehicles during World War II, and became United Defense, which currently employs some 100,000 people across the country. By the 1960s, defense and electronic industries were forefront in San Jose. Early businesses that established plants in San Jose were General Electric and IBM (Gilreath and Detlefs 2002).

In the 1950s, San Jose experienced an even larger growth surge. In 1950, the population was 95,000 and the city covered 17 square miles. By 1969, the city was home to 495,000 residents and encompassed 136 square miles. The electronics boom of the 1980s transformed Santa Clara Valley into Silicon Valley, home to 895,000 in 2000.

## PRECONTACT RESEARCH ISSUES (by Jeffrey Rosenthal)

Whether or not the information contained in an archaeological site is considered important is usually determined by the capability of that information to address local and regional research issues. It is necessary, therefore, to develop research contexts like the one presented above so that important research issues and the range of archaeological data/information necessary to address those issues, can be identified. Once research themes and data requirements have been identified, the significance of a site under National Register Criterion D can then be determined based on whether it possesses (or has the potential to possess) data capable of addressing those issues.

The following discussion focuses on six research domains applicable to the types of pre-contact resources expected in the program area: (1) *The Importance of Technological Change*; (2) *Socio-Spatial Structure of Central California Settlement*; (3) *Reconstructing Regional Interaction Spheres*; (4) *Indigenous Faunal Archives and Recovery of Threatened Endangered, and Extirpated Native Species;* (5) *Environmental Stewardship and the Role of Indigenous People in Constructing California's Pre-contact Landscape*; and (6) *Indigenous Assimilation and Persistence in the Post-Contact Period*. It must be noted, however, that this is not an exhaustive list of all potentially important research topics.

### THE IMPORTANCE OF TECHNOLOGICAL CHANGE

Archaeologists have traditionally viewed technological change as signifying important transitions—ethnic migrations, diffusion of ideas, local economic innovations, restructuring settlement systems. This is certainly true in the Bay-Delta area archaeological record. Yet, as radiocarbon dating has become more common over the last 60 years, it is now apparent that traditional estimates for the introduction of important technologies, such as the mortar and pestle or bow and arrow, need to be re-evaluated. It is also clear that some of the most important technological and economic changes did not occur everywhere or at the rapid pace often envisioned. Further, as the study of dietary remains has become a focal point of archaeological research in central California, the assumed functional relationships between certain technologies and associated resources require consideration. Two technological-oriented research issues are presented: (1) the timing of two major technological developments—milling tools and the bow and arrow; and (2) what those developments might mean from a culture-historical, economic, and/or socio-political standpoint.

#### Milling Tools

Handstones and millingstones represent a comparatively expedient technology that functioned well within a settlement-subsistence system organized around frequent residential moves. They represent a flexible, time-minimizing adaptive strategy of low investment. In contrast, mortar and pestle use reflects greater residential stability, representing an energy-maximizing strategy, emphasizing delayed-return, with storage and high technological investment. The foods most commonly processed with these tools are nut crops (e.g., pine nuts, acorns) and small seeds, available at different times of the year as sequential, complimentary resources. Acorns and pine nuts have high return rates, exceeding many small seeds, and can last for a year or more in the shell without spoilage.

In Central California, adoption of the mortar and pestle marks a significant economic transformation that began in parts of the Bay-Delta area and other lowland regions at different times during the middle Holocene. Although archaeobotanical evidence does not suggest a difference in the types of plant foods associated with diachronic changes in milling technologies, it seems certain that the proportions of specific plant foods in the diet changed, especially acorns and small seeds, reflecting increasing storage and use of off-season resources (Basgall 1987; Wohlgemuth 1996, 2004). This transformation appears to track with evolving patterns of labor organization, increasing residential stability, and the overall intensity of plant use (Basgall 1987; McGuire and Hildebrandt 1994; White et al. 2002:536–537; Wohlgemuth 2004). Surplus foods, like seeds and acorns, may have also served as barter with neighbors, as regional economic integration increased through the Late Period (e.g., DeGeorgey 2016; Rosenthal 2011a).

### *Data Requirements*

To test standing hypotheses related to the use of milling tools, it will be necessary to better establish the timing of the introduction of the mortar and pestle and then determine if this technological transition correlates with other economic developments and changes in settlement systems. This will require a broad range of archaeological information, including milling tools and full technological assemblages, as well as archaeobotanical remains. Insights into settlement permanence might be monitored through the plant remains, isotope studies of shellfish or human bone, or identification of house remains, storage features, and other evidence for seasonality of site use (e.g., increment analysis of artiodactyl teeth; faunal remains).

## Introduction of the Bow and Arrow

Although no accepted projectile point chronologies exist for the Bay region (due to few points having been identified in dated contexts), the timing, impetus, and implications of cultural transmission of bow and arrow technology is a key research question, here as well as across much of California. The bow is an immensely better weapon than the atlatl but was inconsistently adopted across time and space, from different directions, and by alternate forms of cultural transmission. Ultimately, widespread adoption of this technology is thought to have led to smaller economic and political groups (Bettinger 2015:149–152). The earliest recognized arrow point in the Bay-Delta area is the deeply serrated, obsidian, Stockton Series (e.g., Dougherty 1990; Johnson 1940). Earliest examples occur by the end of the MLT Period (circa 745–685 cal BP), continuing through the Late Period; arrow points were used in the southern Sacramento Valley as much as 200 years earlier (Groza et al. 2011).

There are few radiocarbon dates which relate directly to the initial timing of the Stockton serrated arrow point in the Santa Clara Valley. Groza et al. (2011) suggested that introduction of the bow and arrow in the Bay-Delta area may have progressed from north to south and east to west. If so, this technology should be later in the South Bay and Southwest Bay regions.

Bettinger (2015:98) suggests that the arrow's variable and delayed introduction in the Bay-Delta area was due to: (1) an emphasis on group hunting requiring shared quarry (e.g., surround hunts and drive fences, fire-drives, pit-traps, snares, nets, dogs, and decoys); or (2) the dart and atlatl may have been a better hunting implement for waterfowl common in the marshes and estuary of the Bay-Delta area. The Stockton serrated point was adopted through *guided variation*, acquiring the basic technology by trial and error, suggesting independent development and cultural continuity from the MLT through the Late Period (Byrd et al. 2017). Bettinger (2013, 2015:149–152) has also argued that adoption of the bow and arrow increased kin group autonomy, led to private resource ownership, and initiated a settlement shift to less-populated interior woodlands and prairie.

### *Data Requirements*

Further understanding of the timing of the bow and arrow in the Bay-Delta area will require well-dated chrono-stratigraphic site components from the MLT and Late Period which also contain projectile points. In the absence of entire site components, individual residential features or graves containing either dart or arrow points can be directly dated to better establish the timing of initial introduction. Genetic, isotopic, and stylistic information, as well as evidence for residential continuity from sites pre- and post-dating the bow, may speak to whether adoption of this technology was associated with an ethnic migration or represents a local transformation in technology among resident groups.

## SOCIO-SPATIAL STRUCTURE OF CENTRAL CALIFORNIA SETTLEMENT

Archaeological investigation of hunter-gatherer settlement organization has tended to concentrate on the well-worn but time-tested distinction between foragers and collectors, examining issues of mobility, seasonal rounds, and the range of site types needed to maintain various settlement constructs. As Binford (1980) succinctly stated, foragers are residentially mobile, moving consumers to goods with repeated residential shifts, while collectors infrequently shift residences, choosing to bring the goods to the consumers. Most hunter-gatherers relied on aspects of both foraging and collecting strategies during an annual cycle; very few groups were either classic highly mobile foragers or quintessential sedentary collectors (Binford 1982; Kelly 1983). Kelly (1995), relying on ethnographic studies and optimization theory, has further argued that mobility was the norm or default adaptive strategy for hunter-gatherers, and sedentism would only occur in unique circumstances.

Not surprisingly, most reconstructions of hunter-gatherer settlement systems, particularly in California, have concentrated on mobile or semi-mobile adaptations. This has generally entailed an attempt to construct logical linkages between a few residential sites (potentially occupied at different times of the year) and shorter-term, more specialized sites that typically functioned as procurement locales for key resources (such as hunting camps, bedrock milling stations, and lithic quarries). These representatives of specific site types were then used to posit how annual systems functioned and to identify their areal extent and primary economic niches.

As pointed out by Kowalewski (2008), scholars have begun to broaden their investigations and refine approaches to regional reconstructions, examining such topics as social boundaries (Dortch 2002) and modeling transport costs for key commodities such as food resources and raw materials (Hildebrandt et al. 2009; Madsen et al. 2000; Zeanah 2000). Others have conducted novel statistical analyses using hunter-gather ethnographic data to reconstruct the limits of daily and annual foraging ranges. For example, Morgan (2007) conducted a least-cost path, Geographic Information System-based spatial analysis which incorporated ethnographic and archaeological data for southern Sierra Nevada groups to identify the limits of caching locations and foraging ranges tied to seasonal movements. At a global scale, Grove (2009) utilized a multiple regression analysis of world-wide ethnographic data to demonstrate that residential moves are inversely correlated with group size: the larger the group, the shorter the relocation distance and the greater the number of moves that were made. Moreover, groups that relied largely on fishing tended to make fewer residential moves per year than gatherers or hunters.

Central California had one of the highest population densities in California at European contact. As a result, regional settlement pattern modeling often attempts to account for seasonal and sedentary residential settlements as well as task-oriented camps. A variety of settlement pattern models have been posited for varied settings in Central California (e.g., Byrd et al. 2017; Jones et al. 2007; Milliken et al. 2007; Rosenthal et al. 2007; Whitaker and Byrd 2012, 2014). Near the coast, for example, this has included suggesting residential sites were occupied year-round, in single seasons (such as the winter), or in multiple seasons (such as late summer through early winter). It is also possible that during the occupation span at a single site, the typical seasons of occupation changed. How the annual settlement pattern of specific groups interdigitated (particularly with respect to near the coast versus adjacent upland settings) is potentially highly variable. In particular, the role of sedentary settlements needs to be considered in pre-contact settlement pattern modeling.

Several significant questions remain unanswered: When did residentially stable settlements emerge in the region? Where were major residential communities situated on the landscape with respect to key environmental variables (such as perennial water sources and specific food resources)? What was the spatial distance between communities? What types of task-specific sites may be expected in coastal settings versus inland or upland settings? What roles did ceremonial activities, ritual events, and periodic aggregations for social interaction play in the construction of the archaeological record and pre-contact annual settlement structure?

***Data Requirements***

Discerning the range of activities and seasons of occupation at residential sites requires construction of archaeological correlates (e.g., Monks 1981; Rafferty 1985). Archaeological data that can be used to address this topic include, but are not limited to, aspects of site structure, the range and nature of the resource base, and seasonality of resource exploitation. Attributes of site structure that need to be considered include site size, thickness of cultural deposits, and aspects of general site variability such as residential versus non-residential architecture, food-processing and storage features, trash dumping episodes, and the presence of on-site cemeteries. Probably the most productive line of inquiry involves detailed studies of plant and animal remains that may include the following analyses: season of plant collection (including small seeds, nuts, and fruits); presence of seasonal birds (such as winter visitors or fall/spring migrants); seasonally migratory fish (spawning runs of salmonids); age profiles of faunal remains to identify young and juveniles (including the use of dental seasonality analysis); and isotopic analysis of marine shellfish remains (where present).

**RECONSTRUCTING REGIONAL INTERACTION SPHERES**

Hunter-gatherers participated in regional spheres of social interaction larger than the territory of a single group's annual round. These interaction spheres provided hunter-gatherers with a larger biological group in which to operate, facilitated alliance-building and the creation of reciprocal obligations, and increased the likelihood that groups could carry on during difficult social or economic times. The nature, scale, and spatial orientation of these supra-territorial interactions were not static and may have varied greatly over time. Important manifestations of these phenomena include trade and exchange networks, travel corridors, and socio-ideological interaction.

Ethnographic and ethnohistorical accounts reveal that a wide range of goods was traded throughout California, with Native Americans from the California coast to the Hohokam of central Arizona participating in such commerce (e.g., Davis 1961; Heizer and Treganza 1944; Sample 1950). Trade ran both east-west and north-south along a series of established routes. Archaeological evidence suggests that long-distance trade in California had great antiquity, extending back into the Early Holocene (e.g., Fitzgerald et al. 2005; Howard and Raab 1993). For archaeologists in California, most discussions of pre-contact trade and exchange are centered on the two most widely traded, durable materials—obsidian and shell (e.g., Hughes and Milliken 2007). Moreover, there is widespread recognition that the nature of regional interaction networks differed markedly at various points of time, and that the volume and areal extent of trade were not static (e.g., Gilreath and Hildebrandt 1997, 2011; Hildebrandt and McGuire 2002). Although myriad trade items might be investigated, three topics highlighted by Byrd et al. (2017) are: (1) obsidian exchange; (2) *Olivella* and clamshell bead manufacture and trade; and (3) abalone pendant exchange.

Archaeological evidence suggests that wide-ranging obsidian trade networks characterize pre-contact Central California (Jackson 1988; Jackson and Ericson 1994), often structure by the nature of social boundaries (Bettinger 1982; Ericson 1982; Hughes and Milliken 2007). The Ohlone are reported in ethnographic and ethnohistorical records to have traded abalone shell and dried abalone to the Yokuts (Davis 1961:19; Levy 1978:488; Wallace 1978:465); the Yokuts in turn traded shell beads and pendants eastward to groups living in the Owens Valley region (Arkush 1993). Latta (1977:321) noted that the most highly prized shell artifacts were made from abalone, used in ceremonial events, and placed over the eyes, ears, and mouth of the dead. The Ohlone are also reported to have traded *Olivella* to the Sierra Miwok (Davis 1961:19; Levy 1978:488). Clamshell disk beads are not mentioned, but Levy (1978:488) stated that the word used by the East

Bay Chochenyo Ohlone for clamshell disk beads appears to be a Miwok loan word. Intra-regional trade, such as between Ohlone groups, was also undoubtedly important, playing a role in distributing resources that have limited source localities and in cementing regional social networks (Heizer and Treganza 1944).

Obsidian is common in Bay-Delta sites, with several notable trends in temporal and spatial distribution: (1) Napa Glass Mountain obsidian is always predominant; (2) obsidian from the eastern Sierra does not penetrate the North Delta and Northwest Bay regions; (3) eastern Sierra obsidian is increasingly more common along a north-south gradient in the South and East Bay; (4) nearby Mt. Konocti and Borax Lake obsidian do not enter the Bay-Delta area; (5) there is a dramatic increase in the percentage of obsidian to chert in the MLT and Late Period; (6) there is a decrease in the percentage of Sierran sources during Late Period; and (7) Napa Valley obsidian shows a peak use between about 1000 and 850 cal BP, and a strong drop in the frequency of samples circa 380 cal BP, perhaps coinciding with initial European contact. Several studies have identified breaks in distribution patterns of raw materials as indications of directionality of trade rather than a strict distance-decay relationship between sources.

Beads and ornaments of the *Olivella biplicata* (the purple olive snail) were widely traded throughout the late Holocene. Studies of formal variations in these bead types focus on: (1) chronological stages (e.g., Middle Period diversity and first use as commodity); (2) social importance; (3) manufacture (minimal evidence), political complexity, and elites; (4) regional interaction networks (coastal access?); (5) implications in mortuary contexts; and (6) economic importance (e.g., currency). A swift change came post-450 cal BP when clam disc bead manufacturing swept across the Northwest Bay and Delta regions. One research focus is the study of bead origins and identification of source areas. Eerkens et al. (2005) and Burns (2020) attempted this by sourcing a small sample of *Olivella* shells using stable isotope analysis. While they were able to identify some source areas, broadly defined as southern or Central California, future studies might be able to track the origins of shells (*Olivella*, clam, abalone) to a particular location. If successful, then the technique could be applied to archaeological samples from different localities and time periods to ascertain the orientation of trade and exchange networks.

Abalone (*Haliotis*) shells, pendants, and ornaments were widely traded and highly prized. They had four functions: decoration, social organization, religious, and subsistence. Important issues for abalone research include: (1) source and manufacture locations; (2) nature of trade and exchange networks; (3) were source locations the focus of exploitation?; (4) did different species have related source locations?; (5) was there a shift in the choice of species over time?; (6) were abalone ornaments manufactured near coastal sources, or traded as whole pieces and formed inland?; and (7) did a tight control over manufacturing in the Early and Middle Periods give way to local manufacturing centers in the Late Period? Avenues of research include source locality, species identification, and diachronic trends in pre-contact use in the South Bay where Monterey abalone would have been more readily available.

***Data Requirements***

Several strategies could be used to gather data to address this set of research questions. For example, mapping the distribution of various sources for specific resources through time can provide baseline predictions regarding shifting social boundaries or trade and exchange networks that might be further tested using subsequent datasets. Tangible archaeological evidence of trading activities rests largely on the recovery of extra-local, non-perishable goods recovered from well-dated contexts. Addressing obsidian exchange requires both source and hydration analyses. Source profiles from such sites can be combined with regional samples to identify changes through time in obsidian source distributions and use. Examining shell bead and ornament exchange is possible with most sites that contain abundant beads and/or ornaments, manufacturing debris, and/or drills. Sites with beads or ornaments but lacking evidence of manufacture can still address regional research questions if they are out of the ordinary (e.g., clam disc beads in the South Bay), or if special studies can identify their origins.

## INDIGENOUS FAUNAL ARCHIVES AND RECOVERY OF THREATENED, ENDANGERED, AND EXTIRPATED NATIVE SPECIES

As a result of habitat loss and other human-induced impacts (e.g., hunting, pollution, invasive species), several species have been driven to local extinction or reduced ranges since European contact. Among terrestrial mammals this includes tule elk, pronghorn, and North American brown bear (i.e., grizzly). Several fish species endemic to the Santa Clara Valley are also now extinct or federally listed as endangered or threatened, including steelhead (*Onocorhynchus mykiss*), green sturgeon (*Acipenser transmontanus*), and thicktail chub (*Gila crassicauda*). In addition, other fish are identified as Species of Special Concern by the California Department of Fish and Wildlife, including Sacramento hitch (*Lavinia exilcauda*), riffle sculpin (*Cottus gulosus*), and pacific lamprey (*Entosphenus tridentatus*). Many, if not all, of these species were economically important to Central California tribes. Some of these species also play a central role in social and religious life of indigenous people, expressed for example, in the Miwok system of animal moieties, Nisenan and Miwok grizzly bear dance (Beals 1933:382; Kroeber 1925:435, 450), and the annual observance of the first salmon (Kroeber 1929:273), among other traditional practices and beliefs. With the disappearance of these species and widespread landscape modification, important elements of traditional Native American cultures have been impacted. There are both contemporary and long-standing Native American cultural concerns with the viability of Central California's ecosystem and endemic fauna, reflected in legislative and programmatic focus.

An ongoing problem with restoration efforts is the lack of complete information on habitat use and other life history information for many native species. Scientific study of Central California native fish did not begin until long after the "slickens" from hydraulic mining overwhelmed the valley ways, rivers were dammed for hydroelectric power, and levees were constructed to eliminate seasonal flooding. Consequently, the unfettered habits, biogeography, food sources, and other life-history characteristics of endemic fish, particularly endangered, threatened, and special status species, remain poorly known. A good example is the endangered Chinook salmon (*Oncorhynchus tshawytscha*). Systematic scientific study of salmon in Central California did not begin until long after salmon populations were already in substantial decline, power and water-conveyance infrastructure had removed access to natal watersheds, and introgression with hatchery-raised fish had disrupted the genetic composition of wild populations. As a consequence, very little information exists on pre-contact genetic diversity, ecology, and life history of salmon populations.

Likewise, elk, pronghorn, and brown bear (i.e., Grizzly) were extirpated long before their behaviors were well understood. Tule elk is an endemic species that evolved in Central California over the last 15,000 years following arrival in North America at the end of the last Ice Age (Meiri et al. 2014). Tule elk were driven to near extinction by market hunting during and after the Gold Rush. All living animals are descended from a single breading pair discovered on the Miller Ranch in San Joaquin Valley about 1875 (McCullough et al. 1969). Due to their early extirpation, we know very little about the pre-contact biogeography, grazing patterns, preferred forage, and other life history characteristics of these animals in their former range; or the genetic diversity that once existed within the subspecies. The same is true for pronghorn and brown bear. Although these species survive in other parts of North America, California has a more seasonally equable climate than regions where brown bear and pronghorn live today. The California Grizzly Research Network (2019) is seeking answers to several research questions, including a better understanding of the species' genetic diversity, its historical range, and major components of the diet. Similar questions are relevant to the extirpated pronghorn of Central California. Where they currently reside, pronghorn make extensive regional migrations from summer to winter habitats due to seasonal snow cover. Understanding these behavioral characteristics has important implications for reintroduction of all three species, actions which are currently underway (i.e., elk, pronghorn) or seriously contemplated (e.g., brown bear).

These and related issues can be directly addressed using dietary and other remains preserved in pre-contact sites. Since dietary remains from Native sites often include extensive assemblages of fish, mammal, and bird bones spanning the last several thousand years or more, they represent important and unequaled archives of native fauna from the late Holocene. With simple non-destructive bone identifications, the relative proportions of different terrestrial and aquatic species can be determined for any point on the landscape where native village sites are found. These identifications provide important information on past biogeography and species diversity in specific ecological settings. When compared to modern species representation and abundance in the same habitats, indigenous faunal archives can also serve as a measure of success for contemporary habitat restoration efforts. Beyond simple taxonomic identifications, geochemical and genetic analysis has proven to be important for reconstructing life-history characteristics and intra-species genetic diversity among native fauna in modern and ancient populations (e.g., Johnson et al. 2016; Talcot 2019; Wilmes et al. 2020). The time depth afforded by the archaeological record also allows for the examination of information on the ways in which endangered and threatened species responded to past climate change and habitat loss and how these species may respond to similar events in the future.

In addition to fish bones, archaeological sites can contain otoliths ("ear stones") of salmon and other species (e.g., Simons and Schulz 1974; SAC-145). Otoliths grow by continuous deposition of calcium carbonate over the lifetime of a fish, generating growth bands similar to annual tree rings. Otolith morphologies are species-specific, and their diameter correlates with fork length (tip of snout to end of middle caudal fin ray) of the fish. When fish reside for extended periods in water with different chemical compositions, temperatures, and/or salinities, those properties are incorporated into the isotopic make-up of the layered bands of the otolith. In combination with microstructural analysis, previous research with modern otoliths has demonstrated that specific elements, such as carbon, strontium, magnesium, barium, and sulfur, provide information useful for reconstructing time- and age-resolved movements as fish migrate through different freshwater, brackish, and marine environments.

For anadromous species such as salmon, the combination of isotopic and microstructural analyses allows for the identification of natal stream sources (i.e., the earliest growth rings in the center of the otolith or pectoral spine), run timing/season, use of non-natal nursery streams or other habitats at different points in the life cycle, and age and size when exiting and entering freshwater. Isotopic information from the pectoral spines of sturgeon can be used in the same way to determine age-related movements between brackish and freshwater habitats and the size of the fish at different points in its lifecycle. Consequently, otoliths and other fish remains are an important archive of age, growth, and geography, allowing for detailed information on the life history of individual fish. The same kinds of microstructural and geochemical analysis can be conducted on teeth of elk, pronghorn, and deer, among other mammals. Isotope analysis of the layered tooth enamel allows examination of various life-history characteristics, such as habitat preferences, and seasonal patterns of foraging and land use, as well as season of death. Ultimately, information developed from indigenous dietary remains could serve as baseline information on the pre-contact ecology and biogeography of numerous native species and could assist conservation and restoration efforts throughout Central California.

***Data Requirements***

To address this research issue, it will be necessary to recover identifiable fish and other faunal bone and other remains (e.g., otoliths, spines, teeth) dating prior to watershed disruption and development of water management and power infrastructure. Identification of faunal remains will further refine the known pre-contact geography of each represented species and provide a snapshot of species diversity. Isotopic analysis of mammal and fish bones, otoliths, and teeth will contribute to understanding past life history characteristics of each species and should aid in habitat restoration and planning.

## ENVIRONMENTAL STEWARDSHIP AND THE ROLE OF INDIGENOUS PEOPLE IN CONSTRUCTING CALIFORNIA'S PRE-CONTACT LANDSCAPE

The biotic landscape of Central California, as it existed before the arrival of Europeans, was configured in part, by thousands of years of management by indigenous people. Simply by virtue of daily hunting, fishing, plant-food harvesting, and collecting basketry material, firewood, shellfish, as well as other resources, indigenous people affected the composition and structure of California's natural environment (e.g., Anderson 2005; Anderson and Moratto 1996; Blackburn and Anderson 1993; Lightfoot and Parrish 2009; Shipek 1977). Indeed, people were living in California for at least 1,000 years before substantial changes occurred in the biogeography of plant and animal species at the end of the last Ice-Age, what geologists call the Pleistocene Epoch. Beginning 11,700 years ago, cooler, dryer conditions of the Pleistocene gave way to the generally warmer and more variable climate of the most recent geological epoch, known as the Holocene. Average temperatures worldwide increased abruptly, causing cold adapted plant species to retract their geographic range and temperate species to expand northward. Across North America, as many as 35 genera of mammals and 19 genera of birds went extinct, including roughly one-half the continents large mammals (Alroy 2001; Grayson 1993). It was against this backdrop of biogeographic change, that Native people first began to influence the natural environment of Central California.

One of the most effective and impactful traditional strategies for landscape modification was the use of fire (e.g., Anderson 2005; Anderson and Rosenthal 2015; Lewis 1993; Lightfoot and Lopez 2013; Lightfoot and Parrish 2009). Native people wielded fire for many purposes, including the improvement of wildlife habitat and ease of hunting, to increase seed and forb abundances in grasslands, produce young growth for basketry material and arrow shafts, direct animal and insect drives, clear vegetation and spur growth of tobacco and mushrooms, and decrease pathogens and deleterious insects (Anderson and Rosenthal 2015). More generally, fire was used to remove underbrush and enhance resource collection and travel, maintain open parklands and ecotones preferred by deer, and clear tules and other vegetation from springs and marshes to open waterways (Lightfoot and Parrish 2009). Through "pyrodiversity management," Lightfoot and Parrish (2009) argue indigenous people of California created habitat mosaics through "small, frequent, low-severity surface fires" that burned "small patches in a staggered succession over a sequence of years" (Lightfoot and Parrish 2009:100; see also Lightfoot and Lopez 2013).

Such fire management strategies are believed to have greatly increased food resources for deer and other animals, with subsequent higher population densities, enhanced habitat for plant resources such as bunchgrass, and greater quantities of suitable firewood. Lightfoot and Lopez (2013) posited the maintenance of productive grassland habitats from 950 cal BP (MLT) to Spanish contact (Lightfoot and Lopez 2013). This adaptive strategy may have led down a novel diachronic path away from agriculture and large nucleated villages that characterized the Southwest, Midwest, and Eastern North America (Lightfoot 1993). Instead, emphasis was placed on flexibility and breadth rather than concentrating on a few keystone resources, and inter-annual variability in the location of residential bases depending on pyrodiversity-based resource abundance tied to burning rotations. Lightfoot and Parrish (2009:136–140) argue that this strategy allowed for better and more balanced diets, spread resource procurement efforts evenly throughout the year, created a buffer against inter-annual climatic variation, and facilitated larger overall populations while village size and territorial extent remained relatively small. The onset and underlying causal explanations for the pyrodiversity adaptation, however, remain uncertain.

Indigenous pyro diversity management in Central California has become an important avenue of research (e.g., Lightfoot et al. 2013b), as state and federal land managers seek to restore native ecosystems and address the devastating effects of more than 100 years of fire suppression. While the important role of traditional management techniques is widely recognized by anthropologists, some ecologists, and other environmental scientists discount traditional stewardship practices, suggesting that anthropogenic influences were too insignificant to have had a profound or lasting effect on the biotic landscape (e.g., Vale 1998:231, 2002:7). Ecologists such as Vale argue that natural processes such as climate change and ecological succession best explain long-term transformations to vegetation communities. As Lightfoot et al. (2013b:290) point out, however, "the cumulative effects of many small acts over time may have produced significant and novel anthropogenic landscape effects… " Sorting out the influence of natural versus anthropogenic fire regimes is an ongoing issue of concern for anthropologists and ecologists alike (e.g., Anderson and Rosenthal 2015; Keeley 2002; Lightfoot et al. 2013b).

Understanding indigenous pyrodiversity management practices is complicated by the methodological problem of demonstrating natural versus cultural-set fires. Cuthrell et al. (2013) and Lightfoot et al. (2013a) have modeled fire frequencies based on natural ignitions (i.e., lightning strikes). In places like the Sierra Nevada, burn histories are well documented over hundreds to thousands of years based on tree ring scars and charcoal frequencies in sedimentary records. However, identifying the ignition source of fires is complicated in timbered, mountainous regions like the Sierra Nevada, where lightning-strike frequencies are as high as 31 to 40 per 100 square kilometers and lightning-set fires are a regular occurrence (e.g., Lightfoot and Parrish 2009:110). Examination of fire histories in open grassland, woodland savanna, and marshes of Central California may provide a much better proxy of anthropogenic fire use, since lightning strikes are substantially less common in these settings, with fewer than five strikes per 1,000 square kilometers, and few if any ignition events.

Fire ecologists have noted a correlation between cooler climate conditions and lower fire frequencies, and conversely, warmer conditions and higher fire frequency. This general trend can serve as a null hypothesis when evaluating fire intervals over long time scales. If fire frequencies increase during cooler periods, such as the Little Ice Age (ca. 1300 and 1870 CE, 580–80 cal BP), then anthropogenic sources would be supported. Likewise, under a regime of indigenous pyro diversity management, it is expected that resources harvested for food, medicine, and other purposes should reflect the influence of these practices. For example, fire- and other disturbance-followers should increase in archaeobotanical samples as a product of regular burning. Since deer benefit from the same kinds of successional habitat mosaics produced by fire, as well as the abundant forbs that follow burns, an increase in the abundance of deer bone in Native dietary remains might also be a product of regular burning. Other expectations include a shift in the type of available firewood, as brushy species are eliminated from the local landscape, or changes in the abundances of fire and disturbance followers in archaeobotanical assemblages, also measurable through changing pollen or phytolith frequencies.

In areas with a low occurrence of fires from natural ignition sources anthropogenic burning through time can be monitored by changes in the frequency of charcoal in various kinds of geological deposits, including sequential buried soils, laminated fluvial strata in rivers and floodplains, and sediments in natural ponds and lakes. When paired with pollen, phytoliths, and other plant macrofossils from the same geological contexts, robust records of ecological change can be developed. These independent environmental records could then be compared to the species representation of dietary plant and animal remains and wood charcoal from nearby village sites to better understand the inter-relationship between fire-events, human dietary shifts, and ecological and climate change through time. These kinds of studies will go a long way toward sorting out the role of Native people in structuring and maintaining the pre-contact Central California landscape and demonstrating the ways in which traditional ecological knowledge can benefit contemporary management practices.

***Data Requirements***

Lightfoot et al. (2013b:291) indicate that "the study of fire management among hunter-gatherers involves detecting and documenting… subtle shifts in the relative densities of indigenous, economically important species and vegetation communities commonly found in the local region." Lightfoot and colleagues (2013b) have identified several potential archaeological techniques that may be used to identify archaeological signatures of burning. These are mainly focused on direct archaeological data from plant and animal remains incorporated into archaeological sites. They also suggest the use of non-anthropological data related to fire ecology.

To address this research issue in the archaeological record, it will be necessary to identify and sample cultural deposits and naturally stratified geological deposits for the presence of plant remains, including wood charcoal, phytoliths, and pollen. Deer bone from cultural deposits, and long trends in the abundance of this species will also contribute to understanding the ecological effects of long-term Native pyrodiversity management. Because all of these types of data are organic, direct dating from these contexts can help pinpoint the onset of such practices and grow the database to support widespread use of fire as a plant management tool.

**INDIGENOUS ASSIMILATION AND PERSISTENCE IN THE POST-CONTACT PERIOD**

Indigenous assimilation and persistence research issues focus on reconstructing the Native American social landscape just prior to and during the Mission Period. Local tribes variably responded to Spanish colonial settlement, mission outreach, mission life, escape and capture, disease, and depopulation. Until recently, the only systematic sources available to reconstruct Native American life just prior to and during the Mission Period were the Franciscan mission records of baptism, marriage, and death. The mission records also contain the only information regarding the original home groups of the vast majority of Native people in the Bay-Delta area. These data make it possible to track declining village populations, as individuals and groups were assimilated into the missions. Ethnographic studies also detail village abandonment due to disease, attacks from neighboring groups located farther from the missions, and population decline (e.g., Milliken 1995).

Milliken's Community Distribution Model (CDM) based on mission record data and ethnographic studies identifies mapping "regions," which estimate the territorial extent of communities or tribelets, which were present throughout the Bay-Delta area (Milliken 2006, 2010). Mission record studies can record the sequential events of Spanish colonialism and subsequent emptying of tribal territories, tracking each landholding groups' history of migration to the missions and survivorship in them. Data on cumulative baptism rates of each identified region, for example, relate to patterns of assimilation, by mission, often supporting Bennyhoff's (1977) general principle that rancherias close to missions generally sent their people for baptism earlier than villages at greater distances, resulting in a "domino" effect outward from each mission.

While lifeways were irrevocably altered after 1795 (and probably to some extent for at least 25 years before this), it is known that Native Americans did not completely abandon their ancestral landscape or their culture. Recent studies on resistance, refuge, and indigenous autonomy offer clues on this persistence, particularly in relation to archaeological models of post-mission settlement (Panich and Schneider 2015; Schneider 2010, 2015a, 2015b). Notably, these include investigations of Native American lifeways in prominent colonial settings, such as the missions themselves, the San Francisco Presidio, Fort Ross (farther north along the coast), and Rancho Petaluma, as well as in other more autonomous settings (e.g., Byrd et al. 2018, 2019; Lightfoot 2005, 1995; Lightfoot et al. 2006; Panich and Schneider 2015; Schneider 2010, 2015a, 2015b; Silliman 2004, 2010; Voss 2003, 2005, 2008).

Schneider (2010) has focused on Native resistance and refuge from the missions, and archaeological findings from three Marin County shell mounds (MRN-114, -115, and -328), all located in the CDM San Rafael region of the Coast Miwok, also the location of Mission San Rafael. Schneider (2010:182) argues for "persistent returns to old village sites," not only by escape but also with approved leave (paseos), and to hunt and fish in the surrounding territories to maintain mission food supplies. While such hunting and gathering practices were likely maintained during the Mission Period, it is also likely that remaining villages were to be found farther and farther away from Spanish settlements, as village populations closest to the mission dropped below a critical level for sustainability. Regional cohesion was also destroyed (i.e., trade, gatherings) with the loss of major villages within a region (Milliken 1995:222), further disrupting local settlement systems. Native communities were not as easily dismantled during the Mission Period as previously assumed, however, and, while efforts are still underway to develop techniques for detecting and studying sites of refuge in the San Francisco Bay area (Schneider 2015a, 2015b), discoveries in other regions of California (e.g., Bernard et al. 2014) show great promise for identifying and showcasing such critical places of cultural resiliency and change.

Other studies have also examined Native American autonomy in the Spanish Mission Period in the San Francisco Bay-Delta region (e.g., Panich and Schneider 2015 and Von Der Porten and DeGeorgey 2015). Panich and Schneider (2015) state that individuals left the missions, with or without permission, for a variety of reasons and that some Natives were able to totally avoid missionization, information which mission records would not be able to capture. Evidence from on-going archaeological excavations at Mission Santa Clara indicates the persistence of trade networks, given the abundant obsidian and shell beads found at the mission, and evidence of continued hunting and gathering (Allen et al. 2010; Panich 2015, 2016). Further, Mission Santa Clara records indicate that some neophyte deaths occurred outside the mission, with burial taking place in their homelands, although others were, of course, buried at the missions (Panich 2015).

Although the missions were secularized in 1834, the colonial influences of the Mission Period continued as those that had previously worked and lived on Mission lands were hired/conscripted to work in the hide/tallow industry and the agricultural practices that supported the growing population of California. The ranchos were often laid out in similar fashion to the missions that preceded them, with a large house replacing the central chapel as the focal point of the compound. Laborers were provided with peripheral structures or land on which to erect them and were generally paid in commodities rather than coins (Silliman 2004). As noted by Silliman (2004), many archaeological investigations focused on this period of time have been fortuitous finds of Mexican rancho-era artifacts with traditional Native Californian items, such as shell beads.

Silliman (2004:80–99) reported a robust assemblage of Native American artifacts intermixed with nineteenth-century artifacts of Euro-American manufacture at the Petaluma Adobe and identified these as the residue of a Native American laborer habitation area across Adobe Creek from the Petaluma Adobe itself. Artifacts recovered included stone tools made from obsidian and chert, ground stone, worked glass, glass and shell beads, incised bone, ceramics, bottle glass, nails and metal objects, buttons, and clay pipe fragments. Silliman concluded that "the data convey a picture of traditional Native practices and materials intertwining with novel European-manufactured goods in the forging of identities and social life under the mantle of colonial labor" (Silliman 2004:99).

***Data Requirements***

Archaeological evidence of Native American persistence may include indications of rapid changes in technology and material culture at the end of the Late Period into the Mission Period, particularly the inclusion of European items such as ceramics, glass, non-native plants, and non-native animals. Sites from this period may conversely lack such items where Native Americans were avoiding missionization and attempting to maintain their traditional lifeways. Gaining insight into trends in Native persistence and assimilation during Spanish colonization and missionization of the region requires fine-grained chronological data owing to the short time span involved.

## RECORDS SEARCH AND LITERATURE REVIEW FOR EIGHT VALLEY WATER PIPELINES

Of the 46 pipelines in the entire program area, eight are anticipated to need work within the foreseeable future. The following section summarizes efforts to identify previous cultural studies and resources within the Alamitos Pipeline, Almaden Valley Pipeline, Pacheco Conduit, Pacheco Tunnel, Santa Clara Conduit, Santa Clara Tunnel, Snell Pipeline, and West Pipeline. Efforts to identify cultural studies and resources (e.g., archaeological sites or isolates, buildings, structures, objects, and/or districts generally older than 50 years, as well as tribal cultural resources as defined by AB 52, Statutes of 2014, in Public Resource Code Section 21074(a)(1) and (2); see *Regulatory Background*, page 9), included literature and archival research and review, and a search of the NAHC's Sacred Lands File (see *Interested Parties Coordination,* page 54). The purpose of the literature and archival research is for Valley Water to identify and gauge the density and types of cultural resources that may be encountered during future maintenance projects on these eight lines, as well as to identify the types of previous cultural studies conducted on or surrounding the eight lines. Please note that records searches and additional review for any additional lines within the program area not included in this sample records search review will be conducted on a project-by-project basis.

### RECORDS SEARCH METHODS AND RESULTS

Far Western previously conducted a cultural study for the first iteration of Valley Water's PMP and corresponding PEIR (MHA Environmental Consulting 2007b). A similar approach was utilized for the updated PMP's cultural study. On January 9, 2023, Far Western Staff Archaeologist, Monique Sanchez, submitted a request for a search of materials on file with the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University, Rohnert Park (SSU). The records search study area encompassed five pipelines anticipated to need work within the foreseeable future (Pacheco Conduit/Pacheco Tunnel, Santa Clara Conduit/Santa Clara Tunnel, Almaden Valley Pipeline, Snell Pipeline, and West Pipeline), with a one-quarter-mile study radius around each line. The NWIC responded with results on January 10, 2023 (File No. 22-1043; Appendix A). The records search identified 535 studies and 100 previously recorded resources within a one-quarter-mile radius of the five lines (Appendix A).

On July 27, 2023, Valley Water added the Alamitos Pipeline to the list of lines requiring a records search. Additionally, Valley Water updated their GIS data set (shapefiles) for the pipeline system, which resulted in the splitting of the Pacheco Conduit/Pacheco Tunnel and the Santa Clara Conduit/Santa Clara Tunnel lines, resulting in four separate lines. With the addition of the Alamitos Pipeline and the two tunnels, a total of eight lines are included in the cultural study (see Figure 2). After analyzing the new data set, Far Western determined that some lines had been altered (lines were slightly longer, had an offshoot that was not there before, it was nudged a bit to one side or the other, etc.) since the initial records search; however, the newly altered lines used in the records search and both the Pacheco and Santa Clara tunnels were still encapsulated within the previous quarter-mile radius of the original records search (having been moved less than 0.009 miles), and only the Alamitos Pipeline needed a records search.

On August 16, 2023, Far Western Assistant Project Manager, Patricia Galindo Mayo, submitted a supplemental request for a search of materials on file with the NWIC at SSU, encompassing a one-quarter-mile study radius for the Alamitos Pipeline; the NWIC responded with results on August 28, 2023 (File No 23-0228). An additional 19 studies and two previously recorded cultural resources were identified. In total, 554 studies and 102 cultural resources were identified through the records search conducted by the NWIC for the eight lines (Appendix A).

In addition to the NWIC database the following sources were reviewed:

- California Inventory of Historic Resources (1976 and updates)
- Office of Historic Preservation's Historic Property Data File, which includes:
  - National Register
  - California Register
  - California State Historical Landmarks (1996 and updates)
  - California State Points of Historical Interest (1992 and updates)
  - Office of Historic Preservation Archaeological Determinations of Eligibility
- General Land Office, Historical Maps, and Rancho Plat Maps (cursory review)
- California Department of Transportation Bridge Survey (cursory review)

A summary of all the previous studies and previously recorded resources identified in the sample records search is presented below. Please note, Far Western shared the following records search results with JRP to assist in their evaluation efforts. Valley Water will run concordance with their files (e.g., past PMP and other projects) and supplement Far Western's records search with studies and/or cultural resources not on file with and/or identified by the NWIC.

**Previous Studies**

As of 2018, a total of 554 prior studies have been conducted within a one-quarter-mile records search radius of the eight lines in the sample records search (Table 2; Appendix A). Given the primarily urban nature of the program area, it is not surprising that such a vast number of studies were identified by the records search. The earliest study, an archaeological survey, was conducted in 1973 and the most recent study was conducted in 2018; however, this date may reflect a lag time in incorporating data into the NWIC system (e.g., facility shutdowns due to Covid restrictions) so it is possible that more recent studies have been conducted. Approximately 59.2 percent (n=328) of the total studies are surveys, 11.8 percent (n=65) are testing/data recovery reports, and 3.6 percent (n=20) are monitoring reports, with the remaining 25.4 percent (n=141) of the studies encompassing a wide range of documents including architectural studies, compliance reports, management/planning and public discourse documents, correspondence letters and memos, records searches, regional research documents, photographs, forms, and lab analysis reports.

Table 2. Number of Studies Conducted near the Eight Sampled Pipelines.

| Name of Pipeline | Distance to Pipeline Corridor | | | Total[a] |
|---|---|---|---|---|
| | Within 50 meters (164 feet) | 50–100 meters (164–328 feet) | Within 0.25 miles | |
| Alamitos Pipeline | 10 | 1 | 19 | 30 |
| Almaden Valley Pipeline | 77 | 15 | 64 | 156 |
| Pacheco Conduit | 31 | 4 | 16 | 51 |
| Pacheco Tunnel | 6 | 1 | 3 | 10 |
| Santa Clara Conduit | 63 | 3 | 35 | 101 |
| Santa Clara Tunnel | 6 | 0 | 0 | 6 |
| Snell Pipeline | 129 | 15 | 51 | 195 |
| West Pipeline | 49 | 1 | 26 | 76 |
| TOTAL | 371 | 40 | 214 | 625 |

Note: [a] Total includes studies that are shared between lines; total number of studies is 554.

A breakdown of the number of studies found within a one-quarter-mile records search radius of each of the eight pipelines, at various distance increments (within 50 meters, 50–100 meters, and 0.25 miles), is presented in Table 2. Of the 371 studies that cross a pipeline corridor or occur within 164 feet (50 meters) of a pipeline, 39.4 percent are surveys, testing/data recovery, and or monitoring studies; however, only four of these have been conducted within the last five years. 50 studies overlap multiple pipeline corridors.

**Previously Recorded Cultural Resources**

As of 2020, a total of 102 cultural resources have been recorded within a quarter-mile radius of the eight pipelines in the cultural study; two resources (P-43-001428 and P-43-000328) are within a quarter-mile radius of two adjacent pipeline corridors, while one linear resource (P-43-002629) has two segments recorded both within 50 meters and within a one-quarter mile of the same pipeline (Table 3; Appendix A). No previously recorded resources are found within a quarter-mile radius of the Santa Clara Tunnel.

Table 3. Number of Previously Recorded Resources Near the Eight Sampled Pipelines.

| PIPELINE | DISTANCE TO PIPELINE CORRIDOR | | | | | | | | TOTAL RECORDED RESOURCES [a] |
|---|---|---|---|---|---|---|---|---|---|
| | WITHIN 50 METERS (164 FEET) | | 50–100 METERS (164–328 FEET) | | | WITHIN 0.25 MILES | | | |
| | P | H | P | H | P/H | P | H | P/H | |
| Alamitos Pipeline | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 |
| Almaden Valley Pipeline | 15 | 2 | 5 | 3 | 1 | 13 | 1 | 1 | 41 |
| Pacheco Conduit | 4 | 2 | 1 | 2 | 0 | 5 | 6 | 1 | 21 |
| Pacheco Tunnel | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| Santa Clara Conduit | 1 | 2 | 0 | 1 | 0 | 3 | 4 | 0 | 11 |
| Santa Clara Tunnel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Snell Pipeline | 6 | 4 | 1 | 0 | 0 | 4 | 5 | 0 | 20 |
| West Pipeline | 0 | 2 | 0 | 0 | 0 | 0 | 6 | 0 | 8 |
| TOTAL [a] | 26 | 13 | 7 | 6 | 1 | 27 | 23 | 2 | 105 |

Note: [a] Total includes two resources that are shared between lines and one resource intersecting one line at various distances; total number of resources is 102. H – Historic; P – Precontact; P/H – Multi-component

The 102 previously recorded resources include 40 historic-era resources (categorized as 32 building/structure/objects, three districts, one "other," and four sites); three multi-component sites; and 59 precontact resources (categorized as 56 sites and three isolates). The 32 resources in the building/structure/object category include barns, government offices and or stations, educational buildings, commercial and agricultural standing structures and a modern strip mall, residential buildings, roadside attractions, transmission towers, fruit stands, a tank house, a rock wall, structural remains, and canals and aqueducts. The three districts include a discontiguous historical district of seven discrete elements (dams) and two historic-era ranch complexes. The "other" category includes remnants/segments of historic-age shade trees planted along both sides of State Route 82 between San Jose and Gilroy, once spanning over 30 miles. The three precontact isolates include two mortars and a single flake. The 60 historic-era and precontact sites (four historic-era sites and 56 pre-contact sites) include bedrock milling features, caves, lithic scatters, pictographs, burial sites, habitation debris, petroglyphs, farms and ranches, hearths/pits, road alignments and bridges, a shell scatter, flaked and ground stone concentrations, and flaked and ground stone isolates (although these were recorded as sites). The three multi-component sites include two habitation sites, one with a historic-era quarry and refuse scatter, and one with a historical marker for Bell Station; the third is a bedrock mortar milling station and historic-era refuse scatter.

Thirty-nine resources intersect a pipeline corridor or occur within 50 meters (164 feet) of a pipeline, 13 of these are historic-era resources and 26 are precontact resources; only one has been updated within the last five years. Of the 26 precontact resources, 25 are sites and one is an isolated ground stone. The sites include bedrock milling features, habitation debris, burials, hearths/pits, lithic scatters, and isolated raw material finds and flaked and ground stone (these should have been recorded as isolates). Of the 13 historic-era resources, 10 are buildings/structures/objects, two are districts, and one is categorized as "other."

Sites tend to be located near permanent or seasonal water courses (MHA Environmental Consulting 2007b). This notion is supported by ethnographic records, the records search, and the archaeological record. Twenty-seven of the precontact sites from the records search are located adjacent to seasonal or permanent watercourses (creeks); however, the location of other site types such as temporary hunting, gathering, and processing camps is somewhat less predictable given that they tend to be located near whatever resource is in play (seeds, acorns, game, etc.).

Given our understanding of historical use of the valley from the early 1800s with continued development through modern times, we can expect to find historical resources just about anywhere in the Program area. The earliest sites tend to be located along or near waterways; however, later development was more constrained by space and the positioning of transportation corridors than by water (Carpenter 2007).

A summary of the previously recorded resources and studies for each individual pipeline in the records search is presented below, for the complete, detailed records search results, see Appendix A.

**Alamitos Pipeline**

A total of 30 prior studies have been conducted within a one-quarter mile of this pipeline. Ten of these studies have been conducted immediately adjacent (within 164 feet/50 meters) to the pipeline corridor; two of these include subsurface testing, with the most recent survey done in 2015. There are two previously recorded resources within the records search radius for this line; a historic-era residential site and an isolated flake (recorded as a site).

**Almaden Valley Pipeline**

A total of 156 prior studies have been conducted within a one-quarter mile of this pipeline. Seventy-seven of these studies have been conducted immediately adjacent (within 164 feet/50 meters) to the pipeline corridor; 14 of these include subsurface testing, with the most recent conducted in 2013, and the most recent survey conducted in 2018. There are 41 previously recorded resources within the records search radius for this location including six historic-era resources (one single family residence, three transmission towers, one discontiguous water conveyance district, and a ranch complex); two multi-component sites (one bedrock milling feature with a historic-era refuse scatter and one precontact habitation site near a quarry pit with a trash scatter); two precontact isolates (one flaked stone and one ground stone); and 31 precontact sites (ranging from a raw material source to complex habitation sites with burials). Seventeen of these resources are immediately adjacent (within 164 feet/50 meters) to and/or intersect the pipeline corridor (SCL-141, -149, -179,-180, -181, -182, -183, -184, -185, -199, -316, -362, -64, -132, -2192, -3045, and -3563).

**Pacheco Conduit**

A total of 51 prior studies have been conducted within a one-quarter mile of this pipeline. Thirty-one of these studies have been conducted immediately adjacent (within 164 feet/50 meters) to the pipeline corridor; four of these include subsurface testing, with the most recent survey done in 2017. There are 21 previously recorded resources within the records search radius for this location including 10 historic-era resources (six buildings/structures, a shell scatter, and a road alignment with corresponding bridges); one multi-component site (precontact habitation with burials and a historical marker); one precontact ground stone isolate; and nine precontact sites (ranging from a simple flaked stone concentration to complex habitation sites). Six of these resources are immediately adjacent to (within 164 feet/50 meters) and/or intersect the pipeline corridor (SCL-116, -117, -321, -322; P-43-001428 and P-43-003673).

**Pacheco Tunnel**

Ten prior studies have been conducted within a one-quarter mile of this pipeline, six of which have been conducted immediately adjacent (within 164 feet/50 meters) to the pipeline corridor, with the most current survey dating to 1996. Two studies from 1973 include subsurface testing. There are two previously recorded resources within the records search radius for this location including a precontact bedrock milling feature with associated habitation debris and a historic-era ranch complex (P-43-001839) that intersects the pipeline.

**Santa Clara Conduit**

A total of 101 prior studies have been conducted within a one-quarter mile of this pipeline. Sixty-three of these studies have been conducted immediately adjacent (within 164 feet/50 meters) to the pipeline corridor; five of these include subsurface testing, with the most recent conducted in 1992, and the most recent survey conducted in 2017. There are 11 previously recorded resources within the records search radius for this location including seven historic-era resources (one roadside attraction, a single-family property, two canals/aqueducts, and three farm/ranch sites) and four precontact sites (ranging from ground stone finds to complex habitation sites). Three of these resources are immediately adjacent (within 164 feet/50 meters) to and/or intersect the pipeline corridor (SBN-191H; SCL-325H and SCL-412).

**Santa Clara Tunnel**

The six prior studies associated with this pipeline have been conducted immediately adjacent (within 164 feet) to the pipeline; two of which are subsurface testing conducted in 1973. The most recent survey was conducted in 2015. There are no previously recorded resources within the records search radius for this location.

**Snell Pipeline**

A total of 195 prior studies have been conducted within a one-quarter mile of this pipeline. One hundred twenty-nine of these studies have been conducted immediately adjacent (within 164 feet) of the pipeline corridor; 23 of these include subsurface testing, with the most recent conducted in 2014, and the most recent survey also conducted in 2014. There are 19 previously recorded resources within the records search radius for this location including eight historic-era resources (a barn, a strip mall, a tank house, two transmission towers, a multi-mile landscape feature/tree row, a ranch complex, and a rock wall) and 11 precontact sites (ranging from simple flake scatters and a hearth/pit to complex habitation sites, some with burials). Ten of these resources are immediately adjacent (within 164 feet/50 meters) to and/or intersect the pipeline corridor (SCL-137, -189, -206, -216, -565, -629; P-43-000737, -000738, -002629, and -002738).

**West Pipeline**

A total of 76 prior studies have been conducted within a one-quarter mile of this pipeline. Forty-nine of these studies have been conducted immediately adjacent (within 164 feet/50 meters) to the pipeline corridor; one of these studies includes subsurface testing from 2013, and the most recent survey was conducted in 2018. There are eight previously recorded resources, all historic-era, including a transmission tower, four single-family properties (one of which has been turned into a museum), one multi-family property, and two ranch complexes. Two of these resources are immediately adjacent (within 164 feet) to and/or intersect the pipeline corridor (P-43-001798 and P-43-003945).

## ASSESSMENT OF THE POTENTIAL FOR BURIED ARCHAEOLOGICAL RESOURCES (by Jack Meyer)

### PAST AND PRESENT CONDITIONS

The San Francisco Bay area has undergone substantial environmental and landscape changes since people first entered and colonized the region in the terminal Pleistocene and early Holocene. At the height of the last glacial maximum some 22,000 to 18,000 years ago, worldwide sea levels were at least 125 meters (410 feet) lower than today, and the Pacific coastline was located some 25 to 50 kilometers (about 15 to 30 miles) west of its current position (Atwater et al. 1977; Bard et al. 1996; Yokoyama et al. 2000). The area that now makes up San Pablo Bay was then a broad inland valley, that was intersected by the Petaluma River and other channels.

As the continental ice sheets began to melt, the world's oceans rose rapidly, causing the sea to migrate eastward across the continental shelf and through the Golden Gate by about 11,000 years ago. The estimated rate of Holocene sea-level rise within San Francisco Bay was determined by Meyer (2013) based on analysis of the age and elevation of more than 250 radiocarbon dates from tidal deposits. Between 7000 and 6000 cal BP (calibrated age of radiocarbon dates is cal BP), the rising waters had reached the lower parts of the South Bay that allowed extensive brackish and freshwater wetlands to form around the Bay margins (Atwater 1980, Byrne et al. 2001; Goman and Wells 2000; Wells and Goman 1995).

Many of these wetlands were relatively short-lived as sediment deposition began to equal or out-pace the rate of sea-level, which amounted to about five meters (16.4 feet) between 7000 and 4000 cal BP (Atwater 1980, 1982; Atwater and Hedel 1976; Atwater et al. 1977). Radiocarbon dates from deposits in Suisun Bay indicate that tidal marshes grew (i.e., accreted upward) at an average rate of about 13.85 centimeters (5.5 inches) every century over the past 6,500 years. As the sea continued to rise, the lower reaches of many stream and river channels became filled with sediments (Helley et al. 1979), which buried the surface of many former terrestrial landforms around the Bay (Brown and Pasternack 2004, 2005; Shlemon 1972). Isotopic analysis of marine shells and ostracodes (i.e., seed shrimp) suggest that conditions in the marsh were less saline between 650 and 200 cal BP, followed by increasing salinity afterwards.

Historical and modern land-use changes associated with the arrival of Spanish and other Euro-American settlers led to widespread erosion of the uplands, rapid sediment deposition in the lowlands, formation of deeply incised channels (arroyos), and introduced (non-native) plant species (West 1989). Prior to the California Gold Rush, the extent of the tidal marshes was nearly twice that of the bay (Atwater et al. 1979:352; Gilbert 1917:78), but deposition of hydraulic mining sediment between 1853 and 1884 significantly impacted the marshes throughout the Bay (Atwater et al. 1979; Cappiella et al. 1999; Gilbert 1917). These changes are documented in many parts of the Bay Area (Byrne et al. 2001; Conner 1983; Duncan 1992), including the South Bay near the program area (Watson 2004). Today, most flooding and deposition are artificially controlled by extensive networks of man-made levees, canals, and ditches (Ingebritsen et al. 2000) that fundamentally altered the hydrology of the Bay Area (Mount 1995).

Together, these large-scale landscape changes had direct effects on human settlement and exerted a profound effect on the present distribution, preservation, and visibility of the region's archaeological record, particularly within the valleys.

## PRECONTACT SITE LOCATIONS

Literally hundreds of precontact archaeological sites have been identified on the floor of the Santa Clara Valley (Allen et al. 1999; Anastasio 1988; Cartier 1988; Hylkema 1998; Meyer 2000; Moratto 1984; Wiberg 1997), many containing human burials and residential features. Precontact sites are not distributed randomly throughout the landscape but tend to occur in specific geo-environmental settings (Foster et al. 2005:4; Hansen et al. 2004:5; Pilgram 1987; Rosenthal and Meyer 2004). For example, the precise location of precontact settlements is often dependent on a variety of environmental characteristics, such as proximity to water, topographic setting, and past distributions of important plant and animal foods, which made some locations more attractive or unfavorable for past human use or occupation.

It is well known for instance, that precontact occupation sites are most often associated with relatively level landforms that occur near perennial streams, especially near confluences (Pilgram 1987:44–47), and near bodies of water such as lakes, springs, or wetlands where plant and animal populations are generally more diverse and concentrated. Thus, the potential for buried sites can be greatly over-estimated in some areas and underestimated in others if buried site potential is based solely on the age of surface landforms, without consideration of how human settlements are positioned relative to other factors.

Prior studies have examined many different environmental variables to describe settlement patterns in central and northern California (e.g., Byrd and Wee 2008; Meyer and Dalldorf 2004; Meyer et al. 2010, 2011; Pilgram 1987; Rosenthal and Meyer 2004). A BOR analysis of the distribution of precontact sites in the San Joaquin River delta indicates most are found on "the margins of watercourses, on sand mounds, and along the edges of lakes," suggesting the relationship between site locations and "specific natural features" is strong (West et al. 1999:9). At the same time, relationships between sites and water can be skewed by changes in the position of water sources during or after the precontact period. Because of this, it is important to reconstruct the locations of former channels and other "extinct" water sources if possible (West and Welch 1996).

A geoarchaeological sensitivity study of the southern Santa Clara Valley found that most precontact sites, including buried sites, occur within 200 meters (656 feet) or less of a present or former water source, such as springs, streams, and rivers (Rosenthal and Meyer 2004). Thus, the "distance-to-water factor" is an important one for modeling archaeological sensitivity in and near the program area. However, there is an important distinction between smaller "first order" streams and other "seasonal" water sources, versus larger sources that tend to have water on a more permanent or perennial basis. These patterns can be used to model the locations of unidentified sites in the program area.

## BURIED ARCHAEOLOGICAL SITES

Archaeologists have long been aware that natural geological processes have played a role in shaping the archaeological record of Central California and San Francisco Bay (Heizer 1949:39–40, 1950a, 1950b, 1952:9; Lillard et al. 1939; Moratto 1984:214). Numerous buried precontact archaeological sites have been discovered in every county that surrounds San Francisco Bay (Meyer 1996, 2000; Meyer and Rosenthal 1997, 2008, 2009; Rosenthal and Meyer 2004; White et al. 2002, 2003). As used here, the term "buried site" refers to archaeological materials or a site that is now covered by natural alluvial, colluvial, and/or wind-blown deposits, which are often associated with formerly stable land surface marked by buried soils, also known as paleosols.

Dozens of buried sites, or sites with buried cultural components, have been identified in valleys of the East Bay (Meyer 1996; Meyer and Rosenthal 1997, 1998, 2008, 2009; Wiberg and Clark 2004), such as the Amador-Livermore Valley (Rosenthal et al. 2006) and San Ramon Valley (Banks et al. 1984; Bennyhoff and Fredrickson 1994; Fredrickson 1966, 1968; Heizer 1950a; Price et al. 2006). Buried sites are also found in several cities in the East and South Bay such as San Leandro (Meyer 2015), Hayward (Bard et al. 1989;

Gmoser 1998; Gmoser et al. 1999; Tiley 2001), Fremont (Kaijankoski et al. 2015; Meyer 2015), Milpitas (Gmoser et al. 1999; Rosenthal 2015; Kaijankoski and Rosenthal 2019), and San Jose (Kaijankoski and Rosenthal 2019; Meyer 2000). At one site in Fremont (ALA-684), buried hearth features yielded several radiocarbon dates ranging from 8120 to 9520 cal BP that are the oldest of any San Francisco Bay margin site (Kaijankoski et al. 2015; Meyer 2019).

In the northern Santa Clara Valley, more than 60 percent of the recorded archaeological sites are buried (Meyer 2000), including most older sites along Coyote Creek and the Guadalupe River (Allen et al. 1999; Anastasio 1988:401; Cartier 1988:277; Hylkema 1998:20–26; Wiberg 1997:3). Some of the oldest sites include a human burial in Sunnyvale (known as "Sunnyvale Man") that dates to at least 5000 cal BP (LaJoie et al. 1980; Moratto 1984); the "Sunnyvale Red Burial" (SCL-832) found during construction that dates to 5545 cal BP (Cartier 2002); and deeply buried deposits at a site near Metcalfe Creek (SCL-178) in the Coyote Creek Narrows where dates ranging from 8700 to 11,500 cal BP have been obtained (Fitzgerald and Porcasi 2003; Hildebrandt 1983).

In the southern Santa Clara Valley, buried precontact sites were found not far from the program area at Carnadero Creek and Bolsa Road along US Highway 101 (US 101), and others were identified near the Pajaro River to the south (Mikkelsen et al. 2010). At one of the latter sites in San Benito County, a marine shell buried by 10.8 to 12.5 feet (3.3 to 3.8 meters) of alluvium produced a radiocarbon date of 2330 cal BP, indicating that even relatively young sites can be deeply buried. In San Benito County near the program area, two buried precontact sites (SCL-849 and SBN-242) were discovered within the Pacheco Creek Valley at depths of 8.2 feet (2.5 meters) below the surface, which respectively date to 3700 cal BP and 3830 cal BP (Hildebrandt et al., 2004). These and other examples demonstrate the widespread occurrence of buried precontact sites throughout the Santa Clara Valley and adjoining areas. The methods, factors, and parameters used to assess archaeological sensitivity and model the potential for buried sites in the are discussed below.

## ARCHAEOLOGICAL SENSITIVITY

This section examines the relationships between certain environmental factors and the location of Native American archaeological sites. As used here, "archaeological sensitivity" refers to the factors that influence where archaeological sites tend to be located, while "archaeological potential" or "buried site potential" refers to the likelihood, or probability that an archaeological site will be located in an area. Thus, the "possibility" that a site may exist is not the same as the overall "chance" that a site is located in a specified area—a distinction that is often confused or overlooked. It is one thing to say that there is a "possibility" for archaeological sites, but quite another to define the relative potential for archaeological sites in different areas. The consistent use and distinction of these concepts are fundamental for any archaeological assessment and are particularly important if they are to be implemented for planning and management purposes.

Literally hundreds of precontact archaeological sites have been identified on the floor of the Santa Clara Valley (Allen et al. 1999; Anastasio 1988; Cartier 1988; Hylkema 1998; Meyer 2000; Moratto 1984; Wiberg 1997), many containing human burials and residential features. Precontact sites are not distributed randomly throughout the landscape but tend to occur in specific geo-environmental settings (Foster et al. 2005:4; Hansen et al. 2004:5; Pilgram 1987; Rosenthal and Meyer 2004a, 2004b). For example, the precise location of precontact settlements is often dependent on a variety of environmental characteristics, such as proximity to water, topographic setting, and past distributions of important plant and animal foods, which made some locations more attractive or unfavorable for past human use or occupation.

It is well known for instance, that precontact occupation sites are most often associated with relatively level landforms that occur near perennial streams, especially near confluences (Pilgram 1987:44–47), and near bodies of water such as lakes, springs, or wetlands where plant and animal populations are generally more diverse and concentrated. Thus, the potential for buried sites can be greatly over-estimated in some areas and underestimated in others if buried site potential is based solely on the age of surface landforms, without consideration of how human settlements are positioned relative to other factors.

Prior studies have examined many different environmental variables to describe settlement patterns in central and northern California (e.g., Byrd and Wee 2008; Meyer and Dalldorf 2004; Meyer et al. 2010, 2011; Pilgram 1987; Rosenthal and Meyer 2004a). An analysis of the distribution of precontact sites in the San Joaquin River delta indicates most are found on "the margins of watercourses, on sand mounds, and along the edges of lakes," suggesting the relationship between site locations and "specific natural features" is strong (West et al. 1999:9). At the same time, relationships between sites and water can be skewed by changes in the position of water sources during or after the precontact period. Because of this, it is important to reconstruct the locations of former channels and other "extinct" water sources if possible (West and Welch 1996).

A geoarchaeological sensitivity study of the southern Santa Clara Valley, including part of the program area, found that most precontact sites, including buried sites, occur within 200 meters (656 feet) or less of a present or former water source, such as springs, streams, and rivers (Rosenthal and Meyer 2004b). Thus, the "distance-to-water factor" is an important one for modeling archaeological sensitivity in and near the program area. However, there is an important distinction between smaller "first order" streams and other "seasonal" water sources, versus larger sources that tend to have water on a more permanent or perennial basis. Thus, distance-to-water is an important factor for modeling archaeological sensitivity in the region.

Previous sensitivity assessments indicate that distance-to-water, surface slope, and distance to channel confluence are strongly correlated with most known site locations across much of California (Meyer and Brandy 2019; Rosenthal and Meyer 2004a). Based on the previous results, areas with the greatest archaeological sensitivity are located 350 meters or less from seasonal first-order streams, and 450 meters or less from a perennial water source and/or channel confluence. Sensitivity then decreases incrementally as the distance to/from water increases up to 850 meters for seasonal first-order streams, and 1,200 meters for perennial water and confluences. Beyond those distances the archaeological sensitivity was modeled as Lowest. The factors and parameters used to model archaeological sensitivity in the program area are summarized below (Table 4).

Table 4. Summary of Archaeological Sensitivity Model Factors and Parameters.

| Factors | Highest | High | Moderate | Low | Lowest |
|---|---|---|---|---|---|
| 1st Order H2O Dist. (m) | 1–350 | 350–500 | 500–650 | 650–850 | >850 |
| Perm H2O Dist. (m) | 1–450 | 450–650 | 650–850 | 850–1,200 | >1,200 |
| Perm H2O Confluence Dist. (m) | 1–450 | 450–650 | 650–850 | 850–1,200 | >1,200 |
| Surface Slope (%) | 0–7 | 7–11 | 11–16 | 16–20 | >20 |
| Elevation meters amsl | <1,065 | 1,065–1,830 | 1,830–2,590 | 2,590–3,200 | >3,200 |
| Score Range | 35–50 | 30–35 | 25–30 | 19–25 | 0–19 |
| Maximum Value | 50 | 35 | 30 | 25 | 19 |
| Maximum (%) | 100 | 70 | 60 | 50 | 38 |

Note: amsl – Above mean sea level; Model version 7.9 (8-24-22); H2O – Water; Dist. – Distance; m – Meters.

## SURFACE SOILS AND LANDFORM-AGE

To assess the potential for buried sites, it is important to know, or have accurate estimates of, the age and extent of surface deposits that occur at the present ground surface. To do this, a landform-age map was developed using digital soil data from the Natural Resources Conservation Service (NRCS) Soil Survey; geographic data that are digitized versions of the original soil surveys, mapped at a 1:24,000-scale

(NRCS 2010). The soil data map polygons were overlain with the Nine-County Quaternary maps of the San Francisco Bay Area developed by the United States Geological Survey (Witter et al. 2006). The combined polygons were used to create a hybrid map using both datasets.

Soils mapped at the surface were used to estimate the age and extent of different landforms based on their surface slope, degree of soil development, landscape position, cross-cutting relationships, and in some cases radiocarbon evidence. Similar soil types were then combined into specific age groups, based on major climatic periods, to create a map that depicts the age of landforms at the present ground surface. The resulting map identifies the age and extent of surface deposits at temporal and spatial scales useful for estimating the potential for buried sites throughout the program area. This type of soil data has previously been used to develop reasonably detailed maps of depositional landforms, including those created for geoarchaeological sensitivity studies elsewhere in California (Meyer and Rosenthal 2008, 2013; Meyer et al. 2010, 2011; Rosenthal and Meyer 2004a, 2004b).

## BURIED SITE POTENTIAL MODEL

The buried site model is based on two main working assumptions: (1) archaeological deposits cannot be buried within landforms that developed prior to human colonization of North America (Rosenthal and Meyer 2004a, 2004b); and (2) there is typically an inverse relationship between maximum-age Holocene surface landforms and their potential to contain buried archaeological deposits. Regarding the latter, the potential for older landforms to contain buried sites is generally lower than younger landforms because: (1) the amount of time for human occupation was shorter for older landforms than for younger ones; and (2) human population densities were lower compared to later periods, resulting in fewer site locations. From this perspective, the potential for early Holocene surface landforms to contain buried sites is relatively low, not because such sites are potentially absent, but because the overall probability that people occupied any one point on the landscape that was buried by a landform of this age is less than for a younger landform.

The same logic applies to the sensitivity of all subsequent Holocene landforms. The younger the age of the landform, the higher the likelihood that buried archaeological deposits will be discovered. This results from two main factors: (1) Holocene surface landforms commonly contain multiple Holocene buried soils (i.e., former land surfaces); and (2) within young surface landforms, the aggregate of time represented by Holocene buried soils is greater than the aggregate of time represented by buried soils in older surface landforms. Also, it is assumed that archaeological deposits from later time periods are more common overall due to higher population densities. Formerly stable land surfaces buried later in time, therefore, have a higher probability of containing archaeological material than those buried earlier in the Holocene. With these assumptions in mind, the age differences between younger depositional landforms can be used as a relative measure of the potential (i.e., probability) for buried archaeological sites.

To operationalize landform-age as a predictive factor, the minimum age of each landform unit was converted to a percentage of the past 14,600 years that precontact people may have been in the region (i.e., 14,700-100=14,600 years) by pro-rating the amount of that time represented by each landform-age unit, as seen in Table 5. For instance, if 8200 cal BP is the minimum age for early Holocene landforms, then 8,200 years is subtracted from 14,700 years, which equals 6,500 years, or about 44.5 percent of the time that has elapsed between 14,700 and 100 cal BP. Accordingly, surface landforms that pre-date 14,700 cal BP are not considered sensitive because they are too old to contain archaeological sites. Thus, surface landforms that pre-date 14,700 cal BP lack potential because they are too old to contain archaeological sites.

Table 5. Buried Site Potential Model and Age Parameters.

| Landform-Age | Age ka | Percentage Multiplier | Maximum Sensitivity Model Score | | | | |
|---|---|---|---|---|---|---|---|
| | | | Lowest 10 | Low 20 | Mod 25 | High 30 | Highest 50 |
| Water | 0 | 0.150 | 1.5 | 3.0 | 3.8 | 4.5 | 7.5 |
| Historical Channel | <0.1 | 0.300 | 3.0 | 6.0 | 7.5 | 9.0 | 15.0 |
| Artificial Cut/Fill | <0.1 | 0.350 | 3.5 | 7.0 | 8.8 | 10.5 | 17.5 |
| Historical-Modern | <0.1 | 0.450 | 4.5 | 9.0 | 11.3 | 13.5 | 22.5 |
| Recent Holocene | 0.6–0.1 | 1.000 | 10.0 | 20.0 | 25.0 | 30.0 | 50.0 |
| Medieval Climatic | 1.15–0.6 | 0.966 | 9.7 | 19.3 | 24.1 | 29.0 | 48.3 |
| Latest Holocene | 2.2–1.15 | 0.928 | 9.3 | 18.6 | 23.2 | 27.8 | 46.4 |
| Late Holocene | 4.2–2.2 | 0.856 | 8.6 | 17.1 | 21.4 | 25.7 | 42.8 |
| Middle Holocene | 8.2–4.2 | 0.719 | 7.2 | 14.4 | 18.0 | 21.6 | 36.0 |
| Early Holocene | 11.7–8.2 | 0.445 | 4.5 | 8.9 | 11.1 | 13.4 | 22.3 |
| Younger Dryas | 12.9–11.7 | 0.205 | 2.1 | 4.1 | 5.1 | 6.2 | 10.3 |
| Terminal Pleistocene | 25.0–12.9 | 0.120 | 1.2 | 2.4 | 3.0 | 3.6 | 6.0 |
| Older Pleistocene/ Pre-Quaternary | >25.0a | 0.000 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Score Range | | | 0 to 10 (0–20%) | 10 to 20 (20–40%) | 20 to 25 (40–50%) | 25 to 30 (50–60%) | 30 to 50 (60–100%) |
| Buried Site Potential | | | Lowest | Low | Moderate | High | Highest |

Notes: Age ka -- Calibrated years before present expressed as a kilo annum (i.e., = # x 1,000 years);
Percentage Multiplier – Minimum age of landform unit divided by 14,600 years (i.e., 14,700 to 100 cal BP).

Conversely, surface landforms post-dating 14,600 cal BP are considered to have a potential (i.e., probability) to contain buried sites depending on the age of the surface deposits. To arrive at an estimate of the potential for buried sites in landforms of different ages, scores derived from the sensitivity model were multiplied by the age percentage. This applies to all landform units except for those mapped as Historical-Modern because they are more often located in highly active geomorphic settings (e.g., tidal zones, stream channels) that generally discourage or prevent human use and occupation. Thus, the overall predictive value of Historical-Modern landforms was reduced to 60 percent even though they post-date the precontact archaeological record. In this way, age differences between surface landform were used to estimate the relative potential (i.e., probability) for buried sites to occur in different program area segments. The buried site potential modeling parameters are shown in Table 5 with the results provided below.

Using the assumptions and methods just described, a buried site potential model was created by calculating the relative contribution, or weighted value, of each environmental theme (score) for every 10-x-10-meter grid cell and mapped across the surface of program area. The raw results were then passed through a majority filter that replaces singular and isolated cells based on the assessed sensitivity of a majority of their contiguous neighboring cells in GIS (ESRI 2018). Cells in the filtered results were then smoothed using a "circle block statistic" based on a contiguity criterion using a circle neighborhood default radius of three cells (ESRI 2019), where a cell requires three contiguous neighbors, including one along an edge, before replacement occurs. The modeling results are presented below.

## ASSESSMENT OF BURIED SITE POTENTIAL

The modeling results indicate that of the 613 acres of program area, the potential for buried sites is Highest in about 5.4 percent (33.102 acres) and High in 7.1 percent (43.523 acres) of the program area that together equal about 12.4 percent (76.012 acres) of the total area. The areas of High and Highest potential are generally associated with low-angle, Holocene-age landforms located relatively close to a known water source, such as those that occur near segments of Alamitos Creek, Coyote Creek, Guadalupe River, Llagas Creek, Los Gatos Creek, Pacheco Creek, Thompson Creek, and Uvas/Carnadero Creek channels. In contrast, the buried site potential is modeled at the Lowest level across three quarters (74.5% or 456.685 acres) of the program area as a whole. Areas of Lowest potential are generally associated with landforms with higher-angle slopes (e.g., uplands) that are Pleistocene or older in age that are also located relatively far away from a known water source. In the remaining portions, a Moderate potential occurs in about 1.8 percent (11.034 acres) and a Low potential is modeled in about 11.2 percent (68.656 acres), of the program area (Table 6). The breakdown of buried site potential in relation to each pipeline is detailed in Table 7. Maps showing the buried site potential within the program area are provided in Appendix C2.

Table 6. Extent of Buried Site Potential within the Program Area.

| Sensitivity | Acreage | Percent |
|---|---|---|
| Highest | 33.10 | 5.4 |
| High | 43.52 | 7.1 |
| Moderate | 11.03 | 1.8 |
| Lowest | 456.69 | 75.0 |
| Low | 68.66 | 11.2 |
| Total | 613.00 | 100 |

Table 7. Extent of Buried Site Potential in Relation to Each Pipeline.

| Pipeline | Acreage of Line with 5-meter Buffer | Total Acreage of Line with 5-meter Buffer | Sensitivity | | | | |
|---|---|---|---|---|---|---|---|
| | | | Lowest (%) | Low (%) | Moderate (%) | High (%) | Highest (%) |
| Alamitos Pipeline | 0.19 | 0.72 | 26.0 | - | - | - | - |
| | 0.53 | 0.72 | - | - | - | - | 74.0 |
| Almaden Valley Pipeline | 0.84 | 46.78 | - | - | 1.8 | - | - |
| | 3.89 | 46.78 | - | 8.3 | - | - | - |
| | 6.58 | 46.78 | - | - | - | 14.1 | - |
| | 7.00 | 46.78 | - | - | - | - | 15.0 |
| | 28.46 | 46.78 | 60.8 | - | - | - | - |
| Anderson Force Main | 0.34 | 3.22 | - | 10.7 | - | - | - |
| | 2.88 | 3.22 | 89.3 | - | - | - | - |
| Bay View Golf Club Turnout | 0.11 | 0.11 | 100.0 | - | - | - | - |
| Calero Pipeline | 10.89 | 10.89 | 100.0 | - | - | - | - |
| Campbell Distributary | 0.76 | 8.26 | - | 9.2 | - | - | - |
| | 1.25 | 8.26 | - | - | - | 15.1 | - |
| | 6.25 | 8.26 | 75.7 | - | - | - | - |

Table 7. Extent of Buried Site Potential in Relation to Each Pipeline *continued*.

| Pipeline | Acreage of Line with 5-meter Buffer | Total Acreage of Line with 5-meter Buffer | Sensitivity | | | | |
|---|---|---|---|---|---|---|---|
| | | | Lowest (%) | Low (%) | Moderate (%) | High (%) | Highest (%) |
| Central Pipeline | 0.98 | 50.24 | - | - | - | - | 2.0 |
| | 1.10 | 50.24 | - | - | 2.2 | - | - |
| | 5.58 | 50.24 | - | - | - | 11.1 | - |
| | 14.79 | 50.24 | - | 29.4 | - | - | - |
| | 27.79 | 50.24 | 55.3 | - | - | - | - |
| Church Avenue Percolation Pipeline | 0.09 | 0.31 | 28.0 | - | - | - | - |
| | 0.22 | 0.31 | - | 72.0 | - | - | - |
| Coyote Discharge Line | 0.39 | 1.92 | - | 20.5 | - | - | - |
| | 1.53 | 1.92 | 79.5 | - | - | - | - |
| Coyote-Madrone Half Road Pipeline | 4.81 | 4.81 | 100.0 | - | - | - | - |
| Cross Valley Pipeline | 0.69 | 32.89 | - | - | 2.1 | - | - |
| | 1.78 | 32.89 | - | - | - | 5.4 | - |
| | 2.61 | 32.89 | - | 7.9 | - | - | - |
| | 27.81 | 32.89 | 84.6 | - | - | - | - |
| Cross Valley Pipeline Extension | 0.58 | 5.41 | - | - | - | 10.7 | - |
| | 0.64 | 5.41 | - | - | 11.8 | - | - |
| | 0.72 | 5.41 | - | - | - | - | 13.3 |
| | 1.14 | 5.41 | - | 21.0 | - | - | - |
| | 2.33 | 5.41 | 43.2 | - | - | - | - |
| East Evergreen Pipeline | 0.63 | 25.52 | - | - | - | - | 2.5 |
| | 0.82 | 25.52 | - | - | 3.2 | - | - |
| | 1.87 | 25.52 | - | - | - | 7.3 | - |
| | 4.49 | 25.52 | - | 17.6 | - | - | - |
| | 17.71 | 25.52 | 69.4 | - | - | - | - |
| Ed Levin County Park Turnout | 0.07 | 0.07 | 100.0 | - | - | - | - |
| Guadalupe Percolation Pipeline | 0.11 | 3.40 | - | 3.1 | - | - | - |
| | 0.26 | 3.40 | - | - | - | 7.6 | - |
| | 0.89 | 3.40 | 26.1 | - | - | - | - |
| | 2.15 | 3.40 | - | - | - | - | 63.2 |
| Helmsley/Capitol Percolation Pipeline | 0.29 | 3.08 | - | 9.3 | - | - | - |
| | 0.37 | 3.08 | - | - | 12.0 | - | - |
| | 0.57 | 3.08 | 18.6 | - | - | - | - |
| | 1.85 | 3.08 | - | - | - | 60.1 | - |
| Hetch-Hetchy Intertie | 0.11 | 0.73 | 15.0 | - | - | - | - |
| | 0.62 | 0.73 | - | 85.0 | - | - | - |
| Kooser Percolation Pipeline | 1.29 | 1.29 | 100.0 | - | - | - | - |

Table 7. Extent of Buried Site Potential in Relation to Each Pipeline *continued*.

| Pipeline | Acreage of Line with 5-meter Buffer | Total Acreage of Line with 5-meter Buffer | Sensitivity | | | | |
|---|---|---|---|---|---|---|---|
| | | | Lowest (%) | Low (%) | Moderate (%) | High (%) | Highest (%) |
| Los Capitancillos Percolation Pipeline | 0.18 | 2.32 | - | - | 8.0 | - | - |
| | 0.74 | 2.32 | 32.1 | - | - | - | - |
| | 1.39 | 2.32 | - | - | - | 59.9 | - |
| Main Avenue Pipeline | 0.71 | 5.62 | - | 12.7 | - | - | - |
| | 4.91 | 5.62 | 87.3 | - | - | - | - |
| McGlincy Pipeline | 0.06 | 0.06 | 100.0 | - | - | - | - |
| Milpitas Pipeline | 0.29 | 18.43 | - | - | 1.6 | - | - |
| | 7.43 | 18.43 | - | 40.3 | - | - | - |
| | 10.71 | 18.43 | 58.1 | - | - | - | - |
| Mountain View Distributary | 4.81 | 4.81 | 100.0 | - | - | - | - |
| Overfelt Garden Percolation Distribution System | 0.22 | 2.14 | - | - | 10.3 | - | - |
| | 0.26 | 2.14 | - | - | - | 12.1 | - |
| | 0.61 | 2.14 | 28.7 | - | - | - | - |
| | 1.05 | 2.14 | - | 49.0 | - | - | - |
| Pacheco Conduit | 0.41 | 31.64 | - | 1.3 | - | - | - |
| | 0.82 | 31.64 | - | - | 2.6 | - | - |
| | 5.86 | 31.64 | - | - | - | 18.5 | - |
| | 6.96 | 31.64 | - | - | - | - | 22.0 |
| | 17.59 | 31.64 | 55.6 | - | - | - | - |
| Pacheco Tunnel | 21.31 | 21.31 | 100.0 | - | - | - | - |
| Page Distribution System | 2.02 | 2.02 | 100.0 | - | - | - | - |
| Parallel East Pipeline | 0.59 | 9.33 | - | - | - | - | 6.3 |
| | 0.62 | 9.33 | - | - | 6.6 | - | - |
| | 1.13 | 9.33 | - | - | - | 12.2 | - |
| | 1.44 | 9.33 | - | 15.5 | - | - | - |
| | 5.55 | 9.33 | 59.5 | - | - | - | - |
| Penitencia Delivery Main | 1.96 | 1.96 | 100.0 | - | - | - | - |
| Penitencia Force Main | 2.11 | 2.11 | 100.0 | - | - | - | - |
| Rinconada Force Main | 0.05 | 5.70 | - | - | - | - | 0.9 |
| | 0.66 | 5.70 | - | 11.5 | - | - | - |
| | 4.99 | 5.70 | 87.6 | - | - | - | - |
| San Pedro Percolation Bypass Pipeline | 1.89 | 1.89 | 100.0 | - | - | - | - |
| San Pedro Percolation Pipeline | 1.99 | 1.99 | 100.0 | - | - | - | - |
| Santa Clara Conduit | 3.12 | 84.11 | - | - | - | - | 3.7 |
| | 5.53 | 84.11 | - | - | 6.6 | - | - |
| | 7.32 | 84.11 | - | 8.7 | - | - | - |
| | 10.78 | 84.11 | - | - | - | 12.8 | - |
| | 57.36 | 84.11 | 68.2 | - | - | - | - |

Table 7. Extent of Buried Site Potential in Relation to Each Pipeline *continued*.

| Pipeline | Acreage of Line with 5-meter Buffer | Total Acreage of Line with 5-meter Buffer | Sensitivity | | | | |
|---|---|---|---|---|---|---|---|
| | | | Lowest (%) | Low (%) | Moderate (%) | High (%) | Highest (%) |
| Santa Clara Distributary | 0.44 | 16.48 | - | - | 2.7 | - | - |
| | 3.87 | 16.48 | - | 23.5 | - | - | - |
| | 3.88 | 16.48 | - | - | - | 23.6 | - |
| | 8.29 | 16.48 | 50.3 | - | - | - | - |
| Santa Clara Tunnel | 3.84 | 3.84 | 100.0 | - | - | - | - |
| Santa Teresa Force Main | 0.24 | 1.10 | - | - | - | - | 22.0 |
| | 0.86 | 1.10 | 78.1 | - | - | - | - |
| Santa Teresa Tunnel | 2.48 | 2.48 | 100.0 | - | - | - | - |
| Snell Pipeline | 1.13 | 31.39 | - | - | 3.6 | - | - |
| | 1.36 | 31.39 | - | - | - | - | 4.3 |
| | 2.17 | 31.39 | - | - | - | 6.9 | - |
| | 5.10 | 31.39 | - | 16.3 | - | - | - |
| | 21.63 | 31.39 | 68.9 | - | - | - | - |
| South Bay Aqueduct Flowmeter/Dumbarton Quarry Surface Water Turnout | 0.05 | 0.05 | 100.0 | - | - | - | - |
| South County Recycled Water Pipeline | 3.84 | 73.72 | - | - | 5.2 | - | - |
| | 6.18 | 73.72 | - | - | - | - | 8.4 |
| | 11.06 | 73.72 | - | - | - | 15.0 | - |
| | 15.44 | 73.72 | - | 20.9 | - | - | - |
| | 37.20 | 73.72 | 50.5 | - | - | - | - |
| Stevens Creek Pipeline | 0.00 | 28.06 | - | - | 0.0 | - | - |
| | 0.66 | 28.06 | - | - | - | - | 2.4 |
| | 0.77 | 28.06 | - | - | - | 2.8 | - |
| | 2.34 | 28.06 | - | 8.3 | - | - | - |
| | 24.28 | 28.06 | 86.6 | - | - | - | - |
| Sunnyvale Distributary | 0.45 | 1.90 | - | - | - | 23.5 | - |
| | 1.45 | 1.90 | 76.5 | - | - | - | - |
| Uvas-Llagas Transfer Pipeline | 0.30 | 12.70 | - | - | 2.3 | - | - |
| | 0.56 | 12.70 | - | - | - | - | 4.4 |
| | 0.61 | 12.70 | - | - | - | 4.8 | - |
| | 1.18 | 12.70 | - | 9.3 | - | - | - |
| | 10.05 | 12.70 | 79.2 | - | - | - | - |
| West Pipeline | 0.38 | 36.32 | - | - | 1.1 | - | - |
| | 0.71 | 36.32 | - | - | - | - | 2.0 |
| | 1.00 | 36.32 | - | - | - | 2.8 | - |
| | 1.45 | 36.32 | - | 4.0 | - | - | - |
| | 32.78 | 36.32 | 90.3 | - | - | - | - |
| Wolfe Road Pipeline | 10.20 | 10.20 | 100.0 | - | - | - | - |
| **Total Acreage and Percent of Sensitivity within Valley Water Pipelines** | **613.33 acres** | **-** | **74.5** | **11.2** | **1.8** | **7.1** | **5.4** |

## DECISION THRESHOLDS AND RECOMMENDED EFFORT

Simply put, cultural resources first must be identified if they are to be avoided, sampled, or otherwise managed. However, this can be problematic where sediment deposition, artificial cutting and filling, and other landscape changes severely limit the ability to identify sites using standard survey methods. Fortunately, the additional costs and/or unexpected scheduling delays that can typically result when an archaeological resource is "accidentally discovered" during active construction may be reduced or avoided when sites are identified in advance of project-related activities (e.g., earth moving). Because sites can be impacted both horizontally and vertically (i.e., depth), it is important to know if earth disturbances are planned, and where they will occur in different parts of a project area.

When assessing if further study or fieldwork might be needed it is crucial to consider: (1) the location and three-dimensional extent of project-related earth disturbances; (2) the estimated potential for buried sites to occur where project earthmoving is planned; and (3) whether project activities might result in any adverse impact to known or potentially unknown archaeological sites. Thus, from a design or management perspective, understanding these factors provides a mechanism for deciding if further work is needed, and a gauge for anticipating what level of effort may be appropriate for particular projects and project areas.

To this end, the buried site potential map offers a rational basis to make informed decisions about: (1) the potential for archaeological deposits in different areas; (2) whether additional study is needed to determine if archaeological sites are present or absent; and (3) the appropriate field methods and level of effort needed to determine if a given part of program area may contain previously unidentified sites. If integrated and used appropriately, this type of information offers a means to explicitly address the "good-faith effort" identification requirement, while helping ensure that potentially important cultural resources are found, and not adversely affected by an undertaking.

When estimating the level of field effort, the overall chances of identifying buried sites increase when appropriate exploration methods are used in proportion to the size of the impact area, both vertically and horizontally. Conversely, the chances of site identification are reduced when explorations are confined to a few locations within a large impact zone. Generally speaking, efforts should initially focus on areas of High or Highest potential where deep and/or extensive earthmoving is proposed, such as earthen dams, detention basins, and underground footings, foundations, structures, tunnels, etcetera. The suggested thresholds and level of effort for specific buried site potential levels are summarized in Table 8 along with the suggested subsurface exploration test intervals for each.

Table 8. Testing Recommendations Based on Buried Site Potential.

| Buried Potential | Field Testing | Level of Effort | Test Intervals |
|---|---|---|---|
| Highest | Usually needed | Maximum | 20 to 40 meters |
| High | Often needed | Intensive | 40 to 80 meters |
| Moderate | Sometimes needed | Focused or cursory | 80 to 120 meters |
| Low | Rarely needed | Minimum | Variable |
| Lowest | Usually not needed | None | None |

While no subsurface exploration may be needed in most of the Low potential area, some limited investigation may occasionally be warranted if additional information becomes available (e.g., buried site is found). Finally, in areas with the Lowest potential, subsurface investigation will generally not be warranted unless there is a compelling reason, such as field observations that suggest otherwise. Occasional exploration at larger sampling intervals may be warranted in some lesser potential areas, especially those that may be located about 30 meters (~100 feet) or less from an area of High or Highest potential. If no buried soils are present within the depth-range of project impacts, then additional subsurface testing may not be necessary.

If buried sites or soils buried by Holocene-age deposits are found within the range of impacts, then additional exploration may be required to determine if archaeological remains are present or absent.

Since the overall utility of the model can only be evaluated if it is systematically tested in the field, most of the subsurface survey effort should first be directed to the High and Highest potential areas. If no buried sites are encountered in these areas after a reasonable amount of investigation (i.e., several moderate to large projects), then the model should be re-evaluated and possibly revised. If buried sites are regularly found in those areas, then additional effort by future projects should also be devoted to the Moderate potential areas, especially given that the revised model is far more conservative than the previous model. This should be done to determine if the potential for buried sites in these zones is higher or lower than estimated by the revised model. Suggested strategies and methods for subsurface explorations are discussed below.

## SUBSURFACE EXPLORATION STRATEGY AND METHODS

The use of a backhoe or coring rig to explore subsurface deposits for buried sites has become a standard "best practice" in California. Proactive exploratory testing or studies can provide detailed information about the age and nature of the underlying deposits that can then be used to assess whether there is a need for further work in the same vicinity; a benefit rarely derived from archaeological monitoring. For example, the position of former stream channels may be determined from core samples or trench profiles; deposits can be dated to refine the timing of landscape evolution; and older sites can be incorporated into the model as they are identified. The results and site-specific data from these field studies can then be evaluated, as part of an iterative process or long-term program, to help refine and improve the predictive power (i.e., success rate) of the existing models.

While appropriate exploratory methods must be used to successfully locate buried sites, the practical ability to access and sample subsurface deposits may be affected by logistical limitations, safety constraints hazards, and/or environmental restrictions. Although trenching is generally the most efficient and effective method for identifying buried sites in most settings (Monaghan et al. 2006), it is often not feasible or practical to excavate an open trench in many urban areas, or in locations where the vertical impacts exceed the maximum depths normally reached by a backhoe or excavator. In these situations, exploratory coring (boring) may be the only viable method, which has successfully been used to identify buried sites in the San Francisco Bay area. When coring is needed, it is imperative that continuous samples are recovered using direct push devices such as a "Geoprobe," at least through deposits that are Historical or Holocene in age. Coring is also effective in settings where the underlying deposits are soft or saturated with water, but it is sometimes less effective in coarse or rocky deposits (e.g., sand, gravel, cobbles) or areas with concrete or other artificial debris.

If archaeological deposits are identified by trenching and/or coring, then some additional exploration may be needed to sample the deposits to determine their general nature and extent as part of the identification phase. Radiocarbon dating of organic samples can be used to determine the age of the deposits and/or buried soils that may occur above or below an archaeological deposit. The age and depth of deposits can provide meaningful targets for further archaeological investigations and/or construction monitoring, if required. Radiocarbon dates may also provide information about the data potential of a site, and if additional archaeological study or mitigations measures are required (i.e., testing, evaluation, data recovery).

As a related matter, greater crowding and congestion of urban landscapes will likely make future exploratory studies more ineffective, difficult, and costly to complete. If Valley Water intends to maintain the existing facilities, pipelines, and associated right-of-way and easements in perpetuity, then it is urgent that such studies be completed sooner than later to reduce increased costs and avoid future logistical complications.

Thus, as a matter of best practice, it is recommended that subsurface explorations be accomplished early in the design and planning process so that the added challenges which arise if archaeological sites are discovered and/or impacted during maintenance or construction are reduced or eliminated.

## INTERESTED PARTIES COORDINATION

A request for a search of the Sacred Lands File (SLF) maintained by the NAHC and Tribal Contact List was sent to the NAHC on February 8, 2023, by Far Western Assistant Project Manager, Patricia Galindo Mayo. The request encompassed the entire program area. The NAHC responded on February 20, 2023, with positive results for sacred lands within the program area. They also provided a list of 23 tribal representatives for Santa Clara, Merced, and San Benito counties, inclusive of three individuals from the Tamien Nation and the Muwekma Ohlone Indian Tribe of the San Francisco Bay who requested consultation with Valley Water under AB 52. A supplemental SLF search request was sent to the NAHC on August 18, 2023, in response to the addition of the Alamitos Pipeline; the NAHC responded on August 27, 2023, with positive results for sacred lands and sent an updated contact list of 37 tribal representatives for Santa Clara, Merced, and San Benito Counties (Appendix B).

Outreach with the 37 Native American representatives identified by the NAHC was conducted by Valley Water, with Far Western's support. Letters and maps were mailed via US Postal Service on September 20, 2023, by Far Western Assistant Project Manager Patricia Galindo Mayo to all tribal representatives (Table 9). The letters served as outreach to all tribal parties as part of the identification phase of the project as well as formal notification of the updated PMP and Subsequent PEIR, as required under CEQA, specifically Public Resources Code 21080.3.1 and Chapter 532 Statutes of 2014 (i.e., AB 52) with regard to the Tamien Nation and Muwekma Ohlone Indian Tribe of the San Francisco Bay. Valley Water requested a response within 30 days of receipt regarding knowledge of cultural resources, sacred lands, or other heritage sites that may be potentially impacted by future PMP pipeline maintenance activities and requested a designated lead point of contact. Individuals were encouraged to contact Valley Water Environmental Planner, Mike Coleman with questions or concerns regarding the preparation of the updated PMP and Subsequent PEIR. One individual responded. Cultural Resource Coordinator Audrey Gower of the Tuolumne Band of Me-Wuk Indians informed Mike Coleman via email that the project area is located outside of their ancestral area (Appendix B). No additional responses have been received.

Tribal contacts will be notified by Valley Water upon completion of the updated PMP and Subsequent PEIR. For all future pipeline maintenance activities, the NAHC will be contacted by an appointed representative of Valley Water on a project-by-project basis to request a search of their Sacred Lands File and to obtain a list of potentially interested tribal representatives. Representatives will be consulted on a project-specific basis and asked to comment or provide information that may be helpful for protecting or treating important sites and Tribal Cultural Resources. The Tamien Nation and Muwekma Ohlone Indian Tribe of the San Francisco Bay are listed on Valley Water's AB 52 list and will be invited to consult with Valley Water on a project-by-project basis. Formal consultation beyond those on the AB 52 list currently held by Valley Water shall be at the discretion of Valley Water.

Table 9. Interested Parties Consultation Tracking.

| County | Contact Details | Additional Contact Information | Cultural Affiliation | Outreach Type | Result of Outreach |
|---|---|---|---|---|---|
| Merced | Andrea Reich, Chairperson<br>Tuolumne Band of Me-Wuk Indians<br>P.O. Box 699<br>Tuolumne, CA, 95379 | Phone: (209) 928-5300<br>Fax: (209) 928-1677<br>Email: andrea@mewuk.com | Me-Wuk | Letter via USPS:<br>September 20, 2023 | Email response:<br>Project area is outside tribe's ancestral area. |
| Santa Clara | Andrew Galvan, Chairperson<br>The Ohlone Indian Tribe<br>P.O. Box 3388<br>Fremont, CA, 94539 | Phone: (510) 882-0527<br>Fax: (510) 687-9393<br>Email: chochenyo@AOL.com | Bay Miwok<br>Ohlone<br>Patwin<br>Plains Miwok | Letter via USPS:<br>September 20, 2023 | No response to date. |
| San Benito; Santa Clara | Ann Marie Sayers, Chairperson<br>Indian Canyon Mutsun Band of Costanoan<br>P.O. Box 28<br>Hollister, CA, 95024 | Phone: (831) 637-4238<br>Email: ams@indiancanyon.org | Costanoan | Letter via USPS:<br>September 20, 2023 | No response to date. |
| Merced | Brenda Lavell, Chairperson<br>Table Mountain Rancheria<br>P.O. Box 410<br>Friant, CA, 93626 | Phone: (559) 822-2587<br>Fax: (559) 822-2693<br>Email: rpennell@tmr.org | Yokut | Letter via USPS:<br>September 20, 2023 | No response to date. |
| Santa Clara; Merced | Charlene Nijmeh, Chairperson<br>Muwekma Ohlone Indian Tribe of the SF Bay Area<br>20885 Redwood Road, Suite 232<br>Castro Valley, CA, 94546 | Phone: (408) 464-2892<br>Email: cnijmeh@muwekma.org | Costanoan | Letter via USPS:<br>September 20, 2023 | No response to date. |
| Santa Clara | Cheyenne Gould, Tribal Cultural Resource Manager<br>Confederated Villages of Lisjan Nation<br>10926 Edes Ave<br>Oakland, CA, 94603 | Phone: (510) 575-8408<br>Email: cvltribe@gmail.com | Bay Miwok<br>Ohlone<br>Delta Yokut | Letter via USPS:<br>September 20, 2023 | No response to date. |
| Santa Clara | Corrina Gould, Chairperson<br>Confederated Villages of Lisjan Nation<br>10926 Edes Avenue<br>Oakland, CA, 94603 | Phone: (510) 575-8408<br>Email: cvltribe@gmail.com | Bay Miwok<br>Ohlone<br>Delta Yokut | Letter via USPS:<br>September 20, 2023 | No response to date. |
| Merced | Cosme Valdez, Chairperson<br>Nashville Enterprise Miwok-Maidu-Nishinam Tribe<br>P.O. Box 580986<br>Elk Grove, CA, 95758-0017 | Phone: (916) 396-1173<br>Email: valdezcome@comcast.net | Miwok | Letter via USPS:<br>September 20, 2023 | No response to date. |
| Santa Clara | Deja Gould, Language Program Manager<br>Confederated Villages of Lisjan Nation<br>10926 Edes Ave<br>Oakland, CA, 94603 | Phone: (510) 575-8408<br>Email: cvltribe@gmail.com | Bay Miwok<br>Ohlone<br>Delta Yokut | Letter via USPS:<br>September 20, 2023 | No response to date. |

Table 9. Interested Parties Consultation Tracking *continued*.

| COUNTY | CONTACT DETAILS | ADDITIONAL CONTACT INFORMATION | CULTURAL AFFILIATION | OUTREACH TYPE | RESULT OF OUTREACH |
|---|---|---|---|---|---|
| Santa Clara | Desiree Vigil, THPO<br>The Ohlone Indian Tribe<br>1775 Marco Polo Way, Apt. 21<br>Burlingame, CA, 94010 | Phone: (650) 290-0245<br>Email: dirwin0368@yahoo.com | Bay Miwok<br>Ohlone<br>Patwin<br>Plains Miwok | Letter via USPS: September 20, 2023 | No response to date. |
| San Benito; Santa Clara; Merced | Ed Ketchum, Vice-Chairperson<br>Amah Mutsun Tribal Band<br>P.O. Box 5272<br>Galt, CA 95632 | Phone: (530) 578-3864<br>Email: aerieways@aol.com | Costanoan<br>Northern Valley Yokut | Letter via USPS: September 20, 2023 | No response to date. |
| Merced | Fred Beihn, Chairperson<br>North Fork Rancheria of Mono Indians<br>P.O. Box 929<br>North Fork, CA, 93643 | Phone: (559) 877-2461<br>Fax: (559) 877-2467<br>Email: fbeihn@nfr-nsn.gov | Mono | Letter via USPS: September 20, 2023 | No response to date. |
| Merced | Heather Airey, Tribal Historic Preservation OfficerPicayune Rancheria of the Chukchansi Indians<br>P.O. Box 2226<br>Oakhurst, CA, 93644 | Phone: (559) 795-5986Email: hairey@chukchansi-nsn.gov | Foothill Yokut | Letter via USPS: September 20, 2023 | No response to date. |
| San Benito; Santa Clara | Irene Zwierlein, Chairperson<br>Amah Mutsun Tribal Band of Mission San Juan Bautista<br>3030 Soda Bay Road<br>Lakeport, CA, 95453 | Phone: (650) 851-7489<br>Fax: (650) 332-1526<br>Email: amahmutsuntribal@gmail.com | Costanoan | Letter via USPS: September 20, 2023 | No response to date. |
| Merced | Janet Bill, Chairperson<br>Picayune Rancheria of the Chukchansi Indians<br>P.O. Box 2226<br>Oakhurst, CA, 93644 | Phone: (559) 580-4457<br>Email: council@chukchansi-nsn.gov | Foothill Yokut | Letter via USPS: September 20, 2023 | No response to date. |
| Santa Clara | Johnathan Wasaka Costillas, THPO<br>Tamien Nation<br>10721 Pingree Road<br>Clearlake Oaks, CA, 94523 | Phone: (925) 336-5359<br>Email: thpo@tamien.org | Costanoan | Letter via USPS: September 20, 2023 | No response to date. |
| San Benito; Santa Clara | Kanyon Sayers-Roods, MLD Contact<br>Indian Canyon Mutsun Band of Costanoan<br>1615 Pearson Court<br>San Jose, CA, 95122 | Phone: (408) 673-0626<br>Email: kanyon@kanyonkonsulting.com | Costanoan | Letter via USPS: September 20, 2023 | No response to date. |

Table 9. Interested Parties Consultation Tracking *continued*.

| County | Contact Details | Additional Contact Information | Cultural Affiliation | Outreach Type | Result of Outreach |
|---|---|---|---|---|---|
| San Benito | Karen White, Chairperson<br>Xolon-Salinan Tribe<br>P.O. Box 7045<br>Spreckels, CA, 93962 | Phone: (831) 455-1012<br>Email:<br>xolon.salinan.heritage@gmail.com | Salinan | Letter via USPS:<br>September 20, 2023 | No response to date. |
| San Benito; Santa Clara; Merced | Katherine Perez, Chairperson<br>North Valley Yokuts Tribe<br>P.O. Box 717<br>Linden, CA, 95236 | Phone: (209) 887-3415<br>Email: canutes@verizon.net | Costanoan Northern Valley Yokut | Letter via USPS:<br>September 20, 2023 | No response to date. |
| San Benito; Santa Clara; Merced | Kenneth Woodrow, Chairperson<br>Wuksachi Indian Tribe/Eshom Valley Band<br>1179 Rock Haven Ct.<br>Salinas, CA, 93906 | Phone: (831) 443-9702<br>Email: kwood8934@aol.com | Foothill Yokut Mono | Letter via USPS:<br>September 20, 2023 | No response to date. |
| Merced | Leland Valdez, Cultural Resources<br>Nashville Enterprise Miwok-Maidu-Nishinam Tribe<br>P.O. Box 580986<br>Elk Grove, CA 95758 | Phone: (916) 429-8047 | Miwok | Letter via USPS:<br>September 20, 2023 | No response to date. |
| San Benito; Merced | Leo Sisco, Chairperson<br>Santa Rosa Rancheria Tachi Yokut Tribe<br>P.O. Box 8<br>Lemoore, CA, 93245 | Phone: (559) 924-1278<br>Fax: (559) 924-3583 | Southern Valley Yokut | Letter via USPS:<br>September 20, 2023 | No response to date. |
| Santa Clara | Lillian Camarena, Secretary<br>Tamien Nation<br>336 Percy Street<br>Madera, CA, 93638 | Phone: (559) 363-5914<br>Email: Lcamarena@tamien.org | Costanoan | Letter via USPS:<br>September 20, 2023 | No response to date. |
| Merced | Lloyd Mathiesen, Chairperson<br>Chicken Ranch Rancheria of Me-Wuk Indians<br>P.O. Box 1159<br>Jamestown, CA, 95327 | Phone: (209) 984-9066Fax: (209) 984-9269Email:<br>lmathiesen@crtribal.com | Me-Wuk | Letter via USPS:<br>September 20, 2023 | No response to date. |
| Merced | Mary Stalter, Environmental/Heritage Manager<br>North Fork Rancheria of Mono Indians<br>P.O. Box 929<br>North Fork, CA, 93643 | Phone: (559) 877-2461<br>Email: mstalter@nfr-nsn.gov | Mono | Letter via USPS:<br>September 20, 2023 | No response to date. |

Table 9. Interested Parties Consultation Tracking *continued*.

| COUNTY | CONTACT DETAILS | ADDITIONAL CONTACT INFORMATION | CULTURAL AFFILIATION | OUTREACH TYPE | RESULT OF OUTREACH |
|---|---|---|---|---|---|
| Merced | Michael Wynn, Tribal Administrator<br>Picayune Rancheria of the Chukchansi Indians<br>P.O. Box 2226<br>Oakhurst, CA, 93644 | Phone: (559) 795-4228<br>Email: mwynn@chukchansi-nsn.gov | Foothill Yokut | Letter via USPS: September 20, 2023 | No response to date. |
| Santa Clara; Merced | Monica Arellano, Vice Chairwoman<br>Muwekma Ohlone Indian Tribe of the SF Bay Area<br>20885 Redwood Road, Suite 232<br>Castro Valley, CA, 94546 | Phone: (408) 205-9714<br>Email: monicavarellano@gmail.com | Costanoan | Letter via USPS: September 20, 2023 | No response to date. |
| San Benito; Merced | Neil Peyron, Chairperson<br>Tule River Indian Tribe<br>P.O. Box 589<br>Porterville, CA, 93258 | Phone: (559) 781-4271<br>Fax: (559) 781-4610<br>Email: neil.peyron@tulerivertribe-nsn.gov | Yokut | Letter via USPS: September 20, 2023 | No response to date. |
| San Benito | Patti Dunton, Tribal Administrator<br>Salinan Tribe of Monterey, San Luis Obispo Counties<br>8270 Morro Rd.<br>Atascadero, CA, 93422 | Phone: (805) 464-2650<br>Email: info@salinantribe.com | Salinan | Letter via USPS: September 20, 2023 | No response to date. |
| San Benito | Penny Hurt, Cultural Preservation Administrator<br>Xolon-Salinan Tribe<br>P.O. Box 7045<br>Spreckels, CA, 93962 | Phone: (805) 453-3675<br>Email: phurt6700@gmail.com | Salinan | Letter via USPS: September 20, 2023 | No response to date. |
| Santa Clara | Quirina Luna Geary, Chairperson<br>Tamien Nation<br>PO Box 8053<br>San Jose, CA, 95155 | Phone: (707) 295-4011<br>Email: qgeary@tamien.org | Costanoan | Letter via USPS: September 20, 2023 | No response to date. |
| Merced | Robert Ledger, Chairperson<br>Dumna Wo-Wah Tribal Government<br>2191 West Pico Ave.<br>Fresno, CA, 93705 | Phone: (559) 540-6346<br>Email: ledgerrobert@ymail.com | Foothill Yokut<br>Mono | Letter via USPS: September 20, 2023 | No response to date. |
| San Benito | Robert Piatti, Cultural Protection Lead<br>Salinan Tribe of Monterey, San Luis Obispo Counties<br>8270 Morro Rd.<br>Atascadero, CA, 93422 | Phone: (805) 464-2650<br>Email: quiggyllynn@gmail.com | Salinan | Letter via USPS: September 20, 2023 | No response to date. |
| Merced | Sandra Chapman, Chairperson<br>Southern Sierra Miwuk Nation<br>P.O. Box 186<br>Mariposa, CA, 95338 | Phone: (559) 580-7871<br>Email: sandra47roy@gmail.com | Miwok<br>Northern Valley Yokut<br>Paiute | Letter via USPS: September 20, 2023 | No response to date. |

Table 9. Interested Parties Consultation Tracking *continued*.

| COUNTY | CONTACT DETAILS | ADDITIONAL CONTACT INFORMATION | CULTURAL AFFILIATION | OUTREACH TYPE | RESULT OF OUTREACH |
|---|---|---|---|---|---|
| San Benito; Santa Clara; Merced | Timothy Perez<br>North Valley Yokuts Tribe<br>P.O. Box 717 Linden, CA, 95236 | Phone: (209) 662-2788<br>Email: huskanam@gmail.com | CostanoanNorthern Valley Yokut | Letter via USPS: September 20, 2023 | No response to date. |
| San Benito; Santa Clara; Merced | Valentin Lopez, Chairperson<br>Amah Mutsun Tribal Band<br>P.O. Box 5272<br>Galt, CA, 95632 | Phone: (916) 743-5833<br>Email: vjltestingcenter@aol.com | Costanoan<br>Northern Valley Yokut | Letter via USPS: September 20, 2023 | No response to date. |
| Santa Clara | Vincent Medina, Tribal Consultant<br>The Ohlone Indian Tribe<br>17365 Via Del Rey<br>San Lorenzo, CA, 94580 | Phone: (510) 610-7587<br>Email:<br>vincent.d.medina@gmail.com | Bay Miwok<br>Ohlone<br>Patwin<br>Plains Miwok | Letter via USPS: September 20, 2023 | No response to date. |

Note: USPS – US Postal Service; THPO – Tribal Historic Preservation Officer; MLD – Most Likely Descendant.

## RECOMMENDED BEST MANAGEMENT PRACTICES FOR CULTURAL RESOURCES (by Jeffrey Rosenthal)

This section presents a series of general recommendations (or "best management practices") to be employed by Valley Water prior to and during ground-disturbing maintenance activities, based on background research, a records search (for prior studies and known sites), and buried site sensitivity model. Protocols are adapted from *Prehistoric Archaeological Sensitivity Assessment of 26 Transit-Oriented Development Locations in Santa Clara County, California* (Kaijankoski 2018).

### ACTIONS TO BE TAKEN PRIOR TO DISTURBANCE OR EXCAVATION OF NATIVE (NON-FILL) SEDIMENTS

Prior to the initiation of excavation activities that will disturb native soil under the PMP, a cultural resources specialist will conduct a records search to determine whether known cultural resources are present within the program work area and whether the program work area has been previously studied. The record search will be conducted by a professional archaeologist at the Northwest Information Center of the California Historical Resource Information System, Sonoma State University, Rohnert Park. The record search will document cultural resources with a one-quarter mile radius of the planned excavation boundaries, and will obtain all pertinent cultural resources documents, maps, and records needed to assess the program area's potential to contain significant cultural resources. A records search will not be necessary for work along Valley Water facilities for which a records search or cultural resource inventory study has been carried out within the past five years (including the facilities studied in *Records Search and Literature Review for Eight Valley Water Pipelines,* see page 36).

A cultural resources inventory (survey) of the program area should be conducted if the record search results reveal that a survey has not been conducted or was conducted more than five years ago. The survey will document whether surface cultural materials (historic-era or precontact) are present within the program work area. The results of the record search and, if needed, cultural resources inventory will be presented in a report to Valley Water along with recommendations on how to proceed.

Valley Water conducted outreach in 2023 with 37 Native American representatives identified by the NAHC. Letters and maps were mailed via US Postal Service to tribal parties as part of the identification phase for the cultural studies of the Alamitos Pipeline, Almaden Valley Pipeline, Pacheco Conduit, Pacheco Tunnel, Santa Clara Conduit, Santa Clara Tunnel, Snell Pipeline, and West Pipeline. The letters also served as formal notification of the updated PMP and Subsequent PEIR. For all future pipeline maintenance activities within Valley Water's program work areas, formal consultation with the Native American community will be conducted as required by Valley Water's obligations under CEQA (e.g., AB 52). In addition, Valley Water will contact the NAHC for a search of their Sacred Lands File and a list of Native American representatives (with whom Valley Water may choose to either formally consult with or engage in coordination with), who may have input regarding potential areas of concern. Tribes may provide monitoring services. A Native American Monitor should be present during excavations at or near known precontact archaeological sites, Tribal Cultural Resources, and sites with known Native American burials. If Native American human remains are found during any field investigations, they must be treated with the utmost respect. All provisions of California Health and Safety Code Sections 7054 and 7050.5 and Public Resources Code Sections 5097.9 through 5097.99, as amended per Assembly Bill 2641, must be followed.

If a program activity involves excavation of subsurface sediments in an area classified as Highest to Moderate potential for buried cultural deposits (see *Assessment of the Potential for Buried Archaeological Resources*, page 41), a professional archaeologist should be consulted as to the best course of action. This might entail preemptive backhoe work or monitoring of excavations to determine the presence or absence of buried sites.

If cultural resources are documented in the program work area and cannot be avoided by the program activity, then they must be evaluated to determine whether they are eligible for listing on the National or California Register. If an eligible historic property or historical resource lies within the program work area and cannot be avoided, then impacts to the resource must be mitigated. If resources are present in the program work area that do not meet the threshold for eligibility, then no further action is necessary. Avoidance of cultural resources is always the preferred alternative at every stage of the process.

## ACTIONS TO BE TAKEN IN THE EVENT OF AN INADVERTENT DISCOVERY INCLUDING HUMAN REMAINS

Despite best efforts to identify cultural resources prior to excavation, it is possible that potentially significant cultural materials (e.g., intact features) may be encountered after the completion of archaeological survey, testing, or during construction. Therefore, all Valley Water project locations must include provisions for inadvertent discoveries regardless of whether further testing is recommended.

Construction plans should include site-specific information with emergency contact numbers for notification of appropriate staff if this occurs. If an unanticipated archaeological resource is encountered during construction, work in the immediate vicinity of the find shall cease until all requirements relating to archaeological discoveries have been satisfied. Whether found by an archaeologist or construction personnel, all ground-disturbing activities must be halted within approximately 100 feet from the discovery in all directions. The area must be secure from vandalism or further disturbance; a "no work" zone utilizing appropriate flagging must be created; and construction personnel (or an on-site archaeologist) must notify appropriate Valley Water staff. A qualified Consulting Archaeologist (if not on-site) should be notified and asked to evaluate the find and recommend further management actions. The Consulting Archaeologist will conduct a field assessment to determine if the discovery constitutes a potentially significant archaeological resource that requires further evaluation. The Consulting Archaeologist must be familiar with standard thresholds of eligibility for precontact and/or historic-era resources. If the find is deemed potentially significant, it must be covered and/or fenced for protection, and crews must move to a new location so that a more in-depth evaluation and mitigation (if needed) can occur according to established procedures set forth in the construction contract. The Consulting Archaeologist will conduct the evaluation consistent with the steps described below.

The Consulting Archaeologist shall provide Valley Water written and digital photographic documentation of all observed materials. They will also discuss site constituents utilizing the guidelines for evaluating archaeological resources for inclusion on the National and/or California Register to make recommendations concerning a site's eligibility. Based on the assessment, Valley Water shall identify the appropriate CEQA and Section 106 cultural resources compliance procedure to be implemented.

If the find does not appear to meet the criteria of the National or California Register, construction shall continue and, depending on the find, may require monitoring by the Consulting Archaeologist. The authorized maintenance work shall resume at the discovery site only after Valley Water Construction Manager has retained a Consulting Archaeologist to monitor the site during continued construction and the Environmental Services Unit Manager has provided authorization to the Valley Water Construction Manager to continue work.

If the find appears significant, avoidance of additional impacts is the preferred alternative. The Consulting Archaeologist shall determine if adverse impacts to the resources can be avoided. When avoidance is not feasible (e.g., maintenance activities cannot be deferred or they must be completed to satisfy the PMP objective), Valley Water shall develop an Action Plan. The Action Plan is synonymous with a data-recovery plan. It shall be prepared in accordance with the current professional standards and state and federal guidelines for reporting the results of the work and shall describe the services of a Native American Monitor and a proposal for curation of cultural materials recovered from a non-grave context. The recovery effort will be detailed in a report prepared by the Consulting Archaeologist in accordance with current archaeological standards.

In the event of the discovery of human remains (or the find consists of bones suspected to be human), the field crew supervisor shall take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent). A Valley Water representative will immediately notify the appropriate County Coroner and provide information that identifies the remains as Native American. If the remains are determined to be Native American, the Coroner shall contact the NAHC within 24 hours of being notified of the remains. The NAHC then designates and notifies within 24 hours a Most Likely Descendant (MLD). The MLD has 24 hours to consult and provide recommendations for the treatment or disposition, with proper dignity, of the human remains and any associated artifacts. Human remains shall be preserved *in situ* if continuation of the maintenance work, as determined by the Consulting Archaeologist and MLD, will not cause further damage to the remains (this is the preferred alternative). The remains and any associated artifacts shall be documented and the discovery location carefully backfilled (with protective geo-fabric if desirable) and recorded in Valley Water project files, Environmental Services Manager protected cultural resources files, and Valley Water library protected files.

If human remains, or associated burial items are exposed and cannot be protected from further damage, they shall be exhumed by the Consulting Archaeologist at the discretion of the MLD and reburied with the concurrence of the MLD in a place mutually agreed upon by all parties.

**SUMMARY**

The scope of work for the cultural analysis section of the updated 2024 Subsequent Program EIR included a records search at the NWIC and subsequent literature/archival review for eight of Valley Water's pipelines anticipated to need work within the foreseeable future (Alamitos Pipeline, Almaden Valley Pipeline, Pacheco Conduit, Pacheco Tunnel, Santa Clara Conduit, Santa Clara Tunnel, Snell Pipeline, and West Pipeline); a request for a search of the NAHC's Sacred Lands File for the entire program area; a request for a list of tribal representatives on file with the NAHC for San Benito, Santa Clara, and Merced counties; support for Valley Water's outreach efforts with the tribal representatives identified by the NAHC, informing them of the PMP and Subsequent PEIR's preparation and to inquire about known resources or areas of concern within the program area (including meeting Valley Water's obligations under AB 52); an update and expansion of the previous buried site sensitivity assessment model that was developed for the 2007 PEIR; updates to the previously prepared environmental, cultural, and historical contexts and research issues; and updates to the recommended protocols developed for the 2007 PEIR to be referenced when supplemental studies are needed for individual projects, as well as steps for avoiding impacts or minimizing impacts when significant resources are found as individual projects are undertaken.

As PMP activities are initiated over the life of the program, Native American consultation must be conducted according to all applicable laws and regulations. Archival research and a buried site sensitivity assessment must be conducted to assess the potential for archaeological sites at each project location. The majority of PMP activities have little or no potential for disturbing cultural resources. Only activities that involve excavation into native soil have the potential to affect cultural resources. Native American monitoring must be conducted during all excavations at or near known sites and in areas for high sensitivity for precontact archaeological resources. If significant deposits are identified, a qualified archaeologist must conduct an evaluation consistent with the steps described under *Recommended Best Management Practices for Cultural Resources*. The boundaries must be defined for avoidance. If avoidance is not feasible, then site evaluation and an eligibility determination must be conducted to determine if the portion of the site that would be impacted is eligible to the National and/or California Register (unless assumed eligible for the purposes of the project and completely avoided). If found eligible and avoidance is not feasible, mitigation would be necessary, which may include data recovery. Inadvertent discoveries could occur during construction at any of the program work sites despite the best efforts to identify all cultural resources. All construction contracts must include provisions for an inadvertent discovery protocol for archaeological resources.

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# APPENDIX A

## ABRIDGED RECORDS SEARCH RESULTS
**(*CONFIDENTIAL*)**

- Records Search Results – Previous Studies Table (Full Results)
- Records Search Results – Previous Studies Map (Full Results)
- Records Search Results – Previously Recorded Resources Table (Full Results)
- Records Search Results – Previously Recorded Resources Map (Full Results)
- Northwest Information Center CHRIS Data Request Form – January 9, 2023
- Northwest Information Center Results Memo (NWIC File No. 22-1043) – January 31, 2023
- Northwest Information Center CHRIS Data Request Form – August 16, 2023
- Northwest Information Center Results Memo (NWIC File No. 13-0228) – August 28, 2023

Location Information Redacted

**APPENDIX B**

**INTERESTED PARTIES COORDINATION**

- Native American Heritage Commission Request for Sacred Lands File Search and Contact List– February 8, 2023
- Native American Heritage Commission Response Letter & Contact List – Feruary 20, 2023
- Supplmental Native American Heritage Commission Request for Sacred Lands File Search and Contact List – August 18, 2023
- Supplemental Native American Heritage Commission Response Letter & Contact List – August 27, 2023
- Outreach Response from the Tuolumne Band of Me-Wuk Indians – November 3, 2023

**NATIVE AMERICAN HERITAGE COMMISSION REQUEST FOR SACRED LANDS FILE SEARCH AND CONTACT LIST – FEBRUARY 8, 2023**

## Sacred Lands File & Native American Contacts List Request

**Native American Heritage Commission**
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

*Information Below is Required for a Sacred Lands File Search*

**Project:** Pipeline Maintenance Program Environmental Impact Report and Permitting

**County:** Santa Clara, San Benito, and Merced

**USGS Quadrangle Name:** see attached list

**Township:**__________ **Range:**__________ **Section(s):**__________

**Company/Firm/Agency:** Far Western Anthropological Research Group, Inc.

**Street Address:** 2727 Del Rio Place, Suite A

**City:** Davis **Zip:** 95618

**Phone:** (530) 756-3941

**Fax:** N/A

**Email:** patty@farwestern.com

**Project Description:**

The Santa Clara Valley Water District (District) recently updated their Pipeline Maintenance Program (PMP) to bring it to current field and regulatory practices and to expand its scope for the maintenance of pipelines throughout the Santa Clara Valley. The District is preparing a corresponding Program Environmental Impact Report (EIR) under the California Environmental Quality Act (CEQA). There is no specific project at this time, however, the District would like to identify potential resources on the entire pipeline system, and to initiate consultation with interested Native American groups regarding future maintenance activities.

## USGS Quadrangle Name, Township, Range, and Section(s)

Cupertino, California 7.5-minute Quadrangle, 1980
T6S R2W Sect. 33 and T7S R2W Sect. 3, 4, 9, 10, MDB&M
Santa Clara County

Cupertino, California 7.5-minute Quadrangle, 1980
T7S R2W Sect. 10, 11, 14, 15, 23, 25, 26, MDB&M
Santa Clara County

Cupertino (1980) and San Jose West (1980), California 7.5-minute Quadrangles
T7S R1W Sect. 31, 32 and T7S R2W Sect. 25, 36, MDB&M
Santa Clara County

Cupertino, California 7.5-minute Quadrangle, 1980
T6S R1W Sect. 30, 31 and T7S R1W Sect. 6, 7, MDB&M
Santa Clara County

Cupertino (1980) and San Jose West (1980), California 7.5-minute Quadrangles
T7S R1W Sect. 17, 20, 29, MDB&M
Santa Clara County

San Jose West, California 7.5-minute Quadrangle, 1980
T7S R1W Sect. 27, 29, 32-34 and T8S R1W Sect. 3-5, 9, 10, MDB&M
Santa Clara County

San Jose West, California 7.5-minute Quadrangle, 1980
T7S R1W Sect. 26, 35 and T8S R1W Sect. 2, 3, MDB&M
Santa Clara County

San Jose West, California 7.5-minute Quadrangle, 1980
T7S R1W Sect. 12-14, 23, 26, MDB&M
Santa Clara County

San Jose West, California 7.5-minute Quadrangle, 1980
T7S R1E Sect. 6, 7 and T7S R1W Sect. 12, MDB&M
Santa Clara County

Calaveras Reservoir (1980), San Jose East (1980) and San Jose West (1980), California 7.5-minute Quadrangles
T6S R1E Sect. 28, 32, 33 and T7S R1E Sect. 5, 6, MDB&M
Santa Clara County

Calaveras Reservoir (1980) and Milpitas (1980), California 7.5-minute Quadrangles
T6S R1E Sect. 17, 20, 21, 28, MDB&M
Santa Clara County

Milpitas, California 7.5-minute Quadrangle, 1980
T6S R1E Sect. 7, 8, 17, MDB&M
Santa Clara County

## USGS Quadrangle Name, Township, Range, and Section(s)

Calaveras Reservoir (1980) and San Jose East (1980), California 7.5-minute Quadrangles
T6S R1E Sect. 21-23, 26-28, MDB&M
Santa Clara County

San Jose East, California 7.5-minute Quadrangle, 1980
T6S R1E Sect. 26, 35, 36; T7S R1E Sect. 1, 12 and T7S R2E Sect. 7, MDB&M
Santa Clara County

San Jose East, California 7.5-minute Quadrangle, 1980
T7S R1E Sect. 25 and T7S R2E Sect. 7, 18, 19, 30, MDB&M
Santa Clara County

San Jose East, California 7.5-minute Quadrangle, 1980
T7S R1E Sect. 25, 26, 35 and T8S R1E Sect. 2, 11, MDB&M
Santa Clara County

San Jose East (1980) and Santa Teresa Hills (1981), California 7.5-minute Quadrangles
T8S R1E Sect. 11, 14, 16, 21-23, 26, MDB&M
Santa Clara County

Los Gatos (1980), San Jose East (1980) and Santa Teresa Hills (1981), California 7.5-minute Quadrangles
T8S R1E Sect. 9, 16-18, MDB&M
Santa Clara County

Los Gatos (1980) and San Jose West (1980), California 7.5-minute Quadrangles
T8S R1E Sect. 18 and T8S R1W Sect. 10, 11, 13, 14, MDB&M
Santa Clara County

Santa Teresa Hills, California 7.5-minute Quadrangle, 1981
T8S R1E Sect. 25, 26, 35, 36 and T8S R2E Sect. 31, MDB&M
Santa Clara County

Santa Teresa Hills, California 7.5-minute Quadrangle, 1981
T8S R2E Sect. 31, 32 and T9S R2E Sect. 4-6, MDB&M
Santa Clara County

Morgan Hill (1980) and Santa Teresa Hills (1981), California 7.5-minute Quadrangles
T9S R2E Sect. 3, 4, 10-12, MDB&M
Santa Clara County

Morgan Hill, California 7.5-minute Quadrangle, 1980
T9S R2E Sect. 1, 12 and T9S R3E Sect. 7, 8, 18, MDB&M
Santa Clara County

Morgan Hill (1980) and Mount Sizer (1972, r. 1978), California 7.5-minute Quadrangles
T9S R3E Sect. 8-10, 15, 16, MDB&M
Santa Clara County

## USGS Quadrangle Name, Township, Range, and Section(s)

Gilroy (1982) and Mount Sizer (1972, r. 1978), California 7.5-minute Quadrangles
T9S R3E Sect. 14, 15, 23, 25, 26, 36, MDB&M
Santa Clara County

Gilroy, California 7.5-minute Quadrangle, 1982
T10S R4E Sect. 6-8, 17; T9S R3E Sect. 36 and T9S R4E Sect. 31, MDB&M
Santa Clara County

Gilroy, California 7.5-minute Quadrangle, 1982
T10S R4E Sect. 17, 20, 28, 29, 33, MDB&M
Santa Clara County

Mount Madonna, California 7.5-minute Quadrangle, 1980
T10S R3E Sect. 4, 8, 9, 17, 18, MDB&M
Santa Clara County

Gilroy (1982) and Mount Madonna (1980), California 7.5-minute Quadrangles
T11S R3E Sect. 2, 3, MDB&M
Santa Clara County

Chittenden (1980) and Gilroy (1982), California 7.5-minute Quadrangles
T11S R3E Sect. 1, 2, 12 and T11S R4E Sect. 7, 8, MDB&M
Santa Clara County

Chittenden (1980) and Gilroy (1982), California 7.5-minute Quadrangles
T10S R4E Sect. 33 and T11S R4E Sect. 3-5, 8, 9, MDB&M
Santa Clara County

Chittenden, California 7.5-minute Quadrangle, 1980
T11S R4E Sect. 9, 16, MDB&M
Santa Clara County

Chittenden (1980), Gilroy (1982) and San Felipe (1972, r. 1978), California 7.5-minute Quadrangles
T11S R4E Sect. 3, 10, 11, 13, 14 and T11S R5E Sect. 18, MDB&M
San Benito and Santa Clara Counties

San Felipe, California 7.5-minute Quadrangle, 1972, r. 1978
T11S R5E Sect. 16-18, 21, MDB&M
San Benito and Santa Clara Counties

San Felipe, California 7.5-minute Quadrangle, 1972, r. 1978
T11S R5E Sect. 10-12, 15, 21, 22, MDB&M
Santa Clara County

Pacheco Peak (1972, r. 1978), San Felipe (1972, r. 1978) and Three Sisters (1972, r. 1978), California 7.5-minute Quadrangles
T10S R6E Sect. 32; T11S R5E Sect. 1, 12 and T11S R6E Sect. 5, 6, MDB&M
Santa Clara County

## USGS Quadrangle Name, Township, Range, and Section(s)

Pacheco Peak, California 7.5-minute Quadrangle, 1972, r. 1978
T10S R6E Sect. 26-28, 32, 33, MDB&M
Santa Clara County

Pacheco Pass (1972, r. 1978) and Pacheco Peak (1972, r. 1978), California 7.5-minute Quadrangles
T10S R6E Sect. 23, 25, 26 and T10S R7E Sect. 19, 30, MDB&M
Santa Clara County

Pacheco Pass, California 7.5-minute Quadrangle, 1972, r. 1978
T10S R7E Sect. 19-21, MDB&M
Merced and Santa Clara Counties

Pacheco Pass, California 7.5-minute Quadrangle, 1972, r. 1978
T10S R7E Sect. 14, 15, 21, 22, MDB&M
Merced County

**NATIVE AMERICAN HERITAGE COMMISSION RESPONSE LETTER & CONTACT LIST – FERUARY 20, 2023**

# NATIVE AMERICAN HERITAGE COMMISSION



NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

February 20, 2023

Patricia Galindo Mayo
Far Western Anthropological Research Group, Inc.

Via Email to: patty@farwestern.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Pipeline Maintenance Program Environmental Impact Report and Permitting Project, Merced, San Benito, and Santa Clara Counties

To Whom It May Concern:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

*Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.*

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was positive. Please contact the tribes on the attached list for more information.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
*Cultural Resources Analyst*

Attachment

**Native American Heritage Commission**
**Tribal Consultation List**
**Merced, San Benito, Santa Clara Counties**
**2/20/2023**

***Amah Mutsun Tribal Band***
Valentin Lopez, Chairperson
P.O. Box 5272
Galt, CA, 95632
Phone: (916) 743 - 5833
vlopez@amahmutsun.org
Costanoan
Northern Valley Yokut

***Amah MutsunTribal Band of Mission San Juan Bautista***
Irene Zwierlein, Chairperson
3030 Soda Bay Road
Lakeport, CA, 95453
Phone: (650) 851 - 7489
Fax: (650) 332-1526
amahmutsuntribal@gmail.com
Costanoan

***Chicken Ranch Rancheria of Me-Wuk Indians***
Lloyd Mathiesen, Chairperson
P.O. Box 1159
Jamestown, CA, 95327
Phone: (209) 984 - 9066
Fax: (209) 984-9269
lmathiesen@crtribal.com
Me-Wuk

***Dumna Wo-Wah Tribal Government***
Robert Ledger, Chairperson
2191 West Pico Ave.
Fresno, CA, 93705
Phone: (559) 540 - 6346
ledgerrobert@ymail.com
Foothill Yokut
Mono

***Indian Canyon Mutsun Band of Costanoan***
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister, CA, 95024
Phone: (831) 637 - 4238
ams@indiancanyon.org
Costanoan

***Indian Canyon Mutsun Band of Costanoan***
Kanyon Sayers-Roods, MLD Contact
1615 Pearson Court
San Jose, CA, 95122
Phone: (408) 673 - 0626
kanyon@kanyonkonsulting.com
Costanoan

***Muwekma Ohlone Indian Tribe of the SF Bay Area***
Monica Arellano, Vice Chairwoman
20885 Redwood Road, Suite 232
Castro Valley, CA, 94546
Phone: (408) 205 - 9714
monicavarellano@gmail.com
Costanoan

***Muwekma Ohlone Indian Tribe of the SF Bay Area***
Charlene Nijmeh, Chairperson
20885 Redwood Road, Suite 232
Castro Valley, CA, 94546
Phone: (408) 464 - 2892
cnijmeh@muwekma.org
Costanoan

***Nashville Enterprise Miwok-Maidu-Nishinam Tribe***
Cosme Valdez, Chairperson
P.O. Box 580986
Elk Grove, CA, 95758-0017
Phone: (916) 429 - 8047
Fax: (916) 429-8047
valdezcome@comcast.net
Miwok

***North Fork Rancheria of Mono Indians***
Elaine Fink, Chairperson
P.O .Box 929
North Fork, CA, 93643
Phone: (559) 877 - 2461
Fax: (559) 877-2467
efink@nfr-nsn.gov
Mono

***North Valley Yokuts Tribe***
Katherine Perez, Chairperson
P.O. Box 717
Linden, CA, 95236
Phone: (209) 887 - 3415
canutes@verizon.net
Costanoan
Northern Valley Yokut

***North Valley Yokuts Tribe***
Timothy Perez,
P.O. Box 717
Linden, CA, 95236
Phone: (209) 662 - 2788
huskanam@gmail.com
Costanoan
Northern Valley Yokut

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Pipeline Maintenance Program Environmental Impact Report and Permitting Project, Merced, San Benito, Santa Clara Counties.

**Native American Heritage Commission**
**Tribal Consultation List**
**Merced, San Benito, Santa Clara Counties**
**2/20/2023**

***Picayune Rancheria of Chukchansi Indians***
Claudia Gonzales, Chairwoman
P.O. Box 2226
Oakhurst, CA, 93644
Phone: (559) 412 - 5590
cgonzales@chukchansitribe.net
Foothill Yokut

***Salinan Tribe of Monterey, San Luis Obispo Counties***
Patti Dunton, Tribal Administrator
7070 Morro Road, Suite A
Atascadero, CA, 93422
Phone: (805) 464 - 2650
info@salinantribe.com
Salinan

***Santa Rosa Rancheria Tachi Yokut Tribe***
Leo Sisco, Chairperson
P.O. Box 8
Lemoore, CA, 93245
Phone: (559) 924 - 1278
Fax: (559) 924-3583
Southern Valley Yokut

***Southern Sierra Miwuk Nation***
Sandra Chapman, Chairperson
P.O. Box 186
Mariposa, CA, 95338
Phone: (559) 580 - 7871
sandra47roy@gmail.com
Miwok
Northern Valley Yokut
Paiute

***The Ohlone Indian Tribe***
Andrew Galvan, Chairperson
P.O. Box 3388
Fremont, CA, 94539
Phone: (510) 882 - 0527
Fax: (510) 687-9393
chochenyo@AOL.com
Bay Miwok
Ohlone
Patwin
Plains Miwok

***Tule River Indian Tribe***
Neil Peyron, Chairperson
P.O. Box 589
Porterville, CA, 93258
Phone: (559) 781 - 4271
Fax: (559) 781-4610
neil.peyron@tulerivertribe-nsn.gov
Yokut

***Tuolumne Band of Me-Wuk Indians***
Andrea Reich, Chairperson
P.O. Box 699
Tuolumne, CA, 95379
Phone: (209) 928 - 5300
Fax: (209) 928-1677
andrea@mewuk.com
Me-Wuk

***Wuksache Indian Tribe/Eshom Valley Band***
Kenneth Woodrow, Chairperson
1179 Rock Haven Ct.
Salinas, CA, 93906
Phone: (831) 443 - 9702
kwood8934@aol.com
Foothill Yokut
Mono

***Xolon-Salinan Tribe***
Karen White, Chairperson
P. O. Box 7045
Spreckels, CA, 93962
Phone: (831) 238 - 1488
xolon.salinan.heritage@gmail.com
Salinan

***The Confederated Villages of Lisjan***
Corrina Gould, Chairperson
10926 Edes Avenue
Oakland, CA, 94603
Phone: (510) 575 - 8408
cvltribe@gmail.com
Bay Miwok
Ohlone
Delta Yokut

***Tamien Nation***
Quirina Luna Geary, Chairperson
PO Box 8053
San Jose, CA, 95155
Phone: (707) 295 - 4011
qgeary@tamien.org
Costanoan

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Pipeline Maintenance Program Environmental Impact Report and Permitting Project, Merced, San Benito, Santa Clara Counties.

# SUPPLMENTAL NATIVE AMERICAN HERITAGE COMMISSION REQUEST FOR SACRED LANDS FILE SEARCH AND CONTACT LIST – AUGUST 18, 2023

**Sacred Lands File & Native American Contacts List Request**

**Native American Heritage Commission**
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

*Information Below is Required for a Sacred Lands File Search*

**Project:** Pipeline Maintenance Program Environmental Impact Report and Permitting

**County:** Santa Clara, San Benito, and Merced

**USGS Quadrangle Name:** see attached list

**Township:**__________ **Range:**__________ **Section(s):**__________

**Company/Firm/Agency:** Far Western Anthropological Research Group, Inc.

**Street Address:** 2727 Del Rio Place, Suite A

**City:** Davis **Zip:** 95618

**Phone:** (530) 756-3941

**Fax:** N/A

**Email:** patty@farwestern.com

**Project Description:**

The Santa Clara Valley Water District (District) recently updated their Pipeline Maintenance Program (PMP) to bring it to current field and regulatory practices and to expand its scope for the maintenance of pipelines throughout the Santa Clara Valley. The District is preparing a corresponding Program Environmental Impact Report (EIR) under the California Environmental Quality Act (CEQA). There is no specific project at this time, however, the District would like to identify potential resources on the entire pipeline system, and to initiate consultation with interested Native American groups regarding future maintenance activities.

## USGS Quadrangle Name, Township, Range, and Section(s)

1. Cupertino, California 7.5-minute Quadrangle, 1980
   T6S R2W Sect. 33 and T7S R2W Sect. 3, 4, 9-11, MDB&M
   Santa Clara County

2. Cupertino, California 7.5-minute Quadrangle, 1980
   T7S R2W Sect. 10, 11, 14, 15, 23, 25, 26, MDB&M
   Santa Clara County

3. Cupertino (1980) and San Jose West (1980), California 7.5-minute Quadrangles
   T7S R1W Sect. 31, 32; T7S R2W Sect. 25, 36, MDB&M
   Santa Clara County

4. Cupertino (1980), Milpitas (1980), Mountain View (1981), and San Jose West (1980), California 7.5-minute Quadrangles
   T6S R1W Sect. 30, 31 and T7S R1W Sect. 6, 7, MDB&M
   Santa Clara County, California

5. Cupertino (1980) and San Jose West (1980), California 7.5-minute Quadrangles
   T7S R1W Sect. 17, 20, 29, MDB&M
   Santa Clara County

6. San Jose West, California 7.5-minute Quadrangle, 1980
   T7S R1W Sect. 27, 29, 32-34 and T8S R1W Sect. 3-5, 9, 10, MDB&M
   Santa Clara County

7. San Jose West, California 7.5-minute Quadrangle, 1980
   T7S R1W Sect. 26, 35 and T8S R1W Sect. 2, 3, MDB&M
   Santa Clara County

8. San Jose West, California 7.5-minute Quadrangle, 1980
   T7S R1W Sect. 12. 14, 23, 26, MDB&M
   Santa Clara County

9. San Jose West, California 7.5-minute Quadrangle, 1980
   T7S R1E Sect. 5-7 and T7S R1W Sect. 12, MDB&M
   Santa Clara County

10. San Jose East (1980) and San Jose West (1980), California 7.5-minute Quadrangles
    T6S R1E Sect. 32-34 and T7S R1E Sect. 5, MDB&M
    Santa Clara County

11. Calaveras Reservoir (1980), Milpitas (1980), San Jose East (1980), and San Jose West (1980), California 7.5-minute Quadrangles
    T6S R1E Sect. 21-23, 26-28, 33, 35, MDB&M
    Santa Clara County

12. Milpitas, California 7.5-minute Quadrangle, 1980
    T6S R1E Sect. 7, 8, 17, 20, 21, MDB&M
    Santa Clara County

## USGS Quadrangle Name, Township, Range, and Section(s)

13. Calaveras Reservoir (1980) and Milpitas (1980), California 7.5-minute Quadrangles
    T5S R1E Sect. 29, 32 and T6S R1E Sect. 4, MDB&M
    Santa Clara County

14. San Jose East, California 7.5-minute Quadrangle, 1980
    T6S R1E Sect. 35, 36; T7S R1E Sect. 1, 12; and T7S R2E Sect. 7, MDB&M
    Santa Clara County

15. San Jose East, California 7.5-minute Quadrangle, 1980
    T7S R1E Sect. 25 and T7S R2E Sect. 7, 18, 19, 30, MDB&M
    Santa Clara County

16. San Jose East, California 7.5-minute Quadrangle, 1980
    T7S R1E Sect. 25, 26, 35 and T8S R1E Sect. 2, 11, MDB&M
    Santa Clara County

17. San Jose East (1980) and Santa Teresa Hills (1981), California 7.5-minute Quadrangles
    T8S R1E Sect. 11, 14, 16, 21-23, 26
    Santa Clara County, MDB&M

18. Los Gatos (1980), San Jose East (1980), San Jose West (1980), and Santa Teresa Hills (1981), California 7.5-minute Quadrangles
    T8S R1E Sect. 9, 16-18, MDB&M
    Santa Clara County

19. Los Gatos (1980) and San Jose West (1980), California 7.5-minute Quadrangles
    T8S R1E Sect. 18 and T8S R1W Sect. 10, 11, 13, 14, MDB&M
    Santa Clara County

20. Santa Teresa Hills (1981), California 7.5-minute Quadrangle
    T8S R1E Sect. 26, 35, 36; T8S R2E Sect. 31, MDB&M
    Santa Clara County

21. Santa Teresa Hills (1981), California 7.5-minute Quadrangle
    T8S R2E Sect. 31, 32 and T9S R2E Sect. 4, 6, MDB&M
    Santa Clara County

22. Morgan Hill (1980) and Santa Teresa Hills (1981), California 7.5-minute Quadrangles
    T9S R2E Sect. 3, 4, 10-12, MDB&M
    Santa Clara County

23. Morgan Hill (1980), California 7.5-minute Quadrangle
    T9S R2E Sect. 1, 12 and T9S R3E Sect. 7, 8, 18, MDB&M
    Santa Clara County

24. Morgan Hill (1980) and Mount Sizer (1972, r. 1978), California 7.5-minute Quadrangles
    T9S R3E Sect. 8-10, 14-16, MDB&M
    Santa Clara County

## USGS Quadrangle Name, Township, Range, and Section(s)

25. Gilroy (1982) and Mount Sizer (1972, r. 1978), California 7.5-minute Quadrangles
    T9S R3E Sect. 14, 15, 23, 25, 26, 36, MDB&M
    Santa Clara County

26. Gilroy, California 7.5-minute Quadrangle, 1982
    T10S R4E Sect. 6-8, 17; T9S R3E Sect. 36; and T9S R4E Sect. 31, MDB&M
    Santa Clara County

27. Gilroy, California 7.5-minute Quadrangle, 1982
    T10S R4E Sect. 17, 20, 28, 29, 33, MDB&M
    Santa Clara County

28. Mount Madonna, California 7.5-minute Quadrangle, 1980
    T10S R3E Sect. 4, 8, 9, 17, 18, MDB&M
    Santa Clara County

29. Chittenden (1980), Gilroy (1982), Mount Madonna (1980), and Watsonville East (1981), California 7.5-minute Quadrangles
    T11S R3E Sect. 1-3, 12, MDB&M
    Santa Clara County

30. Chittenden (1980) and Gilroy (1982), California 7.5-minute Quadrangles
    T11S R3E Sect. 1, 12 and T11S R4E Sect. 5, 7, 8, MDB&M
    Santa Clara County

31. Chittenden (1980) and Gilroy (1982), California 7.5-minute Quadrangles
    T10S R4E Sect. 33 and T11S R4E Sect. 3, 4, 8-11, MDB&M
    Santa Clara County

32. Chittenden, California 7.5-minute Quadrangle, 1980
    T11S R4E Sect. 9, 16, 21, 22, 27, MDB&M
    San Benito and Santa Clara Counties

33. Chittenden (1980) and San Felipe (1972, r. 1978), California 7.5-minute Quadrangles
    T11S R4E Sect. 11, 13, 14 and T11S R5E Sect. 18, MDB&M
    San Benito and Santa Clara Counties

34. San Felipe, California 7.5-minute Quadrangle, 1972, r. 1978
    T11S R5E Sect. 15-18, 21, 22, MDB&M
    San Benito and Santa Clara Counties

35. Gilroy Hot Springs (1972, r. 1978), Pacheco Peak (1972, r. 1978), San Felipe (1972, r. 1978), and Three Sisters (1972, r. 1978), California 7.5-minute Quadrangles
    T11S R5E Sect. 1, 10-12, 15, MDB&M
    Santa Clara County

36. Pacheco Peak (1972, r. 1978) and Three Sisters (1972, r. 1978), California 7.5-minute Quadrangles
    T10S R6E Sect. 32, 33; T11S R5E Sect. 1; and T11S R6E Sect. 5, 6, MDB&M
    Santa Clara County

## USGS Quadrangle Name, Township, Range, and Section(s)

37. Pacheco Peak, California 7.5-minute Quadrangle, 1972, r. 1978
    T10S R6E Sect. 23, 26-28, 33, MDB&M
    Santa Clara County

38. Pacheco Pass (1972, r. 1978) and Pacheco Peak (1972, r. 1978), California 7.5-minute Quadrangles
    T10S R6E Sect. 23, 25, 26 and T10S R7E Sect. 19, 20, 30, MDB&M
    Merced and Santa Clara Counties

39. Pacheco Pass, California 7.5-minute Quadrangle, 1972, r. 1978
    T10S R7E Sect. 15, 20-22, MDB&M
    Merced and Santa Clara Counties

40. Pacheco Pass, California 7.5-minute Quadrangle, 1972, r. 1978
    T10S R7E Sect. 14, 15, MDB&M
    Merced County

| Township | Range | Section | Meridian |
|---|---|---|---|
| 5S | 1E | 29 | MDB&M |
| 5S | 1E | 32 | MDB&M |
| 6S | 1E | 4 | MDB&M |
| 6S | 1E | 7 | MDB&M |
| 6S | 1E | 8 | MDB&M |
| 6S | 1E | 17 | MDB&M |
| 6S | 1E | 20 | MDB&M |
| 6S | 1E | 21 | MDB&M |
| 6S | 1E | 22 | MDB&M |
| 6S | 1E | 23 | MDB&M |
| 6S | 1E | 26 | MDB&M |
| 6S | 1E | 27 | MDB&M |
| 6S | 1E | 28 | MDB&M |
| 6S | 1E | 32 | MDB&M |
| 6S | 1E | 33 | MDB&M |
| 6S | 1E | 34 | MDB&M |
| 6S | 1E | 35 | MDB&M |
| 6S | 1W | 31 | MDB&M |
| 6S | 2W | 33 | MDB&M |
| 7S | 1E | 1 | MDB&M |
| 7S | 1E | 2 | MDB&M |
| 7S | 1E | 5 | MDB&M |
| 7S | 1E | 6 | MDB&M |
| 7S | 1E | 7 | MDB&M |
| 7S | 1E | 12 | MDB&M |
| 7S | 1E | 24 | MDB&M |
| 7S | 1E | 25 | MDB&M |
| 7S | 1E | 26 | MDB&M |
| 7S | 1E | 35 | MDB&M |
| 7S | 1W | 6 | MDB&M |
| 7S | 1W | 7 | MDB&M |
| 7S | 1W | 11 | MDB&M |
| 7S | 1W | 12 | MDB&M |
| 7S | 1W | 14 | MDB&M |
| 7S | 1W | 17 | MDB&M |
| 7S | 1W | 18 | MDB&M |
| 7S | 1W | 20 | MDB&M |
| 7S | 1W | 23 | MDB&M |
| 7S | 1W | 26 | MDB&M |
| 7S | 1W | 27 | MDB&M |
| 7S | 1W | 29 | MDB&M |
| 7S | 1W | 31 | MDB&M |
| 7S | 1W | 32 | MDB&M |
| 7S | 1W | 33 | MDB&M |
| 7S | 1W | 34 | MDB&M |
| 7S | 1W | 35 | MDB&M |

| Township | Range | Section | Meridian |
|---|---|---|---|
| 7S | 2E | 7 | MDB&M |
| 7S | 2E | 18 | MDB&M |
| 7S | 2E | 19 | MDB&M |
| 7S | 2E | 30 | MDB&M |
| 7S | 2W | 3 | MDB&M |
| 7S | 2W | 4 | MDB&M |
| 7S | 2W | 9 | MDB&M |
| 7S | 2W | 10 | MDB&M |
| 7S | 2W | 11 | MDB&M |
| 7S | 2W | 14 | MDB&M |
| 7S | 2W | 15 | MDB&M |
| 7S | 2W | 23 | MDB&M |
| 7S | 2W | 25 | MDB&M |
| 7S | 2W | 26 | MDB&M |
| 7S | 2W | 36 | MDB&M |
| 8S | 1E | 2 | MDB&M |
| 8S | 1E | 9 | MDB&M |
| 8S | 1E | 11 | MDB&M |
| 8S | 1E | 14 | MDB&M |
| 8S | 1E | 16 | MDB&M |
| 8S | 1E | 17 | MDB&M |
| 8S | 1E | 18 | MDB&M |
| 8S | 1E | 21 | MDB&M |
| 8S | 1E | 22 | MDB&M |
| 8S | 1E | 23 | MDB&M |
| 8S | 1E | 26 | MDB&M |
| 8S | 1E | 35 | MDB&M |
| 8S | 1E | 36 | MDB&M |
| 8S | 1W | 2 | MDB&M |
| 8S | 1W | 3 | MDB&M |
| 8S | 1W | 4 | MDB&M |
| 8S | 1W | 5 | MDB&M |
| 8S | 1W | 9 | MDB&M |
| 8S | 1W | 10 | MDB&M |
| 8S | 1W | 11 | MDB&M |
| 8S | 1W | 13 | MDB&M |
| 8S | 1W | 14 | MDB&M |
| 8S | 2E | 31 | MDB&M |
| 8S | 2E | 32 | MDB&M |
| 9S | 2E | 1 | MDB&M |
| 9S | 2E | 3 | MDB&M |
| 9S | 2E | 4 | MDB&M |
| 9S | 2E | 5 | MDB&M |
| 9S | 2E | 6 | MDB&M |
| 9S | 2E | 10 | MDB&M |
| 9S | 2E | 11 | MDB&M |

| Township | Range | Section | Meridian |
|---|---|---|---|
| 9S | 2E | 12 | MDB&M |
| 9S | 3E | 7 | MDB&M |
| 9S | 3E | 8 | MDB&M |
| 9S | 3E | 9 | MDB&M |
| 9S | 3E | 10 | MDB&M |
| 9S | 3E | 15 | MDB&M |
| 9S | 3E | 16 | MDB&M |
| 9S | 3E | 17 | MDB&M |
| 9S | 3E | 18 | MDB&M |
| 9S | 3E | 22 | MDB&M |
| 9S | 3E | 23 | MDB&M |
| 9S | 3E | 25 | MDB&M |
| 9S | 3E | 26 | MDB&M |
| 9S | 3E | 36 | MDB&M |
| 9S | 4E | 31 | MDB&M |
| 10S | 3E | 4 | MDB&M |
| 10S | 3E | 8 | MDB&M |
| 10S | 3E | 9 | MDB&M |
| 10S | 3E | 13 | MDB&M |
| 10S | 3E | 17 | MDB&M |
| 10S | 3E | 18 | MDB&M |
| 10S | 4E | 6 | MDB&M |
| 10S | 4E | 7 | MDB&M |
| 10S | 4E | 17 | MDB&M |
| 10S | 4E | 18 | MDB&M |
| 10S | 4E | 20 | MDB&M |
| 10S | 4E | 28 | MDB&M |
| 10S | 4E | 29 | MDB&M |
| 10S | 4E | 33 | MDB&M |
| 10S | 6E | 23 | MDB&M |
| 10S | 6E | 25 | MDB&M |
| 10S | 6E | 26 | MDB&M |
| 10S | 6E | 27 | MDB&M |
| 10S | 6E | 28 | MDB&M |
| 10S | 6E | 32 | MDB&M |
| 10S | 6E | 33 | MDB&M |
| 10S | 7E | 15 | MDB&M |
| 10S | 7E | 19 | MDB&M |
| 10S | 7E | 20 | MDB&M |
| 10S | 7E | 21 | MDB&M |
| 10S | 7E | 22 | MDB&M |
| 10S | 7E | 30 | MDB&M |
| 11S | 3E | 1 | MDB&M |
| 11S | 3E | 2 | MDB&M |
| 11S | 3E | 3 | MDB&M |
| 11S | 3E | 12 | MDB&M |

| Township | Range | Section | Meridian |
|---|---|---|---|
| 11S | 4E | 3 | MDB&M |
| 11S | 4E | 4 | MDB&M |
| 11S | 4E | 5 | MDB&M |
| 11S | 4E | 7 | MDB&M |
| 11S | 4E | 8 | MDB&M |
| 11S | 4E | 9 | MDB&M |
| 11S | 4E | 10 | MDB&M |
| 11S | 4E | 11 | MDB&M |
| 11S | 4E | 13 | MDB&M |
| 11S | 4E | 14 | MDB&M |
| 11S | 4E | 16 | MDB&M |
| 11S | 4E | 21 | MDB&M |
| 11S | 4E | 22 | MDB&M |
| 11S | 4E | 27 | MDB&M |
| 11S | 5E | 1 | MDB&M |
| 11S | 5E | 10 | MDB&M |
| 11S | 5E | 11 | MDB&M |
| 11S | 5E | 12 | MDB&M |
| 11S | 5E | 15 | MDB&M |
| 11S | 5E | 16 | MDB&M |
| 11S | 5E | 17 | MDB&M |
| 11S | 5E | 18 | MDB&M |
| 11S | 5E | 21 | MDB&M |
| 11S | 5E | 22 | MDB&M |
| 11S | 6E | 5 | MDB&M |
| 11S | 6E | 6 | MDB&M |

**SUPPLEMENTAL NATIVE AMERICAN HERITAGE COMMISSION RESPONSE LETTER & CONTACT LIST – AUGUST 27, 2023**

# NATIVE AMERICAN HERITAGE COMMISSION



NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento, California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

August 27, 2023

Patty Galindo Mayo
Far Western Anthropological Research Group, Inc.

Via Email to: patty@farwestern.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Pipeline Maintenance Program Environmental Impact Report and Permitting Project, Merced, San Benito, and Santa Clara Counties

To Whom It May Concern:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

*Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.*

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was positive. Please contact the tribes on the attached list for more information.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
*Cultural Resources Analyst*

Attachment

Native American Heritage Commission
Native American Contact List
Merced, San Benito, Santa Clara Counties
8/27/2023

| County | Tribe Name | Fed (F) Non-Fed (N) | Contact Person | Contact Address | Phone No | Fax No | Email Address | Cultural Affiliation | Counties | Last Updated |
|---|---|---|---|---|---|---|---|---|---|---|
| Merced | Amah Mutsun Tribal Band | N | Ed Ketchum, Vice-Chairperson | | (530) 578-3864 | | aerieways@aol.com | Costanoan<br>Northern Valley Yokut | Merced,Monterey,San Benito,Santa Clara,Santa Cruz | 7/20/2023 |
| | Amah Mutsun Tribal Band | N | Valentin Lopez, Chairperson | P.O. Box 5272<br>Galt, CA, 95632 | (916) 743-5833 | | vjltestingcenter@aol.com | Costanoan<br>Northern Valley Yokut | Merced,Monterey,San Benito,Santa Clara,Santa Cruz | 7/20/2023 |
| | Chicken Ranch Rancheria of Me-Wuk Indians | F | Lloyd Mathiesen, Chairperson | P.O. Box 1159<br>Jamestown, CA, 95327 | (209) 984-9066 | (209) 984-9269 | lmathiesen@crtribal.com | Me-Wuk | Alpine,Amador,Calaveras,Contra Costa,El Dorado,Fresno,Madera,Mariposa,Merced,Mono,Sacramento,San Joaquin,Solano,Stanislaus,Tuolumne,Yolo | |
| | Dumna Wo-Wah Tribal Government | N | Robert Ledger, Chairperson | 2191 West Pico Ave.<br>Fresno, CA, 93705 | (559) 540-6346 | | ledgerrobert@ymail.com | Foothill Yokut<br>Mono | Fresno,Madera,Merced | |
| | Muwekma Ohlone Indian Tribe of the SF Bay Area | N | Charlene Nijmeh, Chairperson | 20885 Redwood Road, Suite 232<br>Castro Valley, CA, 94546 | (408) 464-2892 | | cnijmeh@muwekma.org | Costanoan | Alameda,Contra Costa,Marin,Merced,Napa,Sacramento,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Solano,Sonoma,Stanislaus | |
| | Muwekma Ohlone Indian Tribe of the SF Bay Area | N | Monica Arellano, Vice Chairwoman | 20885 Redwood Road, Suite 232<br>Castro Valley, CA, 94546 | (408) 205-9714 | | monicavarellano@gmail.com | Costanoan | Alameda,Contra Costa,Marin,Merced,Napa,Sacramento,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Solano,Sonoma,Stanislaus | 7/12/2019 |
| | Nashville Enterprise Miwok-Maidu-Nishinam Tribe | N | Leland Valdez, Cultural Resources | | (916) 429-8047 | | | Miwok | Alpine,Amador,Calaveras,Contra Costa,El Dorado,Fresno,Madera,Mariposa,Merced,Mono,Sacramento,San Joaquin,Solano,Stanislaus,Tuolumne,Yolo | 7/17/2023 |
| | Nashville Enterprise Miwok-Maidu-Nishinam Tribe | N | Cosme Valdez, Chairperson | P.O. Box 580986<br>Elk Grove, CA, 95758-0017 | (916) 396-1173 | | valdezcome@comcast.net | Miwok | Alpine,Amador,Calaveras,Contra Costa,El Dorado,Fresno,Madera,Mariposa,Merced,Mono,Sacramento,San Joaquin,Solano,Stanislaus,Tuolumne,Yolo | 7/17/2023 |
| | North Fork Rancheria of Mono Indians | F | Mary Stalter, Environmental/Heritage Manager | P.O. Box 929<br>North Fork, CA, 93643 | (559) 877-2461 | | mstalter@nfr-nsn.gov | Mono | Fresno,Inyo,Madera,Mariposa,Merced,Mono,Tuolumne | 6/26/2023 |
| | North Fork Rancheria of Mono Indians | F | Fred Beihn, Chairperson | P.O. Box 929<br>North Fork, CA, 93643 | (559) 877-2461 | (559) 877-2467 | fbeihn@nfr-nsn.gov | Mono | Fresno,Inyo,Madera,Mariposa,Merced,Mono,Tuolumne | 6/26/2023 |

Native American Heritage Commission
Native American Contact List
Merced, San Benito, Santa Clara Counties
8/27/2023

| County | Tribe Name | Fed (F) Non-Fed (N) | Contact Person | Contact Address | Phone No | Fax No | Email Address | Cultural Affiliation | Counties | Last Updated |
|---|---|---|---|---|---|---|---|---|---|---|
| | North Valley Yokuts Tribe | N | Timothy Perez, | P.O. Box 717<br>Linden, CA, 95236 | (209) 662-2788 | | huskanam@gmail.com | Costanoan<br>Northern Valley Yokut | Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa Clara,Solano,Stanislaus | 5/12/2020 |
| | North Valley Yokuts Tribe | N | Katherine Perez, Chairperson | P.O. Box 717<br>Linden, CA, 95236 | (209) 887-3415 | | canutes@verizon.net | Costanoan<br>Northern Valley Yokut | Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa Clara,Solano,Stanislaus | |
| | Picayune Rancheria of the Chukchansi Indians | F | Michael Wynn, Tribal Administrator | P.O. Box 2226<br>Oakhurst, CA, 93644 | (559) 795-4228 | | mwynn@chukchansi-nsn.gov | Foothill Yokut | Fresno,Madera,Mariposa,Merced,Tuolumne | 6/20/2023 |
| | Picayune Rancheria of the Chukchansi Indians | F | Heather Airey, Tribal Historic Preservation Officer | P.O. Box 2226<br>Oakhurst, CA, 93644 | (559) 795-5986 | | hairey@chukchansi-nsn.gov | Foothill Yokut | Fresno,Madera,Mariposa,Merced,Tuolumne | 6/20/2023 |
| | Picayune Rancheria of the Chukchansi Indians | F | Janet Bill, Chairperson | P.O. Box 2226<br>Oakhurst, CA, 93644 | (559) 580-4457 | | council@chukchansi-nsn.gov | Foothill Yokut | Fresno,Madera,Mariposa,Merced,Tuolumne | 6/20/2023 |
| | Santa Rosa Rancheria Tachi Yokut Tribe | F | Leo Sisco, Chairperson | P.O. Box 8<br>Lemoore, CA, 93245 | (559) 924-1278 | (559) 924-3583 | | Southern Valley Yokut | Fresno,Kern,Kings,Merced,Monterey,San Benito,San Luis Obispo,Tulare | |
| | Southern Sierra Miwuk Nation | N | Sandra Chapman, Chairperson | P.O. Box 186<br>Mariposa, CA, 95338 | (559) 580-7871 | | sandra47roy@gmail.com | Miwok<br>Northern Valley Yokut<br>Paiute | Madera,Mariposa,Merced,Stanislaus | |
| | Table Mountain Rancheria | F | Brenda Lavell, Chairperson | P.O. Box 410<br>Friant, CA, 93626 | (559) 822-2587 | (559) 822-2693 | rpennell@tmr.org | Yokut | Fresno,Madera,Merced | |
| | Tule River Indian Tribe | F | Neil Peyron, Chairperson | P.O. Box 589<br>Porterville, CA, 93258 | (559) 781-4271 | (559) 781-4610 | neil.peyron@tulerivertribe-nsn.gov | Yokut | Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San Benito,San Joaquin,San Luis Obispo,Stanislaus,Tulare,Tuolumne | |
| | Tuolumne Band of Me-Wuk Indians | F | Andrea Reich, Chairperson | P.O. Box 699<br>Tuolumne, CA, 95379 | (209) 928-5300 | (209) 928-1677 | andrea@mewuk.com | Me-Wuk | Fresno,Madera,Mariposa,Merced,Mono,Stanislaus,Tuolumne | |
| | Wuksachi Indian Tribe/Eshom Valley Band | N | Kenneth Woodrow, Chairperson | 1179 Rock Haven Ct.<br>Salinas, CA, 93906 | (831) 443-9702 | | kwood8934@aol.com | Foothill Yokut<br>Mono | Alameda,Calaveras,Contra Costa,Fresno,Inyo,Kings,Madera,Marin,Mariposa,Merced,Mono,Monterey,San Benito,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Stanislaus,Tulare,Tuolumne | 6/19/2023 |
| San Benito | Amah Mutsun Tribal Band | N | Ed Ketchum, Vice-Chairperson | | (530) 578-3864 | | aerieways@aol.com | Costanoan<br>Northern Valley Yokut | Merced,Monterey,San Benito,Santa Clara,Santa Cruz | 7/20/2023 |
| | Amah Mutsun Tribal Band | N | Valentin Lopez, Chairperson | P.O. Box 5272<br>Galt, CA, 95632 | (916) 743-5833 | | vjltestingcenter@aol.com | Costanoan<br>Northern Valley Yokut | Merced,Monterey,San Benito,Santa Clara,Santa Cruz | 7/20/2023 |

Native American Heritage Commission
Native American Contact List
Merced, San Benito, Santa Clara Counties
8/27/2023

| County | Tribe Name | Fed (F) Non-Fed (N) | Contact Person | Contact Address | Phone No | Fax No | Email Address | Cultural Affiliation | Counties | Last Updated |
|---|---|---|---|---|---|---|---|---|---|---|
| | Amah MutsunTribal Band of Mission San Juan Bautista | N | Irene Zwierlein, Chairperson | 3030 Soda Bay Road Lakeport, CA, 95453 | (650) 851-7489 | (650) 332-1526 | amahmutsuntribal@gmail.com | Costanoan | Alameda,Contra Costa,Monterey,San Benito,San Francisco,San Mateo,Santa Clara,Santa Cruz | |
| | Indian Canyon Mutsun Band of Costanoan | N | Ann Marie Sayers, Chairperson | P.O. Box 28 Hollister, CA, 95024 | (831) 637-4238 | | ams@indiancanyon.org | Costanoan | Alameda,Contra Costa,Monterey,San Benito,San Francisco,San Mateo,Santa Clara,Santa Cruz | |
| | Indian Canyon Mutsun Band of Costanoan | N | Kanyon Sayers-Roods, MLD Contact | 1615 Pearson Court San Jose, CA, 95122 | (408) 673-0626 | | kanyon@kanyonkonsulting.com | Costanoan | Alameda,Contra Costa,Monterey,San Benito,San Francisco,San Mateo,Santa Clara,Santa Cruz | 4/17/2018 |
| | North Valley Yokuts Tribe | N | Timothy Perez, | P.O. Box 717 Linden, CA, 95236 | (209) 662-2788 | | huskanam@gmail.com | Costanoan Northern Valley Yokut | Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa Clara,Solano,Stanislaus | 5/12/2020 |
| | North Valley Yokuts Tribe | N | Katherine Perez, Chairperson | P.O. Box 717 Linden, CA, 95236 | (209) 887-3415 | | canutes@verizon.net | Costanoan Northern Valley Yokut | Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa Clara,Solano,Stanislaus | |
| | Salinan Tribe of Monterey, San Luis Obispo Counties | N | Patti Dunton, Tribal Administrator | 8270 Morro Rd. Atascadero, CA, 93422 | (805) 464-2650 | | info@salinantribe.com | Salinan | Fresno,Kern,Kings,Monterey,San Benito,San Luis Obispo | 6/6/2023 |
| | Salinan Tribe of Monterey, San Luis Obispo Counties | N | Robert Piatti, Cultural Protection Lead | 8270 Morro Rd. Atascadero, CA, 93422 | (805) 464-2650 | | quiggyllynn@gmail.com | Salinan | Fresno,Kern,Kings,Monterey,San Benito,San Luis Obispo | 8/4/2023 |
| | Santa Rosa Rancheria Tachi Yokut Tribe | F | Leo Sisco, Chairperson | P.O. Box 8 Lemoore, CA, 93245 | (559) 924-1278 | (559) 924-3583 | | Southern Valley Yokut | Fresno,Kern,Kings,Merced,Monterey, San Benito,San Luis Obispo,Tulare | |
| | Tule River Indian Tribe | F | Neil Peyron, Chairperson | P.O. Box 589 Porterville, CA, 93258 | (559) 781-4271 | (559) 781-4610 | neil.peyron@tulerivertribe-nsn.gov | Yokut | Alameda,Amador,Calaveras,Contra Costa,Fresno,Inyo,Kern,Kings,Madera,Mariposa,Merced,Monterey,Sacramento,San Benito,San Joaquin,San Luis Obispo,Stanislaus,Tulare,Tuolumne | |
| | Wuksachi Indian Tribe/Eshom Valley Band | N | Kenneth Woodrow, Chairperson | 1179 Rock Haven Ct. Salinas, CA, 93906 | (831) 443-9702 | | kwood8934@aol.com | Foothill Yokut Mono | Alameda,Calaveras,Contra Costa,Fresno,Inyo,Kings,Madera,Marin,Mariposa,Merced,Mono,Monterey, San Benito,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Stanislaus,Tulare,Tuolumne | 6/19/2023 |
| | Xolon-Salinan Tribe | N | Penny Hurt, Cultural Preservation Administrator | P.O. Box 7045 Spreckels, CA, 93962 | (805) 453-3675 | | phurt6700@gmail.com | Salinan | Fresno,Kern,Kings,Monterey,San Benito,San Luis Obispo,Santa Barbara | 4/3/2023 |
| | Xolon-Salinan Tribe | N | Karen White, Chairperson | P.O. Box 7045 Spreckels, CA, 93962 | (831) 455-1012 | | xolon.salinan.heritage@gmail.com | Salinan | Fresno,Kern,Kings,Monterey,San Benito,San Luis Obispo,Santa Barbara | 4/3/2023 |

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Merced, San Benito, Santa Clara Counties
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|---|---|---|---|---|---|---|---|---|---|---|
| Santa Clara | Amah Mutsun Tribal Band | N | Valentin Lopez, Chairperson | P.O. Box 5272<br>Galt, CA, 95632 | (916) 743-5833 | | vjltestingcenter@aol.com | Costanoan<br>Northern Valley Yokut | Merced,Monterey,San Benito,Santa Clara,Santa Cruz | 7/20/2023 |
| | Amah Mutsun Tribal Band | N | Ed Ketchum, Vice-Chairperson | | (530) 578-3864 | | aerieways@aol.com | Costanoan<br>Northern Valley Yokut | Merced,Monterey,San Benito,Santa Clara,Santa Cruz | 7/20/2023 |
| | Amah MutsunTribal Band of Mission San Juan Bautista | N | Irene Zwierlein, Chairperson | 3030 Soda Bay Road<br>Lakeport, CA, 95453 | (650) 851-7489 | (650) 332-1526 | amahmutsuntribal@gmail.com | Costanoan | Alameda,Contra Costa,Monterey,San Benito,San Francisco,San Mateo,Santa Clara,Santa Cruz | |
| | Confederated Villages of Lisjan Nation | N | Deja Gould, Language Program Manager | 10926 Edes Ave<br>Oakland, CA, 94603 | (510) 575-8408 | | cvltribe@gmail.com | Bay Miwok<br>Ohlone<br>Delta Yokut | Alameda,Contra Costa,Sacramento,San Joaquin,Santa Clara,Solano,Stanislaus | 3/22/2023 |
| | Confederated Villages of Lisjan Nation | N | Corrina Gould, Chairperson | 10926 Edes Avenue<br>Oakland, CA, 94603 | (510) 575-8408 | | cvltribe@gmail.com | Bay Miwok<br>Ohlone<br>Delta Yokut | Alameda,Contra Costa,Sacramento,San Joaquin,Santa Clara,Solano,Stanislaus | 3/22/2023 |
| | Confederated Villages of Lisjan Nation | N | Cheyenne Gould, Tribal Cultural Resource Manager | 10926 Edes Ave<br>Oakland, CA, 94603 | (510) 575-8408 | | cvltribe@gmail.com | Bay Miwok<br>Ohlone<br>Delta Yokut | Alameda,Contra Costa,Sacramento,San Joaquin,Santa Clara,Solano,Stanislaus | 3/22/2023 |
| | Indian Canyon Mutsun Band of Costanoan | N | Kanyon Sayers-Roods, MLD Contact | 1615 Pearson Court<br>San Jose, CA, 95122 | (408) 673-0626 | | kanyon@kanyonkonsulting.com | Costanoan | Alameda,Contra Costa,Monterey,San Benito,San Francisco,San Mateo,Santa Clara,Santa Cruz | 4/17/2018 |
| | Indian Canyon Mutsun Band of Costanoan | N | Ann Marie Sayers, Chairperson | P.O. Box 28<br>Hollister, CA, 95024 | (831) 637-4238 | | ams@indiancanyon.org | Costanoan | Alameda,Contra Costa,Monterey,San Benito,San Francisco,San Mateo,Santa Clara,Santa Cruz | |
| | Muwekma Ohlone Indian Tribe of the SF Bay Area | N | Charlene Nijmeh, Chairperson | 20885 Redwood Road, Suite 232<br>Castro Valley, CA, 94546 | (408) 464-2892 | | cnijmeh@muwekma.org | Costanoan | Alameda,Contra Costa,Marin,Merced,Napa,Sacramento,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Solano,Sonoma,Stanislaus | |
| | Muwekma Ohlone Indian Tribe of the SF Bay Area | N | Monica Arellano, Vice Chairwoman | 20885 Redwood Road, Suite 232<br>Castro Valley, CA, 94546 | (408) 205-9714 | | monicavarellano@gmail.com | Costanoan | Alameda,Contra Costa,Marin,Merced,Napa,Sacramento,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Solano,Sonoma,Stanislaus | 7/12/2019 |
| | North Valley Yokuts Tribe | N | Katherine Perez, Chairperson | P.O. Box 717<br>Linden, CA, 95236 | (209) 887-3415 | | canutes@verizon.net | Costanoan<br>Northern Valley Yokut | Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa Clara,Solano,Stanislaus | |
| | North Valley Yokuts Tribe | N | Timothy Perez, | P.O. Box 717<br>Linden, CA, 95236 | (209) 662-2788 | | huskanam@gmail.com | Costanoan<br>Northern Valley Yokut | Alameda,Calaveras,Contra Costa,Fresno,Madera,Mariposa,Merced,Sacramento,San Benito,San Joaquin,Santa Clara,Solano,Stanislaus | 5/12/2020 |

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|---|---|---|---|---|---|---|---|---|---|---|
| | Tamien Nation | N | Lillian Camarena, Secretary | 336 Percy Street<br>Madera, CA, 93638 | (559) 363-5914 | | Lcamarena@tamien.org | Costanoan | Alameda,San Mateo,Santa Clara,Stanislaus | 4/11/2023 |
| | Tamien Nation | N | Quirina Luna Geary, Chairperson | PO Box 8053<br>San Jose, CA, 95155 | (707) 295-4011 | | qgeary@tamien.org | Costanoan | Alameda,San Mateo,Santa Clara,Stanislaus | 4/11/2023 |
| | Tamien Nation | N | Johnathan Wasaka Costillas, THPO | 10721 Pingree Road<br>Clearlake Oaks, CA, 94523 | (925) 336-5359 | | thpo@tamien.org | Costanoan | Alameda,San Mateo,Santa Clara,Stanislaus | 4/11/2023 |
| | The Ohlone Indian Tribe | N | Desiree Vigil, THPO | 1775 Marco Polo Way, Apt. 21<br>Burlingame, CA, 94010 | (650) 290-0245 | | dirwin0368@yahoo.com | Bay Miwok<br>Ohlone<br>Patwin<br>Plains Miwok | Alameda,Contra Costa,San Francisco,San Mateo,Santa Clara | 7/24/2023 |
| | The Ohlone Indian Tribe | N | Vincent Medina, Tribal Consultant | 17365 Via Del Rey<br>San Lorenzo, CA, 94580 | (510) 610-7587 | | vincent.d.medina@gmail.com | Bay Miwok<br>Ohlone<br>Patwin<br>Plains Miwok | Alameda,Contra Costa,San Francisco,San Mateo,Santa Clara | 7/24/2023 |
| | The Ohlone Indian Tribe | N | Andrew Galvan, Chairperson | P.O. Box 3388<br>Fremont, CA, 94539 | (510) 882-0527 | (510) 687-9393 | chochenyo@AOL.com | Bay Miwok<br>Ohlone<br>Patwin<br>Plains Miwok | Alameda,Contra Costa,San Francisco,San Mateo,Santa Clara | 7/24/2023 |
| | Wuksachi Indian Tribe/Eshom Valley Band | N | Kenneth Woodrow, Chairperson | 1179 Rock Haven Ct.<br>Salinas, CA, 93906 | (831) 443-9702 | | kwood8934@aol.com | Foothill Yokut<br>Mono | Alameda,Calaveras,Contra Costa,Fresno,Inyo,Kings,Madera,Marin,Mariposa,Merced,Mono,Monterey,San Benito,San Francisco,San Joaquin,San Mateo,Santa Clara,Santa Cruz,Stanislaus,Tulare,Tuolumne | 6/19/2023 |

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Pipeline Maintenance Program Environmental Impact Report and Permitting Project, Merced, San Benito, Santa Clara Counties.

**OUTREACH RESPONSE FROM THE TUOLUMNE BAND OF ME-WUK INDIANS – NOVEMBER 3, 2023**

| | |
|---|---|
| **From:** | Mike Coleman |
| **To:** | Keri Hill; Angie Alexander |
| **Cc:** | Tin Lin; Shannon Bane; Elise Latedjou-Durand |
| **Subject:** | FW: Tribal correspondence - Santa Clara Valley District's Pipeline Maintenance Program (PMP), Subsequent Program Environmental Impact Report (SPEIR), and Permitting |
| **Date:** | Saturday, November 4, 2023 6:09:41 PM |

Tribal correspondence.

Mike C.

**From:** Audrey Gower <agower@mewuk.com>
**Sent:** Friday, November 3, 2023 12:36 PM
**To:** Mike Coleman <MColeman@valleywater.org>
**Cc:** Kyle Cox <kyle@mewuk.com>
**Subject:** Santa Clara Valley District's Pipeline Maintenance Program (PMP), Subsequent Program Environmental Impact Report (SPEIR), and Permitting

***** This email originated from outside of Valley Water. Do not click links or open attachments unless you recognize the sender and know the content is safe. *****

Dear Mr. Coleman,

The Tuolumne Band of Me-Wuk Indians (Tribe) is in receipt of your letter and documentation for the **Santa Clara Valley District's Pipeline Maintenance Program (PMP), Subsequent Program Environmental Impact Report (SPEIR), and Permitting** dated September 19. 2023. The project area is located outside of our ancestral area. Thanking you for contacting the Tribe. If you have any questions or concerns, please don't hesitate to contact us.

-

*Audrey Gower*
Tuolumne Me-Wuk Tribal Council
Cultural Resource Coordinator
(209) 928-5300 ext. 35124
agower@mewuk.com

**APPENDIX C**

**PROJECT MAPS**

- Appendix C1. Lines Used in the Records Search: Close-Up.
- Appendix C2. Estimated Potential for Buried Archaeological Sites in and near the Program Area.

Location Information Redacted

# Appendix I

Historic Resources Report

# HISTORIC RESOURCES REPORT
## for the
## Santa Clara Valley Water District
## Pipeline Maintenance Program
## Santa Clara County, California

**Prepared For:**

Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

**Prepared By:**

Christopher McMorris, Principal
Steven J. "Mel" Melvin, Historian/Architectural Historian
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**July 2024**

## SUMMARY OF FINDINGS

Valley Water, also referred to as the Santa Clara Valley Water District, is proposing to update its existing Pipeline Maintenance Program (PMP). The PMP is primarily a procedural manual for the inspections, preventative maintenance, and corrective maintenance of the Valley Water pipeline system. The PMP's purpose is to integrate the procedures for the operations and maintenance of the pipelines with the appropriate permitting and/or environmental review processes, and it encompasses Valley Water's capital programs and their 10-year maintenance program. The PMP requires review under the California Environmental Quality Act (CEQA). The full PMP Project Description is in **Section 1.**

JRP Historical Consulting, LLC (JRP) prepared this Historic Resources Report under contract with Panorama Environmental, Inc. (Panorama) to evaluate all pipelines covered under the 2022 PMP constructed in 1979 or earlier. This report will assist Valley Water with compliance under CEQA as it pertains to historical resources (CEQA Guidelines Section 15064.5). Valley Water is the lead agency for project compliance under CEQA. This report is also being prepared for potential project compliance with Section 106 of the National Historic Preservation Act. The evaluated pipelines are all in Santa Clara County as shown on the maps in **Appendix A**.

In preparing this report, JRP identified 19 pipelines built in 1979 or earlier that required survey and evaluation. These resources were evaluated under Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code (PRC). JRP also evaluated the pipelines in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations in Title 36 Code of Federal Regulations Part 800 (36 CFR Part 800). This study concludes that none of the evaluated pipelines meet the eligibility criteria for listing in the California Register of Historical Resources (CRHR) or National Register of Historic Places (NRHP), and none are historical resources under CEQA. California Department of Parks and Recreation (DPR) 523 forms documenting and evaluating the pipelines are in **Appendix B**.

## TABLE OF CONTENTS



## APPENDICES

# 1 PROJECT DESCRIPTION[1]

The Santa Clara Valley Water District (Valley Water) owns, operates, and maintains raw, treated, and recycled water conveyance pipelines throughout Santa Clara County and within small portions of San Benito and Merced Counties. Valley Water is updating the existing PMP to centralize and document the inspections, preventative, and corrective maintenance procedures that their engineering and maintenance staff have historically implemented on the pipeline facilities on a routine basis. The PMP is primarily a procedural manual intended to identify the range of pipeline maintenance activities that guide the operations and maintenance (O&M) of the various pipelines and appurtenances under the PMP to maintain the structural and functional integrity of the facilities. The PMP's purpose is also to integrate the procedures for O&M with the appropriate permitting and/or environmental review processes. Scheduled and periodic review of the PMP to reflect updated and accurate Valley Water policies and procedures is an important component of the PMP.

Activities described in the PMP are required to meet Valley Water's obligations of delivering safe and reliable service as a water purveyor. The PMP also serves as a policy guide for pipeline maintenance. The objectives of the PMP are to:

- Define standard practices and procedures for maintenance activities associated with Valley Water's conveyance systems;
- Identify feasible and practicable best management practices (BMPs) and mitigation measures that would avoid or minimize any adverse environmental effects of the PMP to be incorporated and implemented during pipeline maintenance activities;
- Establish operational flexibility and adaptive management opportunities for evaluating and improving the maintenance activities defined in the PMP through learned experiences and successive planning over time;
- Support Valley Water's mission of providing Silicon Valley with safe, clean water for a healthy life, environment, and economy;
- Promote environmental justice with equitable consideration in the planning and execution of pipeline maintenance activities and associated environmental protection; and
- Streamline the environmental documentation and local, State, and federal permit processing where required to facilitate efficient and timely maintenance and repair of the pipeline system.

The PMP applies to the raw, treated, and recycled water pipelines in Valley Water's system. The area covered under the PMP is primarily in Santa Clara County. Some pipelines are also located in Alameda, San Benito, Merced, and San Mateo counties. The work area subject to the PMP includes the areas around water conveyance system pipelines and related appurtenances, including streams, fields, storm drains, and channels where release of water during pipeline

[1] Text for this section is from "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," June 2022, prepared by Panorama Environmental, Inc for Valley Water.

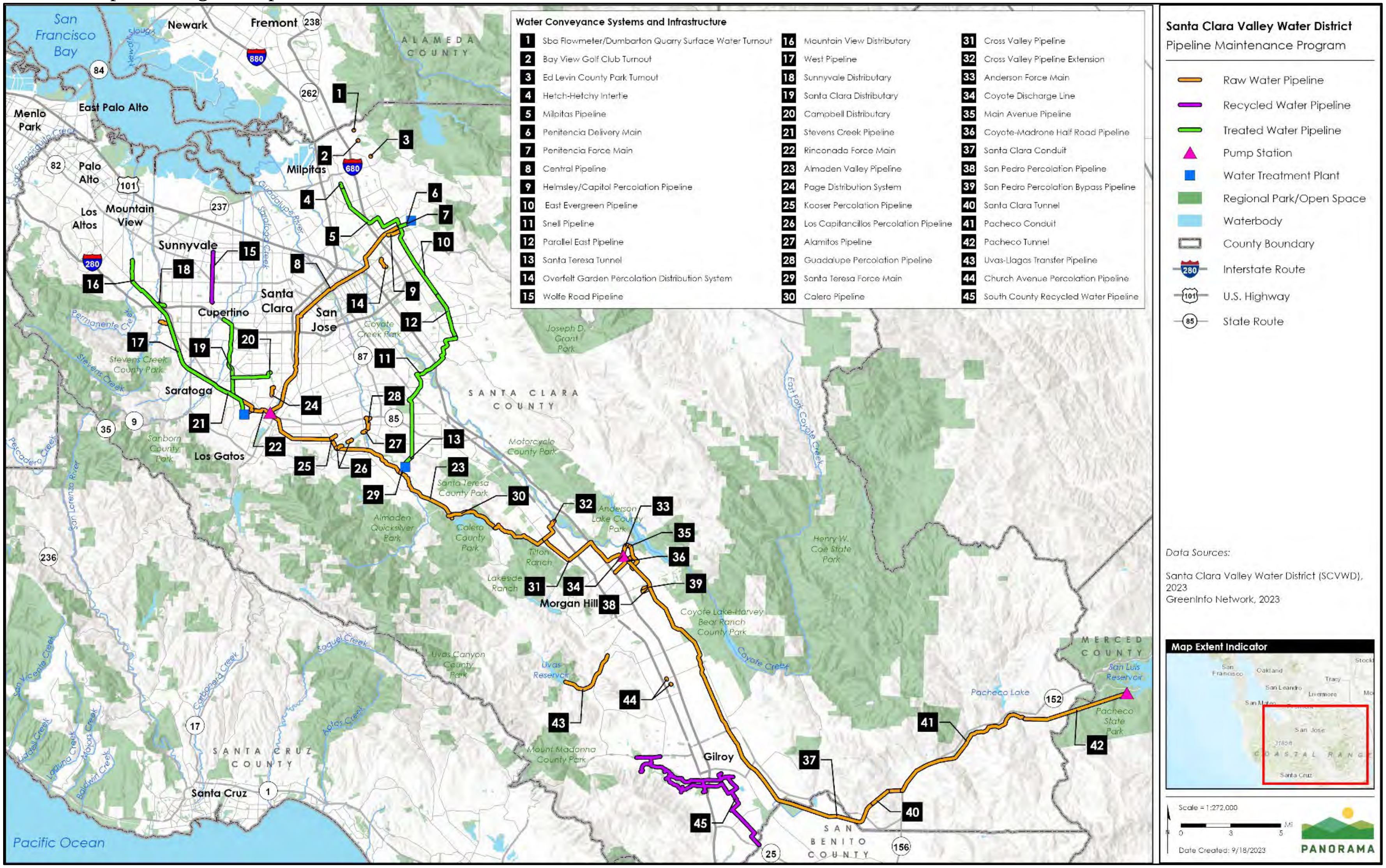
draining for maintenance activities can occur. Conveyance system components are located on Valley Water right-of-way or within public utility easements. Multiple pipelines are owned under cooperative agreements and managed under joint powers authorities. Various management agreements are in place, giving Valley Water the authority to operate and maintain the raw, treated, and recycled water systems that are covered under the PMP. **Plate 1** below shows all of the pipelines covered under the PMP. See **Figure 3**, **Appendix A** for a map showing all pipelines evaluated in this report.

The PMP guides the implementation of pipeline inspection, corrective maintenance activities, and preventative maintenance activities that improve Valley Water O&M. Specific measures, protocols, and reporting requirements are identified in the PMP to ensure that all pipeline inspection and maintenance activities are implemented in the most efficient and environmentally sensitive manner.

All types of maintenance work on Valley Water's pipeline systems, including pump stations and ancillary systems, are included under the PMP. This work includes repair, replacement, or installation of new appurtenances and associated components to these systems. Age, wear, corrosion, leaks, and integrity loss due to seismic activity and other natural geologic processes all contribute to the degradation of the systems over time. Preventative and corrective maintenance is performed to ensure adequate system functionality and safe, reliable water delivery. Several different maintenance activities must be performed on the facilities, both on a defined schedule as preventative maintenance and on an as-needed basis as corrective maintenance. Some of these activities are minor, while others may be larger undertakings that, while requiring a more robust internal design and approval effort, are still considered maintenance and, thus, covered under the PMP. The following list of maintenance categories include the majority of the facility- and appurtenance-specific activities that are necessary to maintain proper pipeline function. The PMP does not cover system expansion, emergency repairs, or underground pipeline repair under one mile in length.

- External inspection
- Internal inspection
- Underground pipeline components, including pipeline sections, valves, and fittings
- Tunnels
- Manholes, meters, vaults, and related appurtenances
- System instrumentation, controls, and monitoring
- Backup generators
- Pump stations and facilities
- Storage tanks and facilities
- Surge tanks
- Access road and support structures
- Bank stabilization and erosion control
- Vegetation management

**Plate 1**. Map Showing All Pipelines Covered Under the PMP.



### 1.1 Pipelines Evaluated in this Report

Of the 34 pipelines covered under the PMP, 19 were built in or before 1979 and are subject to evaluation for NRHP / CRHR eligibility in this report. **Table 1** lists these pipelines and **Figure 3, Appendix A** shows their locations.

**Table 1. Valley Water Pipelines Built In or Before 1979**

| Pipeline Name | Date Constructed |
|---|---|
| Alamitos Pipeline | 1964 |
| Almaden Valley Pipeline | 1966 |
| Bay View Golf Club Turnout | 1965 |
| Campbell Distributary | 1967 |
| Central Pipeline | 1965 |
| East Pipeline | 1974 |
| Ed Levin County Park Turnout | 1966 |
| Guadalupe Water System | 1961 |
| Helmsley/Capitol Percolation Pipeline | 1964 |
| Overfelt Garden Percolation Distribution System | 1976 |
| Page Distribution System | 1966 |
| Rinconada Force Main | 1967 |
| Santa Clara Distributary | 1967 |
| South Bay Aqueduct Flowmeter / Dumbarton Quarry Surface Water Turnout | 1963 |
| South County Recycled Water Pipeline | 1978 |
| Stevens Creek Pipeline | 1953/1967 |
| Sunnyvale Distributary | 1970 |
| Uvas-Llagas Transfer Pipeline | 1957 |
| West Pipeline | 1967 |

## 2 RESEARCH AND SURVEY METHODS

For this project, JRP evaluated for NRHP / CRHR eligibility all Valley Water owned or maintained pipelines 45 years old or older (i.e., built in 1979 or earlier) that are covered under the PMP. JRP determined the dates of construction through research in Valley Water records. JRP conducted research via Internet Archive, an online repository that contains over 1,000 Valley Water documents to prepare a historic context and obtain information on the history of the pipelines and appurtenant structures, maintenance and alterations, and the use of the facilities over time. JRP has worked extensively in the Santa Clara Valley in the past, including for Valley Water, and much of the materials for the historic context were derived from JRPs in-house library. JRP also reviewed the results of a records search conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System at Sonoma State University on January 31, 2023 at the request of Far Western Anthropological Research Group, Inc. Additionally, JRP reviewed the California Historical Resources list curated by the California Office of Historic Preservation (OHP), which includes resources listed in the NRHP and CRHR; OHP Built Environment Resource Directory (BERD), a list of all resourced reviewed for eligibility to the NRHP and the California Historical Landmarks programs through federal and state environmental compliance laws, and resources nominated under federal and state registration programs.[2]

JRP conducted fieldwork February 6 – 9, 2023 and September 11, 2023. Valley Water Assistant Engineer, Jonathan Gong, accompanied JRP staff during field survey of several pipelines that were not accessible from the public right-of-way. Field survey consisted of photographing the pipeline rights-of-way, appurtenant structures, and noting their materials, design, visible alterations, and setting.

[2] California OHP, Built Environment Resources Directory, Santa Clara County, accessed December 2022 at https://ohp.parks.ca.gov/?page_id=30338; California OHP, California Historical Resources, Santa Clara County, accessed December 2022 at https://ohp.parks.ca.gov/listedresources/; Northwest Information Center, Sonoma State University, Records Search conducted at the request of Far Western Anthropological Research Group on January 31, 2023, Information Center File Number 22-1043.

# 3 HISTORICAL OVERVIEW

This Historic Resources Report evaluates 19 pipelines owned or maintained by Valley Water that were constructed in 1979 or before. These are all located in Santa Clara County, with eleven in the North County / greater San José region, and two in the South County in the vicinity of Morgan Hill and Gilroy. The structures were built between 1953 and 1978, with 15 built in the 1960s. The following historic context covers the general development of these areas of Santa Clara County with particular attention to the decades following World War II and also covers the history of Valley Water and the development of its system.

## 3.1 The Rise of San José and the Agricultural Economy

The genesis of the City of San José occurred in 1777 when the Spanish government established Pueblo San José near Mission Santa Clara at the northern end of Santa Clara Valley. Pueblo San José remained a small settlement throughout the Spanish and Mexican periods as one of several towns located between San Diego and the greater San Francisco Bay Area north to Sonoma. Following the Mexican–American War, ending in 1848 with the signing of the Treaty of Guadalupe Hidalgo which ceded Alta California and other lands to the United States, surveyors began to impose Anglo urban designs on San José and laid out a rectilinear pattern of streets, blocks, and lots. A survey by C.S. Lyman completed in May 1848 created the early American-period form of San José generally bounded by Market Street on the west, 11th Street on the east, Julian Street on the north, and Reed Street as the southern border. The grid pattern expanded throughout the nineteenth century with additional land subdivided into urban lots in all directions from the original city core to accommodate residences, commercial businesses, and industry.[3]

San José's growth and its ascension to the mercantile and financial center of the Santa Clara Valley and southern San Francisco Bay Area is due in large part to the valley's agricultural production. During the early American period, roughly 1848-1870, agricultural pursuits consisted mostly of large cattle ranches and wheat farms of hundreds or thousands of acres. This began to shift in the 1870s as the wheat market declined and farmers responded by adopting a diversified farming approach, raising a variety of livestock and crops such as dairy cows, sheep, poultry, swine, hay, grapes, and fruit trees. This transition and experimentation with new crops opened the door for what would be the mainstays of Santa Clara Valley agriculture and the foundation of San José's growth and prosperity for decades to come: horticulture and viticulture. Orchards and vineyards had been planted during the Spanish, Mexican, and early American periods in the valley, but these were very small scale and for personal or limited commercial use. In 1856, the first experimental orchards were planted in the Willow Glen area, just southwest of present-day downtown San José. These pursuits were generally successful and inspired more farmers to plant orchards as well as vineyards.[4]

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[3] Clyde Arbuckle, *Clyde Arbuckle's History of San Jose* (San Jose, CA: Smith & McKay, 1985), 55-59; C.S. Lyman, *Pueblo de San Jose de Guadalupe* ([n.p.]: 1848); Jas. A. Clayton & Company, *City of San Jose* ([n.p.]: 1890).
[4] Archives & Architecture, "County of Santa Clara Historic Context Statement," prepared for the County of Santa Clara Department of Planning and Development, 2012, 40-41, 60; Arbuckle, *History of San Jose*, 55-59.

In this early period of horticulture and viticulture in the Santa Clara Valley, the French Prune became the first successful commercial orchard crop.

This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[5]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[6]

[5] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.

[6] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.

### 3.2 The San José Region, 1945-1980

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[7]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory. Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[8]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as “Silicon Valley,” a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[9]

An important contributor to San José’s expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that

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[7] Basin Research Associates, Inc., “Envision San Jose 2040 General Plan,” July 2009, Appendix J, 17-23; Archives & Architecture, “Historical Overview and Context for the City of San Jose,” 10; Young and Griffin, “Recent Land-Use Changes in the San Francisco Bay Area,” 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.
[8] Archives & Architecture, “Historical Overview and Context for the City of San Jose,” 10; Glenna Matthews, “The Los Angeles of the North,” *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, “San Jose General Plan, 1975,” December 1975, 23-24; Arvin Tarleton Henderson, Jr., “Evolution of Commercial Nucleations in San Jose, California,” MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, “San Jose Modernism Historic Context Statement,” prepared for Preservation Action Council of San Jose, June 2009, 26-32.
[9] Basin Research Associates, “Envision San Jose 2040 General Plan,” Appendix J, 17-23; Archives & Architecture, “Historical Overview and Context for the City of San Jose,” 10; Payne, *Santa Clara County: Harvest of Change*, 167-177; PAST Consulting, LLC, “San Jose Modernism Historic Context Statement,” 26-38.

expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[10]

While political and business elites strongly supported a vigorous annexation program, City Manager A.P. "Dutch" Hamann, appointed in 1950, became its leading advocate both within City Hall and publicly. Under his 20-year tenure, San José transformed from a small, agricultural-focused city into the sprawling metropolis it is today. In his first year, Hamann's administration annexed eight new tracts into the city and set the tone for things to come. The pace and total area of annexations grew, founded on a 1952 planning document titled "Planning San José: Background for Planning," that touted the importance of expansive and automobile-centered development. In 1955, annexations added 5.7 square miles to San José, and in 1956 the city recorded its largest single annexation to date, encompassing over 470 acres.[11]

The City of San José, with the support of local politicians including Hamann, business leaders, and the public at large, kept on this trajectory through the 1950s and 1960s. San José Planning Department documents, such as a five-year, $23.4 million capital improvement plan for 1957-1961, outlined continued proactive annexation of outlying land. In the decade 1950 to 1960, San José grew from a total area of 17 square miles to 67 square miles. In 1960 alone, the City annexed 110 parcels totaling 11 square miles, a record up to that time for a single year. New construction on the annexed land proceeded apace. In 1958 San José set a record for total value of new construction with buildings valued at $91 million permitted that year that included 5,722 single family residences, 404 duplexes units, and 1,808 apartment units. In addition, 150 subdivisions were under construction as of February 1959, encompassing 8,586 lots. Hamann's goal of massive and expansive growth was underway, and planners understood the objective as stated in

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[10] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.
[11] PAST Consulting, "San Jose Modernism Historic Context Statement," 28-29; Bottarini, "California Annexation Procedures," 16-21; Payne, *Santa Clara County: Harvest of Change*, 179-181.

a 1957 planning document: "San José is very likely to be the largest city, in population and possibly in area, of the San Francisco Bay Region."[12]

Road and freeway construction further boosted growth in the San José region. Nearly half of the $23.4 million in San José's 1957 capital improvement plan budget was earmarked for roadway improvements that included adding new boulevards, widening, or extending existing streets, and providing grade separations to relieve congested intersections. State highways and interstate freeways were also vital to growth and, coinciding with local roadway construction, the State of California expanded and improved the state highways through San José and the federal government built the interstate highway system. By 1980, such major freeways as I-280, I-880, I-680, and US 101 connected San José with the rest of the Bay Area and facilitated transportation within the San José region.[13]

Dutch Hamann retired in 1969 and during his career oversaw massive change. His investment in public infrastructure and aggressive annexation efforts continued to propel San José's growth into the 1970s. During his time as City Manager, San José annexed a total of 1,389 tracts that totaled an astonishing 123 square miles. By 1970, San José had become California's fourth largest city, covering 140 square miles with 459,000 residents, an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at 629,531 people.[14]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[15]

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[12] PAST Consulting, "San Jose Modernism Historic Context Statement," 30, 32-38; Bottarini, "California Annexation Procedures," 16-21.

[13] USGS, *San Jose West Quadrangle* (Washington: USGS, 1961, 1968, 1973, 1980); PAST Consulting, "San Jose Modernism Historic Context Statement," 31, 32.

[14] California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; PAST Consulting, "San Jose Modernism Historic Context Statement," 32-38, 48; Payne, *Santa Clara County: Harvest of Change*, 182.

[15] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan

### 3.3 Santa Clara Valley Water District History

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century, and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[16]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[17]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Wastewater Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa

Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

[16] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[17] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[18]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in 1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[19]

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[18] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

[19] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted of being the first water conservation system of its type in the state.[20]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[21]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[22] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery

[20] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11.
[21] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.
[22] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[23]

The water added to the District's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[24]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Guadalupe Water System (1961), South Bay Aqueduct Flowmeter/Dumbarton Quarry Surface Water Turnout (1963), Alamitos Pipeline (1964), Helmsley/Capitol Percolation Pipeline (1964), Central Pipeline (1965), Bay View Golf Club Turnout (1965), Ed Levin County Park Turnout (1966), Page Distribution System (1966), Rinconada Force Main (1967), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), Penitencia Force Main (1974), and Overfelt Garden Percolation Distribution System (1976). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[25]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion

[23] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[24] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[25] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.

of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[26]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam and Uvas-Llagas Pipeline in 1957, which were constructed to regulate the release of water from the respective reservoir to downstream groundwater recharge areas on Llagas Creek and Uvas Creek.[27] These structures became part of the expanded District system.

To further the efficient use of water, the District also became involved in recycled water projects. One such project – the South County Recycled Water Project (SCRWP) – began in 1977, when the District, the City of Gilroy, and GWCD began a partnership to construct and operate a recycled water system consisting of eight miles of 12-inch pipeline extending from the South County Regional Wastewater Authority (SCRWA) water treatment plant southeast of Gilroy to mostly agricultural customers along Hecker Pass Road west of Gilroy. The system, completed in 1978, experienced operational and water quality problems from the outset and only operated intermittently over the next 20 years. In an effort to fix the system, the SCRWP reorganized in 1999 with the SCRWA serving as supplier, the District as wholesaler, and the City of Gilroy as retailer. Together they form a plan to improve and expand the system. This first phase of the project, completed in 2003, rehabilitated the existing SCRWP pipeline with new valves, realigned a portion of the pipeline, and constructed new pipelines, a new pump station, and a new closed tank reservoir. Continued expansions of the treatment plant and the delivery system occurred with new pipelines constructed in 2011, 2014, and 2021 to provide recycled water for various users in Gilroy and vicinity. In addition to its partnership in the South County, the District has partnered with other entities on recycled water projects providing technical and financial support including the City of San José in 1994, City of Sunnyvale in 1997, and the City of Palo Alto in 2019.[28]

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[26] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.

[27] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

[28] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 59-60; Santa Clara Valley Water District, "Water Use Efficiency Program Annual Report," 2004, 29, 30; Santa Clara Valley Water District,

# 4 DESCRIPTION OF RESOURCES

This section provides a brief written description and photographs of the built environment resources surveyed and evaluated in this report. Because of the redundancy of the pipelines and appurtenant structures, representative and typical examples are provided herein. See the DPR 523 forms in **Appendix B** for full descriptions, additional photographs, and evaluations of all 19 evaluated pipelines.

## 4.1 Pipelines

The pipelines are all subterranean and could not be visually inspected for this study, except in a few locations where short sections of pipeline were above grade at creek crossings. Thus, the following description is derived from documentary sources. The pipelines are all cylindrical and made of welded steel, reinforced concrete, or prestressed concrete. They encompass a wide range of lengths from 0.16 miles to 13.1 miles with six of the pipelines one mile or less. The pipelines also range in diameter from 10 inches to 78 inches. Several of the pipelines vary in diameter along their lengths. For example, the Almaden Valley Pipeline has segments 72 inches and 78 inches in diameter, respectively. The majority of the pipeline segments are buried under public road rights-of-way, railroad rights-of-way, utility rights-of-way, or along riparian or park corridors (**Photograph 1 - Photograph 3**). Less commonly, segments pass under private agricultural land or private developed urban land.

**Photograph 1.** Looking west along the right-of-way for the Almaden Valley Pipeline as it runs beneath a transmission line corridor and public park. A concrete vault associated with the pipeline is in the foreground. Photo taken February 7, 2023.

“South County Recycled Water Master Plan – Final,” October 18, 2004, 3-2, Figure 3-1; ESA, “South County Regional Wastewater Authority Recycled Water Booster Pump Station and Reservoir, IS/MND,” March 6, 2000, 3, 10; SCVWD, “Water Use Efficiency Program Annual Report: Fiscal Year 2002-2003,” 26-30; SCVWD, “Water Use Efficiency Program, Year-End Report: Fiscal Year 2006-07,” 27; Silicon Valley Advanced Water Purification Center, “Recycled Water Projects,” accessed January 2022 at https://purewater4u.org/recycled-water-projects/.


**Photograph 2.** Looking east along the right-of-way for the Campbell Distributary pipeline as it runs beneath a public street. An air vent is in the foreground. Photo taken February 6, 2023.

**Photograph 3.** Looking along the alignment of the Uvas – Llagas pipeline as marked by the blue post. The pipeline passes under private agricultural land at this point. Photo taken February 9, 2023.

### 4.2 Appurtenant Structures

Along the pipelines are a variety of above-ground appurtenant structures including block-house vaults, concrete vaults, air vents, and electrical boxes. The block-house vaults are rectangular single-story buildings made of concrete block with dimensions typically about 15 feet by 10 feet (**Photograph 4**). These have flat parapet or gable roofs, metal personnel doors, and full-width louvred vents at the top of the front and rear walls.

The concrete vaults come in a range of sizes and shapes. They provide access to the pipeline and typically are locations of valves on the pipelines and can also contain equipment. The vault structure is mostly subterranean with some rising up to two feet above the ground, while others are flush with the ground. The largest and most common of this type of concrete vaults are generally about 17 to 20 feet square and about two feet above the ground (**Photograph 5**). They have either flat or low-pitched gable roofs attached to the concrete top of the vault. Typically, the roof will have a hinged metal hatch to allow access.

Another type of concrete vault is much small and much more common. These vaults are either cylindrical or square and measure about four to five feet across (**Photograph 6**, **Photograph 7**). These vaults rise from a few inches to three feet above grade and have metal tops with hinged metal hatches. In many cases, the metal tops are raised a few inches above the top of the concrete vault to allow ventilation.

Electrical boxes are also a common feature. These are metal, cylindrical, square or rectangular, and range in size, the largest being about six feet tall by five feet wide (**Photograph 8**). The electrical boxes are usually located next to vaults and contain a variety of electrical equipment including controls, gauges, and meters.

Vents occur less frequently and are typically not next to a vault. These features are cylindrical, metal and rise a few feet above the ground (**Photograph 9**). They either have perforated sides, or a cap with an open bottom. Some of the vents curve into inverted U-shapes and have open ends.

**Photograph 4.** Block-house vault on the Central Pipeline, camera facing northwest, February 8, 2023.

**Photograph 5.** Large concrete vault on the Rinconada Force Main, camera facing north, February 7, 2023.

**Photograph 6.** Cylindrical concrete vault on the Stevens Creek Pipeline, camera facing southeast, February 7, 2023.


**Photograph 7.** Square concrete vault on the Almaden Valley Pipeline, camera facing southeast, February 7, 2023.

**Photograph 8.** Two electrical boxes next to a cylindrical concrete vault on the Stevens Creek Pipeline, camera facing east, February 7, 2023.


**Photograph 9.** Air vent on the East Pipeline, camera facing west, February 6, 2023.

# 5 FINDINGS AND CONCLUSIONS

This Historic Resources Report is being prepared to assist Valley Water with compliance under CEQA as it pertains to historical resources (CEQA Guidelines Section 15064.5). Valley Water is the lead agency for project compliance under CEQA. Nineteen pipelines owned or maintained by Valley Water constructed in 1979 or earlier along with and their appurtenant structures were evaluated for this report. Of these, none were found to be eligible for the NRHP / CRHR. **Table 2** below summarizes the findings of this report and an evaluation discussion follows. For a full evaluation of each individual pipeline, see the DPR 523 forms in **Appendix B**.

**Table 2. NRHP / CRHR Status of Valley Water Pipelines Evaluated**

| Pipeline | Date Constructed | Eligible for NRHP/CRHR |
|---|---|---|
| Alamitos Pipeline | 1964 | No |
| Almaden Valley Pipeline | 1966 | No |
| Bay View Golf Club Turnout | 1965 | No |
| Campbell Distributary | 1967 | No |
| Central Pipeline | 1965 | No |
| East Pipeline | 1974 | No |
| Ed Levin County Park Turnout | 1966 | No |
| Guadalupe Water System | 1961 | No |
| Helmsley/Capitol Percolation Pipeline | 1964 | No |
| Overfelt Garden Percolation Distribution System | 1976 | No |
| Page Distribution System | 1966 | No |
| Rinconada Force Main | 1967 | No |
| Santa Clara Distributary | 1967 | No |
| South Bay Aqueduct Flowmeter / Dumbarton Quarry Surface Water Turnout | 1963 | No |
| South County Recycled Water Pipeline | 1978 | No |
| Stevens Creek Pipeline | 1953/1967 | No |
| Sunnyvale Distributary | 1970 | No |
| Uvas-Llagas Transfer Pipeline | 1957 | No |
| West Pipeline | 1967 | No |

## 5.1 CRHR Criteria

The State of California references cultural resources in CEQA, and archaeological and historical resources are specifically treated under California Public Resources Code (PRC) Sections 21083.2 and 21084.1, respectively. PRC Sections 5020.1 through 5024.6 create the CRHR and set forth requirements for protection of historic cultural resources. JRP used the CRHR criteria to evaluate the historic significance of the 19 pipelines and appurtenant structures studied in this report. The criteria for listing properties in the CRHR are set forth in CEQA Guidelines section 15064.5(a)(3) and are as follows:[29]

- Criterion 1: Associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Criterion 2: Associated with the lives of persons important in our past;
- Criterion 3: Embodies the distinctive characteristics of a type, period, region or method of construction, or represents the work of an important creative individual or possesses high artistic values;
- Criterion 4: Has yielded, or may be likely to yield, information important to the prehistory or history;

Under CEQA Guidelines, Section 15064.5 (a) and PRC Section 5024.1(d)(1)-(2), a "historical resource" is defined as:

- A resource listed in or determined to be eligible by the State Historical Resources Commission for the CRHR;
- A resource included in a local register of historical resources, as defined in section 5020.1(k) of the PRC or identified as significant in an historical resource survey meeting the requirements of section 5024.1(g) of the PRC;
- Any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant, provided the lead agency's determination is supported by substantial evidence in light of the whole record;
- A resource so determined by a lead agency as defined in PRC sections 5020.1(j) or 5024.1;
- Historical resources listed in, or determined eligible for, the NRHP are automatically listed in the CRHR, Section 5024 (d)(1)(2) of the PRC;
- State Historical Landmarks numbered 770 and above.

Historical resources eligible for listing in the CRHR must meet one of the criteria of significance described above and retain enough integrity to be recognizable as historical resources and to convey the reasons for their significance. CEQA defines integrity as the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. It must also be judged with reference to the particular criteria under which a resource is proposed for eligibility.

[29] CEQA—Public Resources Code [PRC] Division 13, Sections 21000-21178; CEQA Guidelines, Section 15064.5(a)(2)-(4) provide the criteria from Section 5024.1 of the California Public Resources Code, and the CRHR is defined in the California Code of Regulations Title 14, Chapter 11.5.

## 5.2 NRHP Criteria

Section 106 of the National Historic Preservation Act defines a historic property as a historic district, site, building, structure, or object included in or determined eligible for inclusion in the NRHP. The eligibility criteria for listing properties in the NRHP are codified in 36 CFR Part 60 et seq. and explained in guidelines published by the Keeper of the National Register.

Eligibility for listing in the NRHP rests on twin factors of significance and integrity. A property must have both significance and integrity to be considered eligible. Loss of integrity, if sufficiently great, will overwhelm any historical significance a property may possess and render it ineligible. Likewise, a property can have complete integrity, but if it lacks significance, it is also ineligible.

*Historic significance* is judged by applying the NRHP criteria identified as Criteria A through D. The NRHP guidelines explain that a historic resource's "quality of significance in American history, architecture, archeology, engineering, and culture" is determined by meeting at least one of the four main criteria at the local, state, or national level:

- Criterion A: association with events that have made a significant contribution to the broad patterns of our history;
- Criterion B: association with the lives of persons significant in our past;
- Criterion C: embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction;
- Criterion D: has yielded, or is likely to yield, information important in history or prehistory.

*Integrity* is determined under NRHP guidelines by applying seven factors to a historic resource: location, design, setting, workmanship, materials, feeling, and association. These seven can be roughly grouped into three types of integrity considerations. Location and setting relate to the relationship between the property and its environment. Design, materials, and workmanship relate to construction methods and architectural details. Feeling and association are the least objective of the seven criteria, pertaining to the overall ability of the property to convey a sense of the historical time and place in which it was constructed.

## 5.3 Significance Evaluation

After conducting research to establish a historic context and histories of the 19 individual pipelines and performing fieldwork, this study concludes that none of the pipelines inclusive of their appurtenant structures are eligible for the NRHP or CRHR.

These 19 pipelines do not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). Constructed between 1957 and 1978, these pipelines carry treated, raw, and recycled water to water customers, water treatment plants, groundwater recharge ponds, and other facilities in the Santa Clara Valley. These structures are part of a vast system that served to efficiently move, store, and manage the water resources of the Santa Clara Valley. These pipelines were built during a period from the late 1950s to the 1970s to accommodate increasing water demands and additional water brought into the Santa Clara Valley from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District and other water management entities have responded by building necessary infrastructure, such as these 19 pipelines, to meet the demand. These 19 pipelines, therefore, are not associated with any historically significant events, patterns, or trends, rather they are associated with the natural evolution, growth, and expansion of the District's water system in its mission to provide water to the Santa Clara Valley.

These 19 pipelines are not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, these pipelines are not significant as important examples of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. These pipelines are all cylindrical and made of welded steel, reinforced concrete, or prestressed concrete; range of length from 0.01 miles to 13.1 miles; and have diameters from 6 inches to 78 inches. They are all of utilitarian design and represent typical materials and methods of construction for their period and use. None of the pipelines are noteworthy for their length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that any of the pipelines were the work of a master. None of the 19 pipelines, therefore, are significant under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, none of the pipelines are a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

These 19 pipelines have been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. None of the pipelines are historical resources for the purposes of CEQA.

# 6 PREPARERS' QUALIFICATIONS

JRP Principal Christopher McMorris (M.S., Historic Preservation, Columbia University) oversaw the preparation of this report. Mr. McMorris has more than 25 years of experience and specializes in conducting historic resource studies for compliance with Section 106 of the National Historic Preservation Act and CEQA, as well as other historic preservation projects. Based on his level of education and experience, Mr. McMorris meets the United States Secretary of the Interior's Professional Qualification Standards under History and Architectural History (as defined in 36 CFR Part 61).

JRP Senior Historian Steven J. "Mel" Melvin (M.A., Public History, California State University, Sacramento) was the lead historian for this project. Mr. Melvin has more than 18 years of experience as a historian/architectural historian preparing historic resource inventory and evaluation reports. He conducted fieldwork and research and was the primary author of this report and the attached DPR 523 forms. Mr. Melvin meets the Secretary of the Interior's Professional Qualification Standards under History and Architectural History (as defined in 36 CFR Part 61).

Research Assistant Abigail Lawton (M.A., Historic Preservation, Cornell University, Ithaca, N.Y., expected 2024) assisted in fieldwork, research, and preparation of the report and DPR 523 forms for this report.

Graphics/GIS Technician Rebecca Flores created the mapping and illustrations utilized in this report and the DPR 523 forms.

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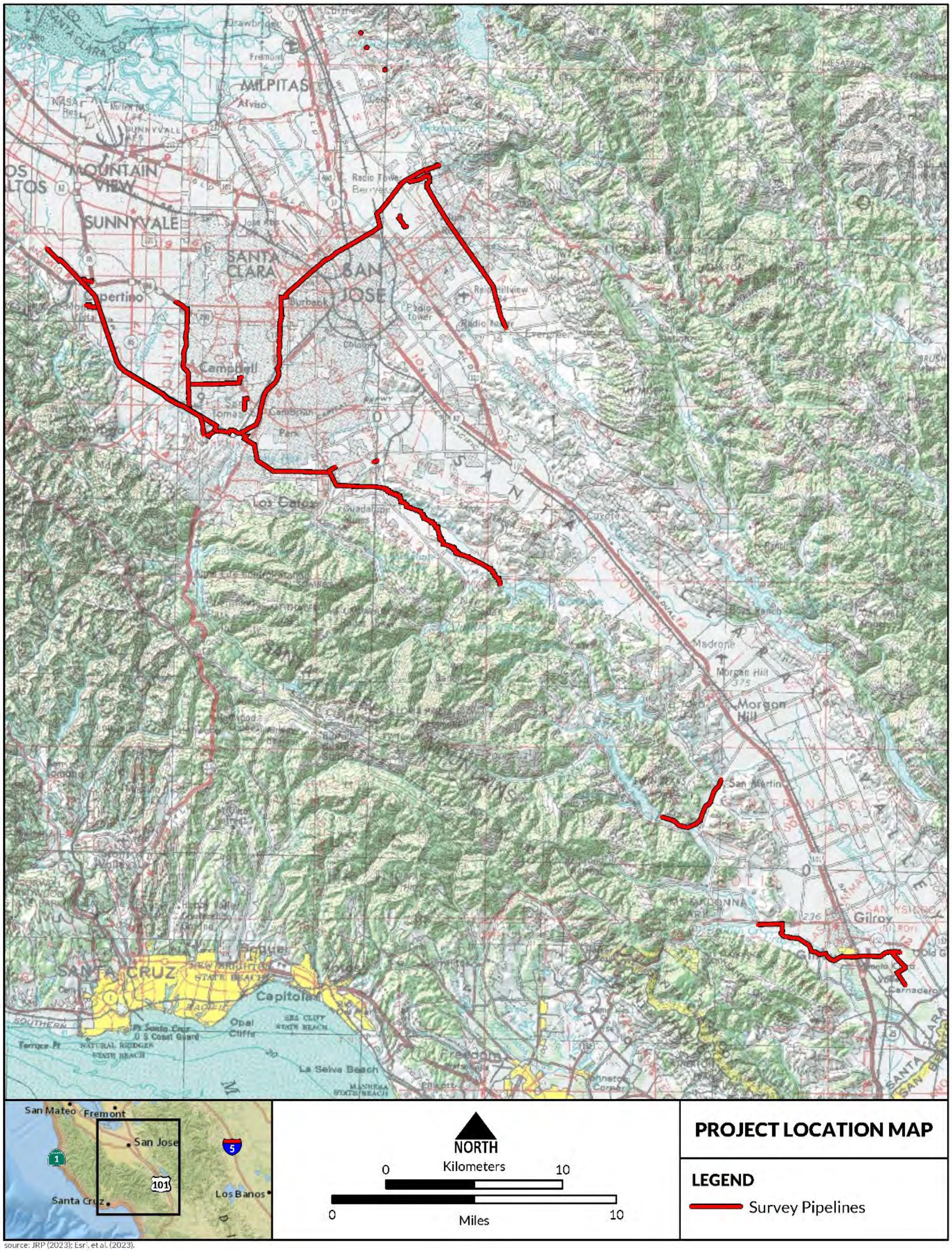
# APPENDIX A

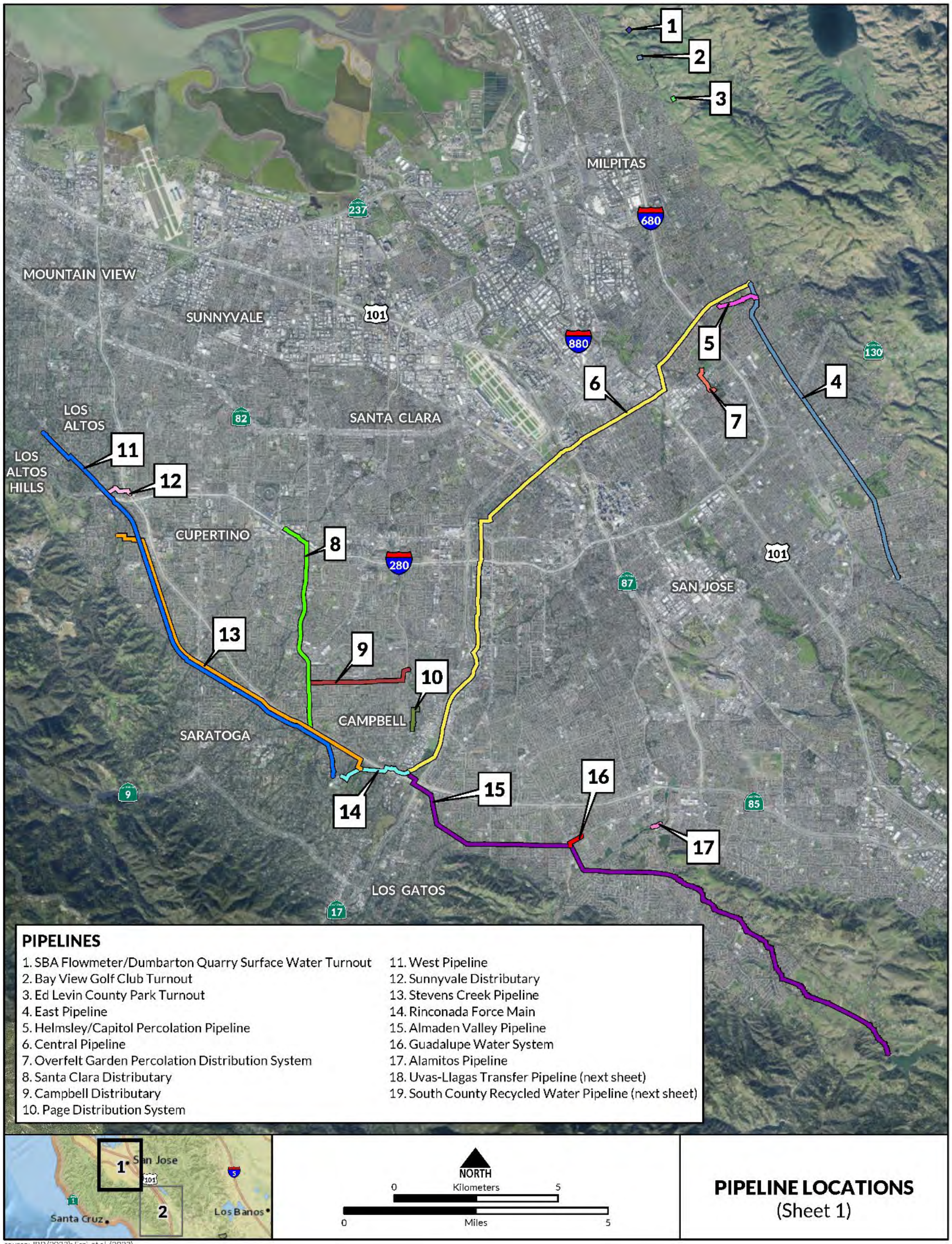
# FIGURES

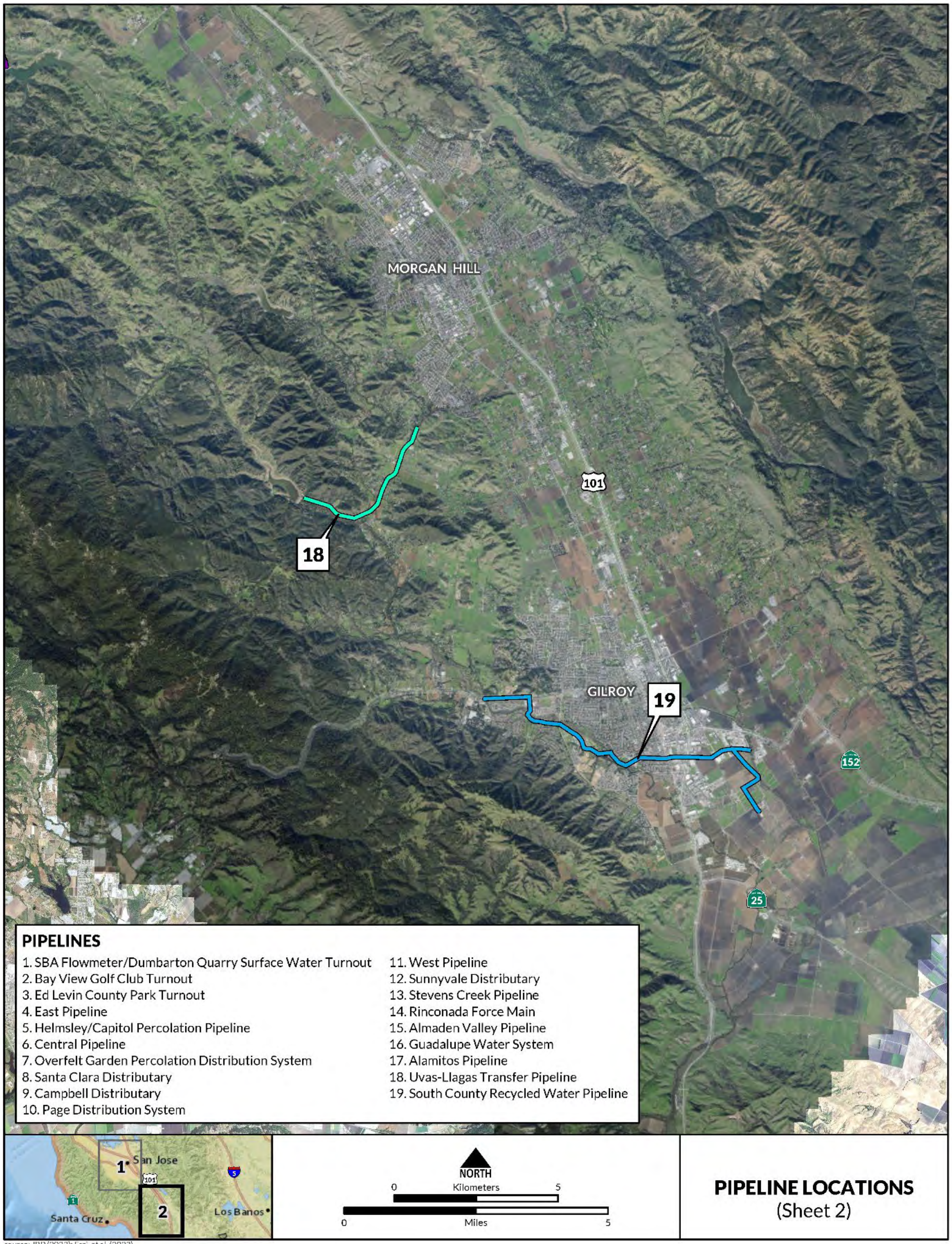
**Figure 1. Project Vicinity Map**

**Figure 2. Project Location Map**



## Figure 3. Map of Evaluated Pipelines






source: JRP (2023); Esri, et al. (2023).

# APPENDIX B

# DPR 523 FORMS

***Resource Name or #** (Assigned by recorder): Alamitos Pipeline

**P1. Other Identifier:** Alamitos Pipeline

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Santa Clara

***b. USGS 7.5' Quad**: Santa Teresa Hills **Date**: 2021 **T**:_; **R**:_; **Sec**:_; Pueblo Lands of San José

c. Address: n/a City: San José Zip: n/a

d. UTM: Endpoints: Zone: 10S; 599743.31 m E / 4122640.98 m N (west end); 599978.07 m E / 4122742.77 m N (east end)

e. Other Locational Data: The pipeline begins at the Los Capitancillos Percolation Pond and ends at the Alamitos Percolation Pond.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Alamitos Pipeline. The pipeline is entirely below ground; thus, the description of the pipeline is derived from documentary sources. The pipeline is 0.16 miles long, 24 inches in diameter, and made of reinforced concrete. The pipeline carries water from the Los Capitancillos Groundwater Recharge Pond, via a turnout in the northwest corner to the Alamitos Recharge Pond, crossing under the Almaden Expressway and through the Valley Water headquarters property (**Photograph 1**). No above-ground structures were observed during fieldwork for this pipeline. See the Linear Feature Record for photographs and descriptions of the recordation point.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1:** Looking northeast along the pipeline right-of-way under the Almaden Expressway near the beginning of the line, February 7, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1964 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded**: February 7, 2023

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ____

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Alamitos Pipeline

B1. Historic Name: Alamitos Pipeline
B2. Common Name: Alamitos Pipeline
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1964; addition of turnout in 1998.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown Date:** ___ **Original Location:** ___
***B8. Related Features:** ___
B9. Architect: Unknown b. Builder: American Pipe & Construction Company, Hayward, CA
***B10. Significance: Theme**: n/a **Area**: Santa Clara Valley
**Period of Significance**: n/a **Property Type**: Pipeline **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Alamitos Pipeline, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: February 2023

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Alamitos Pipeline

**L1. Historic and/or Common Name**: Alamitos Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 599749.92 mE / 4122623.22 mN; off Almaden Expressway, just south of Chris Hotts Park.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is the inlet for the pipeline at the Los Capitancillos Groundwater Recharge Pond (**Photograph 2**). The concrete inlet is covered by a metal trash screen. On top of the inlets is a metal grate and a screw-type gate hoist mechanism. Concrete steps with metal-pipe handrails provide access to the hoist.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location the pipeline runs through a mixed commercial and residential area with Guadalupe Creek just to the south.

**L7. Integrity Considerations:** At this recordation point, there are no apparent or documented integrity considerations.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** Pipeline inlet structure at the northwest corner of Los Capitancillos Groundwater Recharge Pond, camera facing south, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.

[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.

[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.
[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.
[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.
[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.
[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.
[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.
[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

*History of the Alamitos Pipeline*

Built in 1964 by the American Pipe & Construction Company of Hayward, California, the Alamitos Pipeline carries raw water a distance of 0.16 miles from the Los Capitancillos Percolation Pond to the Alamitos Percolation Pond (**Plate 1**). The pipeline is part of the system's function to recharge groundwater. The 24-inch diameter pipeline runs under the Almaden Expressway and through the Valley Water headquarters property. The pipeline was extended 450 feet in 1970 and a turnout was added in 1998.[20]

**Plate 1.** Alamitos Pipeline under construction in 1964 (courtesy of SCVWD Archives).

## Evaluation

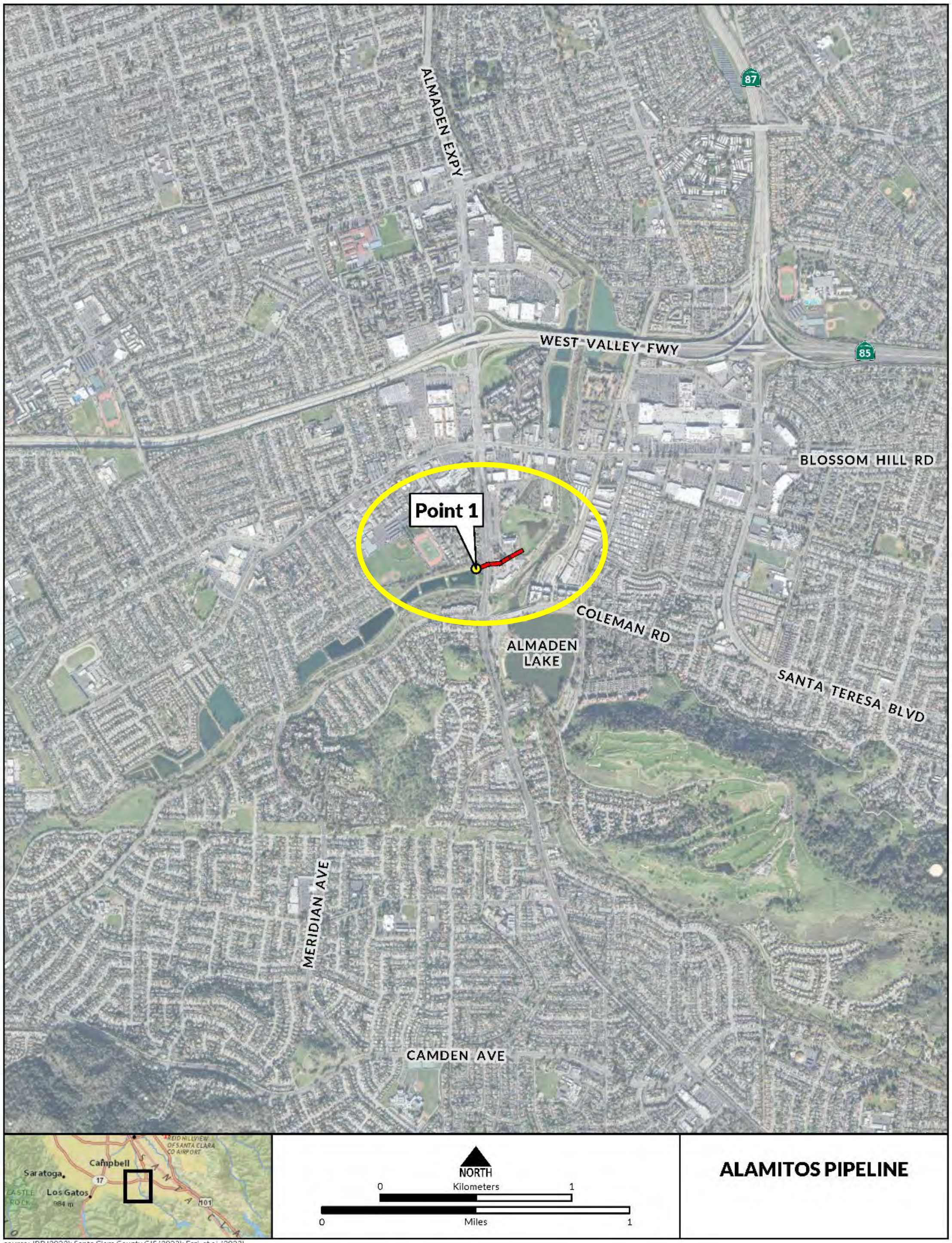
The Alamitos Pipeline, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). Constructed in 1964, this pipeline delivers water to a percolation pond to recharge groundwater. It is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, including the Alamitos Pipeline, to meet the demand. The Alamitos Pipeline, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

[20] Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1; GIS data provided by SCVWD; AECOM, "Infrastructure Reliability Plan, 2016," prepared for SCVWD, June 30, 2016, Appendix 3; SCVWD, Pipelines Project Delivery Unit, Pipeline Information, March 9, 2023.

This pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground reinforced concrete pipeline is 24 inches in diameter and 0.16 miles long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that California American Pipe & Construction Company, the firm that designed and built the pipeline, rises to the level of master in its respective fields. The Alamitos Pipeline, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.




source: JRP (2023); Santa Clara County GIS (2023); Esri, et al. (2023).

**P1. Other Identifier:** Almaden Valley Pipeline

***P2. Location:** ☐ Not for Publication ☒ Unrestricted ***a. County:** Santa Clara

***b. USGS 7.5' Quad:** San José West **Date:** 2021 **T:**__; **R:**____; **Sec:**__; Rancho Rinconada de Los Gatos

***b. USGS 7.5' Quad:** Los Gatos **Date:** 2021 **T:**_____; **R:**____; **Sec:**__; Pueblo Lands of San José

***b. USGS 7.5' Quad:** Santa Teresa Hills **Date:** 2021 **T:**_____; **R:**____; **Sec:**__; Pueblo Lands of San José

c. Address: n/a City: Los Gatos & San José Zip: n/a

d. UTM: Endpoints: Zone: 10S; 592296.48 m E / 4124013.02 m N (west end); 607111.95 m E / 4115921.99 m N (east end)

e. Other Locational Data: The west end of the pipeline is at the Vasona Valve Yard and the east end is at the Calero Valve Yard just below Calero Dam.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Almaden Valley Pipeline and a representative sampling of the pipeline's appurtenant above-ground structures. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. The pipeline is 12.3 miles long and 72 and 78 inches in diameter. It is made of welded steel and prestressed concrete. The pipeline connects Calero Valve Yard in the southern end of San José and the Vasona Valve Yard on Fremont Court in Los Gatos. Sections of the pipeline run along public road rights-of-way, across private land, exclusive rights-of-way, and the Alamitos Creek riparian corridor (**Photograph 1**). Along the route are various appurtenant above-ground structures such as concrete vaults, block-house vaults, and electrical equipment boxes. Photographs and descriptions of the recordation points are on the attached Linear Feature Records.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☒ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1:** Concrete vault, looking west along pipeline right-of-way in Fontana Park, San José, near McAbee Road, February 7, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1966 & 1982 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** February 7-9, 2023

***P10. Survey Type:** Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (list) ____________

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

B1. Historic Name: Almaden Valley Pipeline
B2. Common Name: Almaden Valley Pipeline
B3. Original Use: Water conveyance   B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1966; Eight-mile extension built in 1982; flowmeter and flowmeter vault added in 1990 at Vasona Valve Yard; air release valves, vacuum air release valves, and butterfly valves replaced in 2007 and 2010; various minor components replaced at all vaults in 2017; concrete vault and all pipes less than 16 inches replaced at Kooser turnout in 2017.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown**   **Date:** ___   **Original Location:** ___
***B8. Related Features:** ___
B9. Architect: California Pacific Engineers, San José (1966 pipeline); SCVWD (1982 extension)
b. Builder: Hood Corporation, Whittier, CA (1966 pipeline); Granite Construction Company and Homer J. Olsen Company (1982 extension)
***B10. Significance: Theme**: n/a   **Area**: Santa Clara Valley
**Period of Significance**: n/a   **Property Type**: Pipeline   **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Almaden Valley Pipeline, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: February 2023

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

**L1. Historic and/or Common Name**: Almaden Valley Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 607061.97 mE / 4116056.07 mN; near Cherry Canyon Road just downstream of Calero Dam.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location near one end of the pipeline is a large concrete vault (**Photograph 2**). The vault is about 17 feet square and rises about two feet above the ground. It has a flat, wood-frame roof clad in asphalt sheet roofing. A short set of metal steps with metal-pipe rails is located adjacent to the east side near the southeast corner that leads to a square metal access hatch. An antenna is mounted atop a metal pole attached to the southwest corner of the structure.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline through a wooded, riparian area at the foot of sloping hills and open grassy meadows in rural Santa Clara County.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** Vault, camera facing northwest, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

**L1. Historic and/or Common Name**: Almaden Valley Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 607035.77 mE / 4116113.73 mN; Calero Valve Yard on Cherry Canyon Road just below Calero Dam.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a fenced-enclosed yard with two concrete vaults associated with the Almaden Valley Pipeline. One is a large vault about 17 feet square that extends about two feet above ground (**Photograph 3**). It has a wood-frame, low-pitched shed roof covered with metal sheets. A short set of metal steps with metal-pipe railing lead to a raised, square metal access hatch. The other vault is about five feet square and about one to two feet above grade (**Photograph 14**). It has a metal top with hinged access doors.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a wooded, riparian area at the foot of sloping hills and open grassy meadows in rural Santa Clara County.

**L8a. Photograph, Map, or Drawing.**

**L7. Integrity Considerations:** It appears the original roofing material on the large vault has been replaced.

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 3.** Large vault in the foreground, small vault on left, camera facing north, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

**L1. Historic and/or Common Name**: Almaden Valley Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 606342.86 mE / 4116873.44 mN; on the south side of McKean Road immediately west of the Shillingsburg Avenue intersection.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location there is a small, concrete above-ground vault (**Photograph 4**). The structure is about five feet square and one foot above grade with metal hinged access doors on top. The vault is surrounded by bollards and blue-capped posts marking the alignment of the pipeline.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **a. Top Width**: n/a
- **b. Bottom Width**: n/a
- **c. Height or Depth**: n/a
- **d. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through open grassy meadows in rural Santa Clara County.

**L7. Integrity Considerations**: The appearance of the concrete indicates this structure does not date to the original construction of the pipeline.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Concrete vault, camera facing west, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

**L1. Historic and/or Common Name**: Almaden Valley Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 4

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 603704.84 mE / 4118342.88 mN; along Alamitos Creek near intersection of Queenswood Way and Figwood Court in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a fence-enclosed yard with a large concrete vault, small concrete vault, two electrical equipment boxes, and an antenna. (**Photograph 5** and **Photograph 15**). The large vault is about 23 feet square, two feet above grade and has a gable-roof covered in raised seam metal sheets. The gable ends are clad with vertical groove panel siding and have small vents in the peaks. The small concrete vault is roughly five feet square and rises about one foot above grade. It has a hinged metal hatch on top. Near the large vault is a tall, narrow metal electrical equipment box and a larger metal electrical box. A tall pole with an antenna mounted on top is located southeast of the large vault.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- e. **Top Width**: n/a
- f. **Bottom Width**: n/a
- g. **Height or Depth**: n/a
- h. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a riparian corridor/parkway along Alamitos Creek in a suburban neighborhood of single-family residences.

**L7. Integrity Considerations:** It appears that the roof of the large vault and the electrical boxes do not date to the construction of the pipeline at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:** **Photograph 5.** Large vault and electrical boxes, camera facing north, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

**L1. Historic and/or Common Name**: Almaden Valley Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 5

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 602151.31 mE / 4120014.30 mN; along Los Alamitos Creek immediately west of the intersection of Camden Avenue and Bubblingwell Place in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a five-foot square concrete vault situated on a steep slope. It has a metal top with hinged access doors (**Photograph 6**). On the south side of the structure are three small, attached metal electrical boxes and one detached electrical box.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- i. **Top Width**: n/a
- j. **Bottom Width**: n/a
- k. **Height or Depth**: n/a
- l. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing:**

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes along Los Alamitos Creek through a suburban neighborhood of single-family residences.

**L7. Integrity Considerations:** It appears that the electrical boxes do not date to the construction of the pipeline at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 6.** Concrete vault and equipment boxes, camera facing northwest, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

**L1. Historic and/or Common Name**: Almaden Valley Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 6

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 600195.97 mE / 4121214.16 mN; along the Almaden Expressway near Jayden Lane in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

The visible appurtenant structures at this location including two large, shed-roof vaults, a smaller concrete vault, and a small electrical box (**Photograph 7**). The two large concrete vaults rise about 3 feet above grade at their highest points and are topped by low-pitched shed roofs, one clad in metal sheets, the other in composition asphalt sheets. One of these is about 15 feet square and the other about 18 by 25 feet. Both have raised metal access hatches accessed by a set of metal stairs. Near these large vaults is the small concrete vault. It is about five feet square, about three feet above grade, and has metal hinged access doors on top. Also at this location is a tall, narrow electrical box and an antenna mounted on a metal pole.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- m. **Top Width**: n/a
- n. **Bottom Width**: n/a
- o. **Height or Depth**: n/a
- p. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)

This location is along Los Alamitos Creek and adjacent to neighborhoods of single-family homes.

**L7. Integrity Considerations:** It appears the metal roof on one of the large vaults is not original.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 7.** Two large shed-roof vaults and a small concrete vault, camera facing east, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

**L1. Historic and/or Common Name**: Almaden Valley Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 7

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 598655.00 mE / 4121247.00 mN; in T.J. Martin Park near Burchell Avenue in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is an approximately five-foot square concrete vault that rises about two feet above grade (**Photograph 8**). On top is a flush metal hatch with two hinged doors.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This location is in a public park adjacent to neighborhoods of single-family homes.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**


**L8b. Description of Photo, Map, or Drawing:**
**Photograph 8.** Concrete vault, camera facing southeast, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

**L1. Historic and/or Common Name**: Almaden Valley Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 8

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 598123.64 mE / 4121268.83 mN; on the east side of Coleman Road at the west end of T.J. Martin Park in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a fence-enclosed yard with a shed-roof vault and equipment box (**Photograph 9**). The vault measures approximately 20 feet square and rises about 1 foot above grade at its highest point. The walls are concrete, and the low-pitched shed roof is covered with smooth metal sheets. A raised metal access hatch is set into a concrete pad on the north side. A tall, narrow metal equipment box approximately 4 feet tall is next to the vault.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **e. Top Width**: n/a
- **f. Bottom Width**: n/a
- **g. Height or Depth**: n/a
- **h. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This location is in a public park adjacent to neighborhoods of single-family homes.

**L7. Integrity Considerations:** It appears that the vault roof has been replaced and the metal electrical box does not date to the construction of the pipeline at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 9.** Vault and electrical box, camera facing northwest, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

**L1. Historic and/or Common Name**: Almaden Valley Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 9

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 597642.20 mE / 4121333.58 mN; along Guadalupe Creek near Singletree Way and Park Manor Drive in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a fence-enclosed yard with three small concrete vaults and one concrete block-house vault (**Photograph 10**). Two of the concrete vaults are cylindrical, about four feet in diameter, and have metal tops with hinged access doors. One of these is about two feet above grade and has a short metal ladder is attached to one side (**Photograph 16**). The other is flush with the ground (**Photograph 17**). The third concrete vault is about four feet square and about three feet above grade at its highest (**Photograph 18**). It has a metal access hatch set into the top, flush with the concrete. Next to this is a block-house vault constructed of concrete block and topped with a low-pitched shed roof with metal roofing (**Photograph 19**). It has a metal personnel door with full-width louvre vents above and on the rear.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline runs near open parkland, past an electrical substation and school, and through a generally residential area.

**L8a. Photograph, Map, or Drawing.**

**L7. Integrity Considerations:** There are no documented or apparent integrity considerations at this point.

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 10.** Two concrete vaults and a block house, camera facing southeast, February 9, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

**L1. Historic and/or Common Name**: Almaden Valley Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 10

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 597256.99 mE / 4122003.59 mN; on Camden Avenue near Kooser Road in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location there are three concrete vaults in the median of Camden Avenue (**Photograph 11**). The two western vaults (the two right vaults in the photo) are associated with the Almaden Valley Pipeline (AVP). The eastern vault (left) is associated with the Guadalupe Water System. One of the appurtenant vaults is cylindrical, measuring about five feet in diameter and nearly flush with the ground. It has a metal top with a hinged hatch that sits slightly above the top of the concrete. The other appurtenant vault is approximately five feet square and rises about a foot above grade. It has a two-leaf hinged metal hatch on top set flush with the concrete.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- e. **Top Width**: n/a
- f. **Bottom Width**: n/a
- g. **Height or Depth**: n/a
- h. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline runs through a residential area of single-family homes.

**L8a. Photograph, Map, or Drawing.**


**L7. Integrity Considerations:** There are no documented or apparent integrity considerations at this point.

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 11.** Three concrete vaults (two vaults on the rights are appurtenant to AVP), camera facing southeast, February 9, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

**L1. Historic and/or Common Name**: Almaden Valley Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 11

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 595583.19 mE / 4121998.80 mN; on Leigh Avenue near Anne Way in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault that rises about two feet above the ground (**Photograph 12**). It is about five feet in diameter and has a metal cover with hinged access doors. The metal cover is a few inches above the top of the concrete to allow for ventilation.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline runs through a residential area of single-family homes and a high school.

**L7. Integrity Considerations:** There are no documented or apparent integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 12.** Concrete vault, camera facing southwest, February 9, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

**L1. Historic and/or Common Name**: Almaden Valley Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 12

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 593775.17 mE / 4122175.32 mN; at Escobar Avenue in Los Gatos.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

At this location is a fence-enclosed yard with four concrete vaults and three electrical equipment boxes (**Photograph 13**). Three of the vaults are cylindrical, about five feet in diameter, and rising between one and two feet above grade. They have metal covers with hinged access doors. On one of the vaults, the metal cover is raised a few inches above the top of the concrete to allow for ventilation. The rectangular concrete vault measures approximately five by seven feet and rises about two feet above grade. It has a square metal access hatch on top set flush with the concrete. The three metal electrical boxes are generally rectangular and between three and four feet tall.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **e. Top Width**: n/a
- **f. Bottom Width**: n/a
- **g. Height or Depth**: n/a
- **h. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)

At this location, the pipeline passes through an area of single-family residences.

**L7. Integrity Considerations:** The electrical boxes appear to be more recent than the 1966 date of construction of the pipeline at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**

**Photograph 13.** Concrete vaults and electrical boxes, camera facing southeast, February 9, 2023.

**L9. Remarks:**

**L10. Form prepared by:**

Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.
[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.
[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.
[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.
[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.
[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.

[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

*History of the Almaden Valley Pipeline*

In 1966, the Hood Corporation of Whittier, California completed construction of the original four-mile section of the Almaden Valley Pipeline (known as Unit 1) based on design plans by the firm California Pacific Engineers of San José. The original

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

pipeline conveyed raw water transferred from the Central Pipeline at the Vasona Valve Yard to Guadalupe Creek with turnouts along the way at Ross Creek, Lone Creek, and to the Kooser Percolation Ponds. The function of the original pipeline was groundwater recharge. In 1982, an 8-mile extension of the pipeline was completed that ran from the east end of the pipeline at Guadalupe Creek to a Calero Valve Yard just below Calero Dam (**Plate 1**). This project, completed by Granite Construction Company and Homer J. Olsen Company on designs drafted by the District, cost $16 million. After the 1982 extension, the pipeline became bi-directional so that water could be pumped eastward from the Vasona Valve Yard into Calero Reservoir or be drawn from Calero Reservoir or the Calero Pipeline connection at Calero Valve Yard and conveyed west to the Vasona Valve Yard. Currently, water flowing in the pipeline has a variety of uses. It can be discharged into streams and percolation ponds for groundwater recharge or directed to the Santa Teresa WTP or Rinconada WTP, depending on where water is needed. Several alterations to the pipeline have occurred since its initial construction including a flowmeter vault added at the Vasona Valve Yard in 1991, and in 2017 minor components were replaced at every vault along the Almaden Valley Pipeline and the concrete vault and all pipes less than 16 inches at the Kooser Percolation Pond turnout.[20]


**Plate 1.** Photo of the 1982 extension of the Almaden Valley Pipeline under construction along McKean Road in August 1981 (courtesy of SCVWD Archives).

[20] SCVWD, "Dam Safety Program, March 2003, 1-7; Tetra Tech, Inc. "Guadalupe Watershed Stewartship Plan," prepared for SCVWD, March 2006, 7-55; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1; GIS data provided by SCVWD; SCVWD, "Dam Safety Program, March 2003, 1-7; SCVWD, "Review/Outlook," 1981, n.p.; SCVWD, "Final Budget: 1990-1991," 60; SCVWD, "Final Budget: 1982-1983," 44; SCVWD, Pipelines Project Delivery Unit, Pipeline Information, March 9, 2023; SCVWD, "Specifications and Contract Documents for the Construction of Almaden Valley Pipeline – Unit 1," March 1965; California Pacific Engineers, "Map and Construction Plans for Almaden Valley Pipeline – Unit 1," January 1965.

**Evaluation**

The Almaden Valley Pipeline, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). Constructed in 1966 and extended in 1982, this pipeline provides water for groundwater recharge and supplies water treatment plants. It is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the Almaden Valley Pipeline, to meet the demand. The Almaden Valley Pipeline, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

This pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground welded steel and prestressed concrete pipeline is 72 and 78 inches in diameter and 12.3 miles long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that California Pacific Engineers or the Hood Corporation, the firms that designed and built the pipeline, rise to the level of masters in their respective fields. The Almaden Valley Pipeline, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

## Photographs (continued):

**Photograph 14:** Concrete vault at Point 2, camera facing southwest, February 7, 2023.

**Photograph 15:** Small vault and large vault at Point 4, camera facing southeast, February 7, 2023.

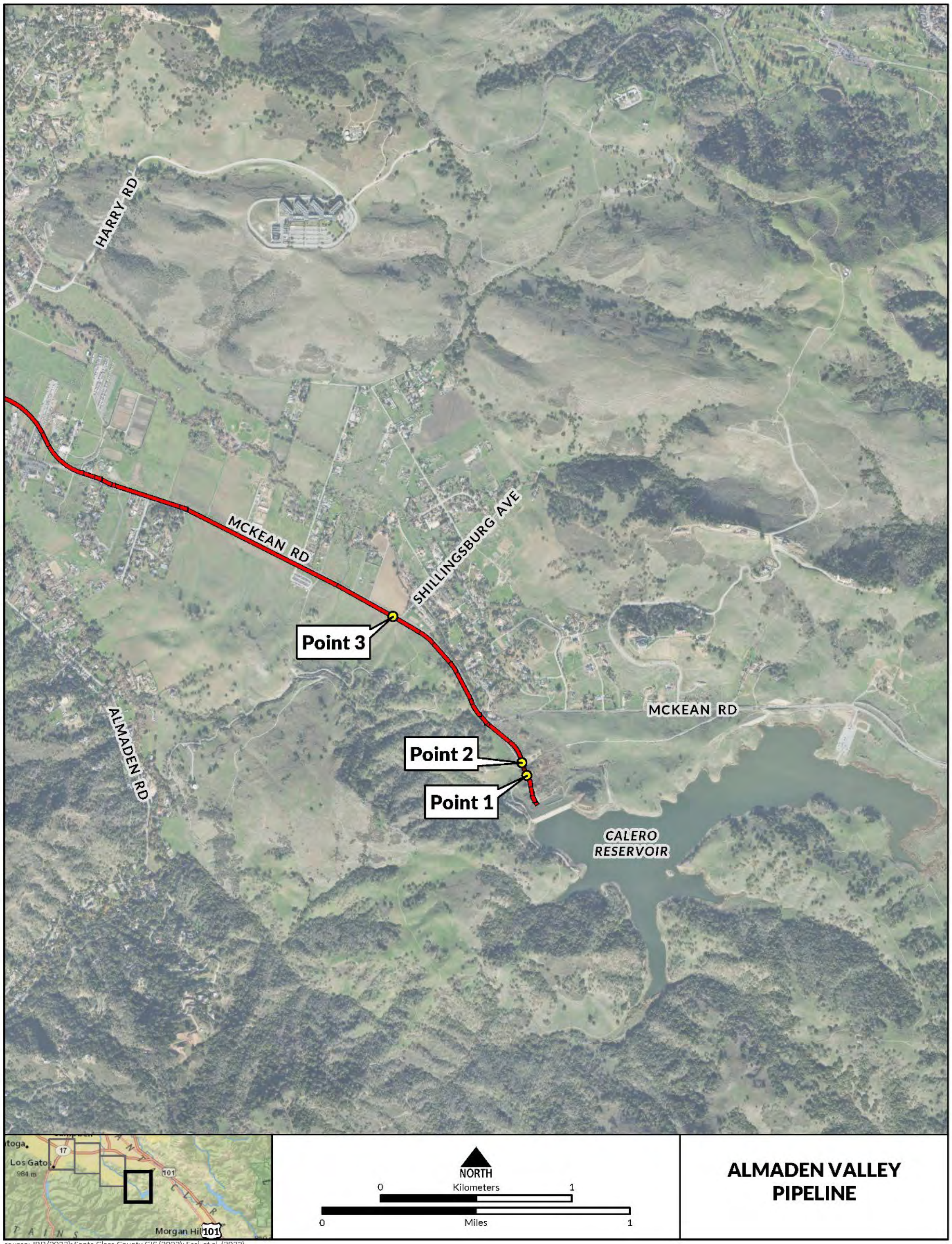

**Photograph 16:** Cylindrical concrete vault at Point 9, camera facing south, February 9, 2023.

**Photograph 17:** Cylindrical concrete vault and rear of block-house vault at Point 9, camera facing northwest, February 9, 2023.

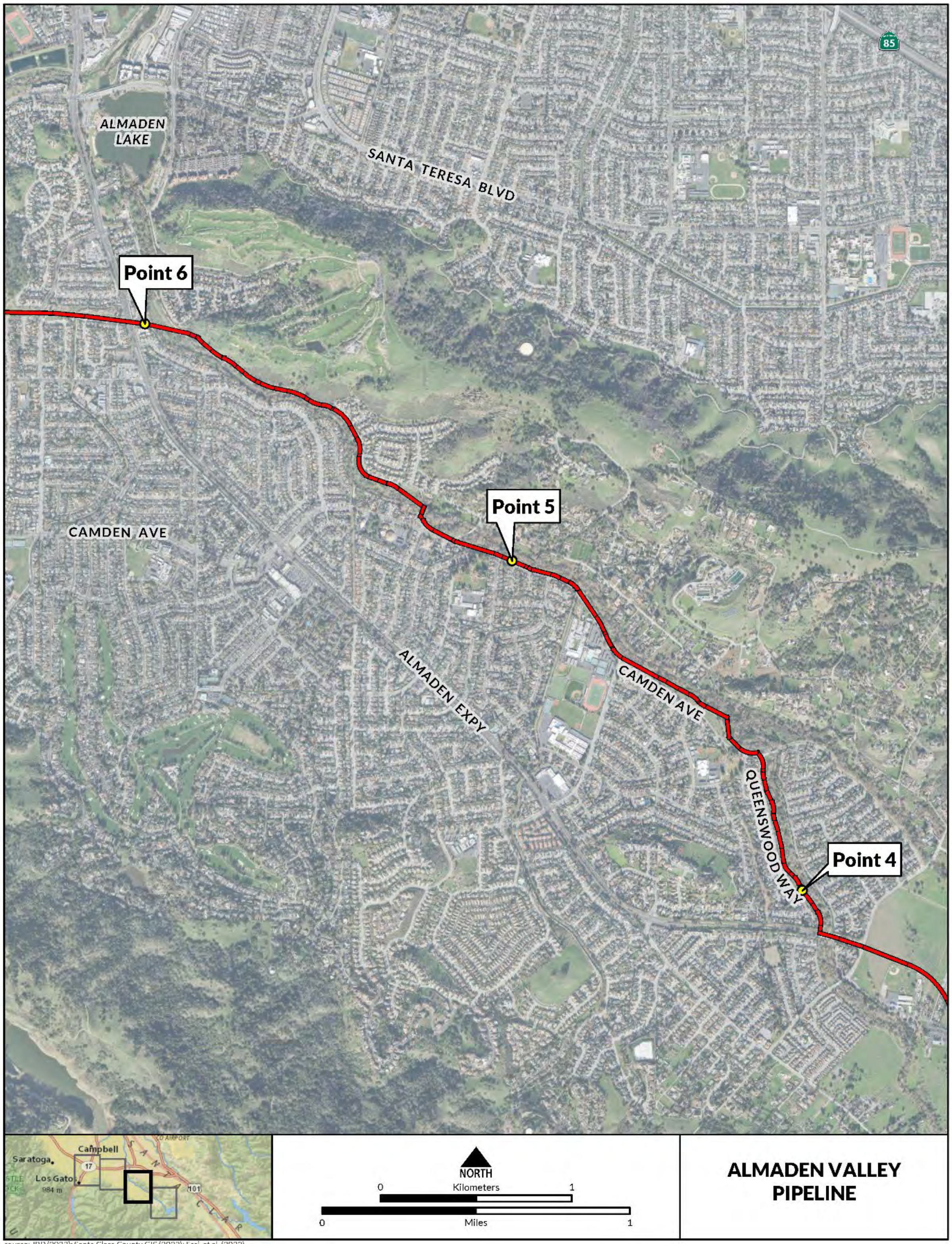

**Photograph 18:** Square concrete vault at Point 9, camera facing west, February 9, 2023.

**Photograph 19:** Block-house vault at Point 9, camera facing south, February 9, 2023.

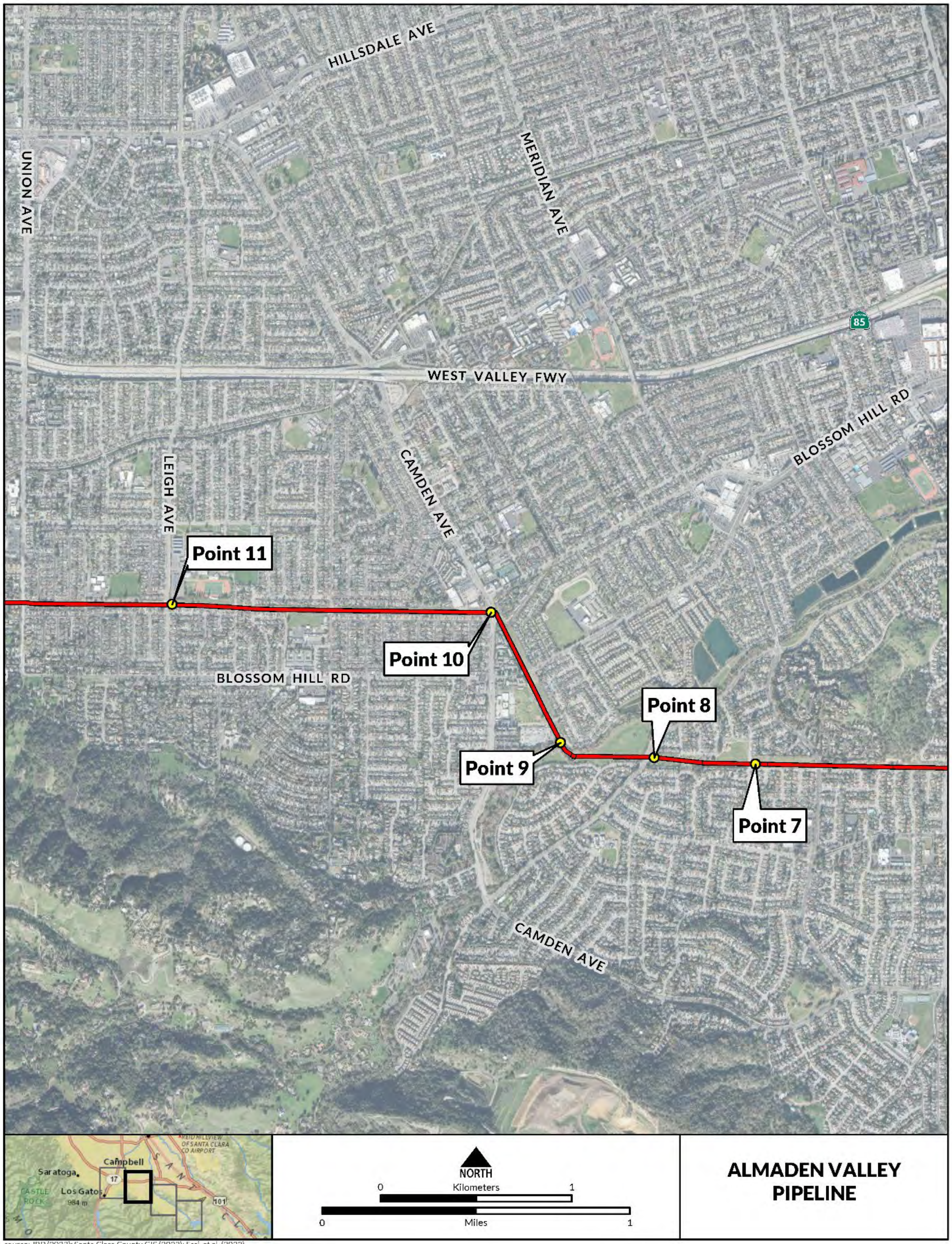
***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline

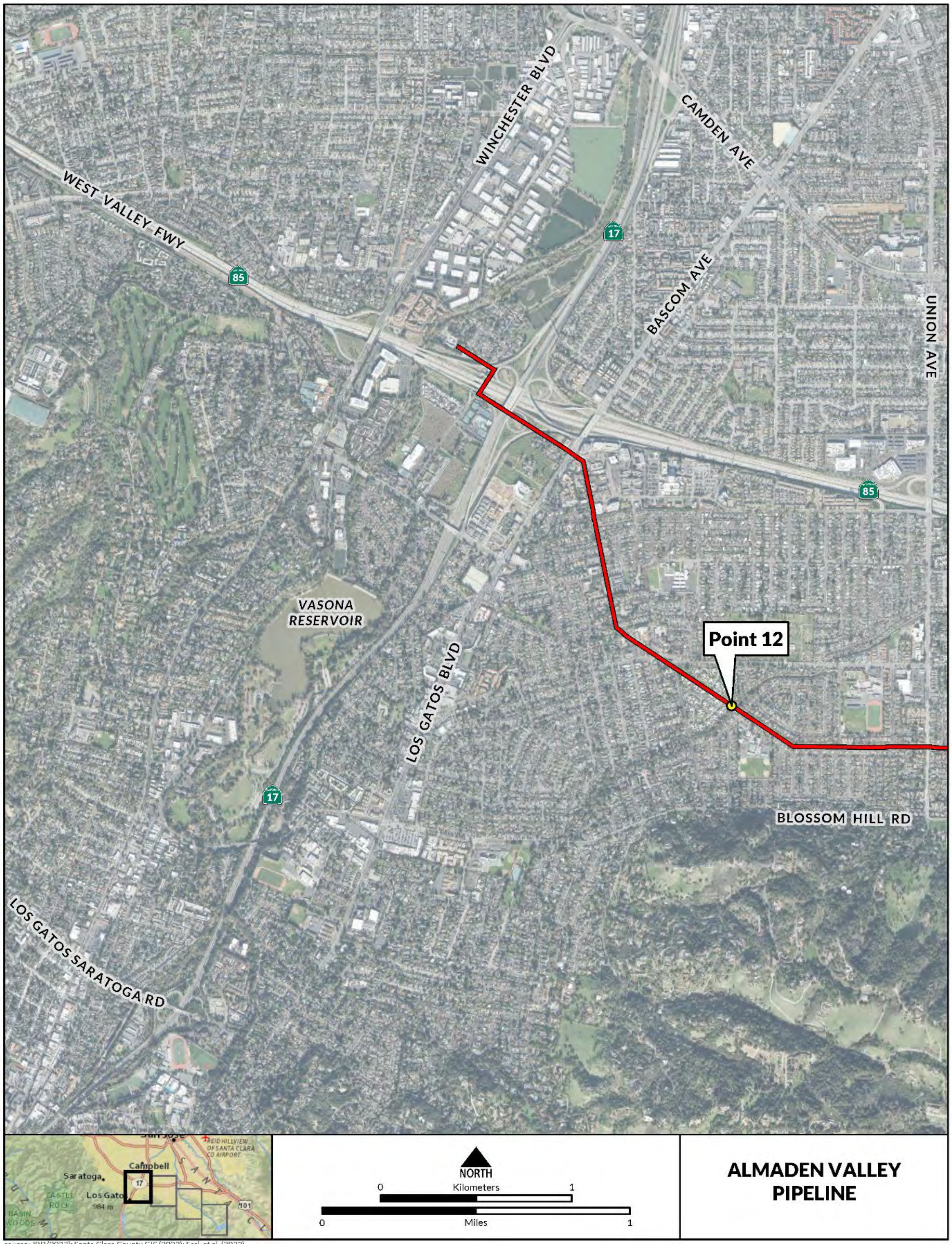


***Resource Name or #** (Assigned by recorder): Almaden Valley Pipeline




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).


HILLSDALE AVE
UNION AVE
MERIDIAN AVE
85
WEST VALLEY FWY
BLOSSOM HILL RD
LEIGH AVE
CAMDEN AVE
Point 11
Point 10
BLOSSOM HILL RD
Point 8
Point 9
Point 7
CAMDEN AVE
Saratoga
Campbell
Los Gatos
17
101
NORTH
0
Kilometers
1
0
Miles
1
ALMADEN VALLEY PIPELINE
source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ____________
HRI # ____________
Trinomial ____________
NRHP Status Code 6Z

Other Listings ____________
Review Code ________ Reviewer ____________ Date ________



***Resource Name or #** (Assigned by recorder): Bay View Golf Club Turnout

**P1. Other Identifier:** Bay View Golf Club Turnout

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Santa Clara
**and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad**: Milpitas **Date**: 2021 **T:**_____; **R:**____; **Sec:**__; Rancho Tularcitos

c. Address: n/a City: Milpitas Zip: n/a

d. UTM: Endpoints: Zone: 10S; 598719.64 m E / 4146095.37 m N (west end); 598752.23 m E / 4146109.23 m N (east end)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

The pipeline begins at two concrete vaults on the top of a hill between Terra Vista Court and Calera Creek Heights Drive and ends at Calera Creek Heights Drive, on the western edge of the Bay View Golf Club.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Bay View Golf Club Turnout and a representative sampling of the pipeline's appurtenant above-ground structures. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. This ductile iron pipeline is approximately 118 feet long and 6 inches in diameter. The pipeline carries water from the South Bay Aqueduct to the Bayview Golf Club via a turnout at the top of the hill down west of Calera Creek Heights Drive (**Photograph 1**). At the west end of the pipeline is a turnout from the South Bay Aqueduct consisting of three above-ground vaults. See the Linear Feature Records for a photograph and description of the recordation point.

***P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1.** View of the pipeline right-of-way down a hill toward the Bay View Golf Club, camera facing east, September 11, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1965 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:** (Name, affiliation, address)
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded**: September 11, 2023

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☐ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ____________

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Bay View Golf Club Turnout

B1. Historic Name: Bay View Golf Club Turnout
B2. Common Name: Bay View Golf Club Turnout
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1965; alterations: the turnout, flowmeter, vault, and valves were replaced in 1977; current construction of new vault at turnout.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown Date:** ______ **Original Location:** ______
***B8. Related Features:** ______
B9. Architect: Santa Clara Valley Water District b. Builder: unknown
***B10. Significance: Theme:** n/a **Area:** Santa Clara Valley
**Period of Significance:** n/a **Property Type:** Pipeline **Applicable Criteria:** n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Bay View Golf Club Turnout does not appear to meet the criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR), nor does it appear to be an historical resource for the purposes of the California Environmental Quality Act (CEQA). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ______

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. Melvin
***Date of Evaluation**: October 2023

(This space reserved for official comments.)

(Sketch Map with north arrow required.)

See Sketch Map on last page.

***Resource Name or #** (Assigned by recorder): Bay View Golf Club Turnout

***Recorded by**: S. J. Melvin & A. Lawton
***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Bay View Golf Club Turnout

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 598719.64 m E / 4146095.37 m N; turnout is at the west end of the pipeline on the crest of a hill along Calera Creek Heights Drive about 0.08 miles north of the intersection with Country Club Drive.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is the pipeline turnout from the South Bay Aqueduct. At the time of recordation, it was an active construction site. Appurtenant above-ground structures at this point include two cylindrical concrete vaults approximately five feet in diameter and one rectangular vault approximately 3 feet x 8 feet (**Photograph 2**). The cylindrical vault rises about two feet above ground, while the rectangular vault is about one foot above ground. The current construction involves moving the equipment from the two original cylindrical vaults into the new rectangular vault.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This resource is located in the oak chaparral hills east of San Jose, on the western edge of a gated suburban community and golf course. Vegetation largely consists of grasses and scattered small trees.

**L8a. Photograph, Map, or Drawing.**

**L7. Integrity Considerations**: A new rectangular vault is being installed and equipment from the two original cylindrical vaults is being moved into the new vault.

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2**. Three vaults at the turnout, camera facing southeast, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. Melvin & Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: September 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.
[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.
[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.

[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.

[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.

[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle,* 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980);

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along

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Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in 1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.
[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.
[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.
[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

*History of the Bay View Golf Club Turnout*

The Bay View Golf Club Turnout is a 118-foot-long, 6-inch diameter pipeline that delivers water from the South Bay Aqueduct to the Bay View Golf Club. This structure was built in 1965. The turnout, flowmeter, vault, and valves were replaced in 1977. Currently, a new vault is being constructed at the turnout and the equipment from the existing two vaults is being moved into the new vault.[20]

## Evaluation

The Bay View Golf Club Turnout, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). Constructed in 1965, this pipeline carries raw water from the South Bay Aqueduct to the Bay View Golf Club for irrigation. The pipeline is part of the District's system of pipelines and other structures that serve to efficiently deliver, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the Bay View Golf Club Turnout, to meet the demand. The Bay View Golf Club Turnout, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

The Bay View Golf Club Turnout is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline, including its appurtenant structures, is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground ductile iron pipeline is approximately 118 feet long and 6 inches in diameter. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Thus, the Bay View Golf Club Turnout lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

[20] SCVWD, Pipeline Information, October 12, 2023; SCVWD, "Irrigation Turnout on South Bay Aqueduct for Mission Hills Golf Course [plans]," November 17, 1977.

Primary # ___
HRI # ___
Trinomial ___



***Resource Name or #** (Assigned by recorder): Bay View Golf Club Turnout


source: JRP (2023); Santa Clara County GIS (2023); Esri, et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ____
HRI # ____
Trinomial ____
NRHP Status Code 6Z

Other Listings ____
Review Code ____ Reviewer ____ Date ____

 ***Resource Name or #** (Assigned by recorder): Campbell Distributary

**P1. Other Identifier:** Campbell Distributary
***P2. Location:** ☐ Not for Publication ☒ Unrestricted ***a. County:** Santa Clara
***b. USGS 7.5' Quad**: San José West **Date**: 2021 **T:**__; **R:**____; **Sec:**__; Rancho Rinconada de Los Gatos
c. Address: n/a City: San José & Campbell Zip: n/a
d. UTM: Endpoints: Zone: 10S; 589140.67 m E / 4126760.26 m N (west end); 592178.40 m E / 4127245.16 m N (east end)
e. Other Locational Data: The pipeline begins at the Santa Clara Distributary at Quito Road, runs largely along Bucknall Road, and ends at a pump station on Maravilla Court in Campbell.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Campbell Distributary pipeline and appurtenant above-ground structures. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. The welded steel pipeline is two miles long and 20 inches in diameter. The pipeline runs almost entirely along public road rights-of-way (**Photograph 1**). Along the route the only appurtenant above-ground features are air-release vents. Photographs and descriptions of the recordation points are on the attached Linear Feature Records.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline
***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:**
**Photograph 1:** Pipeline right-of-way on Bucknall Road, camera facing east, February 6, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1967 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded**: February 6, 2023

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.
***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ____

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Campbell Distributary

B1. Historic Name: Campbell Distributary
B2. Common Name: Campbell Distributary
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1967; corroded components replaced 2004; air release valve nozzles, flowmeter, and various other valves replaced in 2012; installation of manholes ca. 2017.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** ___ **Original Location:** ___
***B8. Related Features:** ___
B9. Architect: California Pacific Engineers, San José b. Builder: Hood Corporation, Whittier, CA
***B10. Significance: Theme**: n/a **Area**: Santa Clara Valley
**Period of Significance**: n/a **Property Type**: Pipeline **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Campbell Distributary, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: February 2023

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Campbell Distributary

**L1. Historic and/or Common Name**: Campbell Distributary

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 591449.25 mE / 4126889.23 mN; on the sidewalk in front of 3860 Bucknall Road.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location there is a small air-release vent (**Photograph 2**). This vent is approximately two feet high, six inches in diameter, and has perforated sides. The vent is mounted on a metal cover with a hinged hatch.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **a. Top Width**: n/a
- **b. Bottom Width**: n/a
- **c. Height or Depth**: n/a
- **d. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a subdivision of single-family residences.

**L7. Integrity Considerations:** There are no documented or apparent integrity considerations at this location.

**L8a. Photograph, Map, or Drawing.**


**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** Air release vent, camera facing east, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Campbell Distributary

**L1. Historic and/or Common Name**: Campbell Distributary

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 592020.85 mE / 4127182.61 mN; on the sidewalk in front of 13 Virginia Avenue.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical air-release vent (**Photograph 3**). The structure is approximately two feet tall, perforated, and about six inches in diameter. The vent is mounted on a metal cover with a hinged hatch.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- **e. Top Width**: n/a
- **f. Bottom Width**: n/a
- **g. Height or Depth**: n/a
- **h. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a subdivision of single-family residences.

**L7. Integrity Considerations:** There are no documented or apparent integrity considerations at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 3.** Air release vent, camera facing southeast, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Campbell Distributary

**L1. Historic and/or Common Name**: Campbell Distributary

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 592017.38 mE / 4127201.16 mN; at the intersection of Campbell Avenue and Virginia Avenue near the end of the line.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
The pipeline at this location is buried under a public street. There are no above-ground features at this point. The below photo looks along the alignment toward the end of the line at the northeast corner of the Campbell Avenue / San Tomas Expressway intersection where the pipeline goes into the yard of a retail water distributor (**Photograph 4**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a subdivision of single-family residences.

**L7. Integrity Considerations:** There are no documented or apparent integrity considerations at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Pipeline right-of-way looking northeast toward the end of the line, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.

[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.

[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.

[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.

[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.

[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.
[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.
[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.
[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.
[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.
[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

*History of the Campbell Distributary*

California Pacific Engineers of San José designed and Hood Corporation of Whittier, California built the two-mile Campbell Distributary for Valley Water in 1967 to carry treated water to the San José Water Company, a water retailer, for distribution

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.

[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.

[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.

[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.

[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

to customers in the City of Campbell. The pipeline was built under a construction contract that included the Rinconada Force Main, West Pipeline, Stevens Creek Pipeline, and Santa Clara Distributary, all of which were completed in 1967 or 1968. Campbell Distributary water originates at the Rinconada Water Treatment Plant from which it flows into the West Pipeline, the Santa Clara Distributary, and finally into the Campbell Distributary. The District has undertaken various maintenance and upgrades to this pipeline since its construction including replacing all corroded components in 2004; replacing air release valve nozzles, flowmeter, and various other valves in 2012; and installing manholes ca. 2017.[20]

**Evaluation**

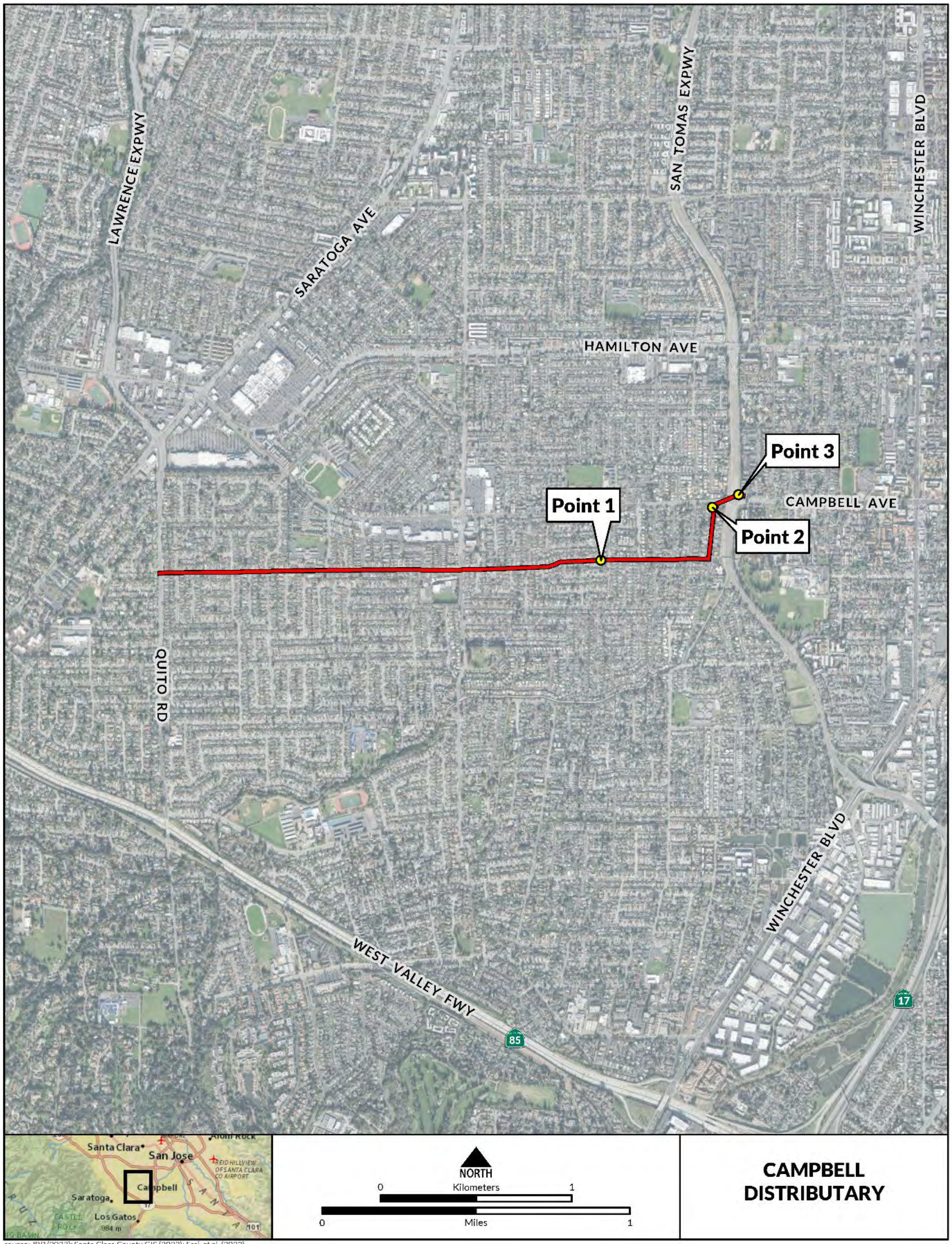
The Campbell Distributary, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). Constructed in 1967, this pipeline carries treated water into the City of Campbell for retail distribution. It is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the Campbell Distributary, to meet the demand. The Campbell Distributary, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

This pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground welded steel pipeline is 20 inches in diameter and 2 miles long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that California Pacific Engineers or the Hood Corporation, the firms that designed and built the pipeline, rise to the level of masters in their respective fields. The Campbell Distributary, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

[20] Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1; GIS data provided by SCVWD; AECOM, "Infrastructure Reliability Plan, 2016," prepared for SCVWD, June 30, 2016, Appendix 3; SCVWD, Pipelines Project Delivery Unit, Pipeline Information, March 9, 2023; SCVWD, "Specifications and Contract Documents for the Construction of Rinconada Force Main, West Pipeline, Stevens Creek Pipeline, Santa Clara Distributary, and Campbell Distributary," April 1965; California Pacific Engineers, "Map and Construction Plans for Rinconada Force Main, West Pipeline, Stevens Creek Pipeline, Santa Clara Distributary, and Campbell Distributary," December 1965.




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ______
HRI # ______
Trinomial ______
NRHP Status Code 6Z

Other Listings ______
Review Code ______ Reviewer ______ Date ______

 ***Resource Name or #** (Assigned by recorder): Central Pipeline

**P1. Other Identifier:** Central Pipeline
***P2. Location:** ☐ Not for Publication ☒ Unrestricted ***a. County:** Santa Clara
***b. USGS 7.5' Quad:** Calaveras Reservoir **Date:** 2021 **T:**___; **R:**____; **Sec:**__; Pueblo Lands of San José
***b. USGS 7.5' Quad:** San José West **Date:** 2021 **T:**___; **R:**____; **Sec:**__; Pueblo Lands of San José; Potrero de Santa Clara; Rinconada de Los Gatos
c. Address: n/a City: San José, Campbell, and Los Gatos Zip: n/a
d. UTM: Endpoints: Zone: 10S; 602249.74 m E / 4139323.70 m N (north end); 592224.84 m E / 4124084.24 m N (south end)
e. Other Locational Data: The pipeline begins at the Piedmont Valve Yard at the intersection of Piedmont Road and Maxey Drive in San José and ends at the Vasona Valve Yard near the Highway 17 / Highway 85 interchange in Los Gatos.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This form records the Central Pipeline and a representative sampling of the pipeline's appurtenant above-ground structures. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. The pipeline is 13.1 miles long and 66 inches in diameter. It is made of steel and prestressed concrete. The north section of the pipeline runs along public road rights-of-way, while the southern section follows along the Los Gatos Creek riparian corridor (**Photograph 1**). Along the route are a number of appurtenant above-ground structures including various concrete vaults, electrical equipment boxes, and air vents. See the Linear Feature Records for photographs and descriptions of the recordation points.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline
***P4. Resources Present:** ☒ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1:** Concrete vault looking northeast along the pipeline right-of-way at Berryessa Road & Flagstone Drive, February 6, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1965 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** February 6 & 8, 2023

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (list) ______

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Central Pipeline

B1. Historic Name: Central Pipeline
B2. Common Name: Central Pipeline
B3. Original Use: Water conveyance    B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1965; construction a new turnout at unknown location in 1967; construction of Page Turnout and relocation of the pipeline underneath I-280 in 1969 (See Section B6 on Continuation Sheet).
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown**    **Date:** ______ **Original Location:** ______
***B8. Related Features:** ______
B9. Architect: California Pacific Engineers, San José    b. Builder: Hood Corporation, Whittier, CA
***B10. Significance: Theme:** n/a    **Area:** Santa Clara Valley
**Period of Significance**: n/a    **Property Type**: Pipeline    **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Central Pipeline, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ______

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: February 2023

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Central Pipeline

**L1. Historic and/or Common Name**: Central Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 602235.06 mE / 4139281.85 mN; at Piedmont Valve Yard located on the northwest corner of the intersection of Piedmont Road and Maxey Drive.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
This is the beginning of the pipeline at the Piedmont Valve Yard, a fenced-enclosed area with structures associated with several pipelines including three structures associated with the Central Pipeline (**Photograph 2** and **Photograph 14**). Two of the Central Pipeline structures are cylindrical concrete vaults about five feet in diameter and rising about one foot above grade. Each one has a metal cover with hinged access doors. One of these covers is set a few inches above the top of the concrete to allow for ventilation; the other is flush with the concrete. The third vault is 17 feet square, concrete, and topped with a nearly flat roof that is about one foot above grade (**Photograph 14**). The roof is covered with metal sheets with a slightly raised access hatch on one corner.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through an area of single-family residences.

**L8a. Photograph, Map, or Drawing.**

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** Concrete vault and flat-roof vault in center background, camera facing northeast, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code:** 6Z
***Resource Name or #** (Assigned by recorder): Central Pipeline

**L1. Historic and/or Common Name:** Central Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation:** Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 600870.00 mE / 4138406.61 mN; at the northeast corner of the intersection of North Capital Avenue and Berryessa Road.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a rectangular concrete vault that is flush with the ground. The top is covered by a hinged metal access hatch (**Photograph 3**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width:** n/a
- b. **Bottom Width:** n/a
- c. **Height or Depth:** n/a
- d. **Length of Segment:** n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing:**

N/A

**L5. Associated Resources:** None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a commercial area.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**


**L8b. Description of Photo, Map, or Drawing:** **Photograph 3.** Concrete vault, camera facing southwest, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date:** February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Central Pipeline

**L1. Historic and/or Common Name**: Central Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 599619.09 mE / 4135891.39 mN; on the north side of the Mabury Road near Coyote Creek.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location there is a fence-enclosed yard with a block-house vault (**Photograph 4**). The building measures approximately 10 feet by 18 feet and has a flat roof with parapets and louvre vents on the north and south sides. Because of limited access, the door of the building was not visible.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline crosses Coyote Creek and through a commercial / light-industrial district.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Block-house vault, camera facing west, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Central Pipeline

**L1. Historic and/or Common Name**: Central Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 4

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 597469.13 mE / 4134535.67 mN; on East Mission Street near North Fourth Street.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline runs under Mission Street. There are no above-ground structures at this location (**Photograph 5**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes by a school and through a residential neighborhood.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 5.** Pipeline right-of-way, camera facing east, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Central Pipeline

**L1. Historic and/or Common Name**: Central Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 5

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 597469.13 mE / 4134535.67 mN; on Emory Street near Dana Avenue.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline runs under Emory Street. There are no above-ground structures at this location (**Photograph 6**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- e. **Top Width**: n/a
- f. **Bottom Width**: n/a
- g. **Height or Depth**: n/a
- h. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes by a park and through a residential neighborhood.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 6.** Pipeline right-of-way, camera facing northeast, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Central Pipeline

**L1. Historic and/or Common Name**: Central Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 6

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 619548.49 mE / 4114400.37 mN; on the southwest corner at the intersection of Ginger Lane and Clove Drive.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault that rises about one foot above grade (**Photograph 7**). It is about five feet in diameter and has a metal cover with hinged access doors.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a hospital complex surrounded by a residential neighborhood.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 7.** Concrete vault, camera facing southeast, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Central Pipeline

**L1. Historic and/or Common Name**: Central Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 7

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 594268.00 mE / 4128403.00 mN; along Buena Luna Court north of Borello Drive.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault that rises about one foot above grade (**Photograph 8**). It is about five feet in diameter and has a metal cover with hinged access doors. The metal covering is a few inches above the top of the concrete vault and has ventilation screens on the side.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **e. Top Width**: n/a
- **f. Bottom Width**: n/a
- **g. Height or Depth**: n/a
- **h. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a residential neighborhood.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 8.** Concrete vault, camera looking south along pipeline alignment, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Central Pipeline

**L1. Historic and/or Common Name**: Central Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 8

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 594224.60 mE / 4127610.71 mN; immediately east of 727 El Patio Drive.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

At this location there is a fence-enclosed yard with three cylindrical concrete vaults, one square concrete vault, and one block-house vault. The block-house vault measures approximately 15 feet x 10 feet and has a flat parapet roof and metal personnel door (**Photograph 9** & **Photograph 15**). Full-width louvred vents are at the top of the east and west walls. The north and south walls extend about one foot beyond the east and west walls. Next to this building is a small concrete vault about five feet square and flush with the ground. On top are hinged metal access doors (**Photograph 9**). A cylindrical concrete south of the block-house is about five feet in diameter and a few inches above grade (**Photograph 16**). It has a metal cover with hinged access doors. Two more nearly identical cylindrical concrete vaults are located in this enclosed yard (**Photograph 17** & **Photograph 18**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)

At this location, the pipeline runs along the Highway 17 freeway and next to a residential area.

**L8a. Photograph, Map, or Drawing.**

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 9.** Block-house vault and metal hatch to below-ground vault, camera facing south, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Central Pipeline

**L1. Historic and/or Common Name**: Central Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 9

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 593587.48 mE / 4126540.85 mN; along the Los Gatos Creek Trail East.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location there is an approximately five-foot diameter cylindrical concrete vault that rises a few inches above grade (**Photograph 10**). It has a metal cover with hinged access doors.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes along the wooded Los Gatos Creek riparian corridor and Highway 17.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 10.** Concrete vault, camera facing northeast, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Central Pipeline

**L1. Historic and/or Common Name**: Central Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 10

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 592726.88 mE / 4124399.88 mN; along Los Gatos Creek next to the Oka Percolation Ponds.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location there is a cylindrical metal vault, a block-house, and a large rectangular concrete vault (**Photograph 11**). The cylindrical vault is approximately five feet in diameter and made of corrugated metal. It rises about two feet above grade and is topped by a metal cover with hinged access doors. The block-house vault measures approximately 10 feet x 8 feet and has a flat parapet roof. On the west side is a metal personnel door and an antenna is attached to the south wall. The block-house sits on top of larger rectangular concrete vault measuring approximately 20 feet x 8 feet. The top of the vault is about one foot above grade and most of the top is covered by metal grate panels that can be removed for access. Another metal grate covers a narrow opening along the top of the south wall (**Photograph 19**). Near these structures are two electrical boxes.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes along the Los Gatos Creek riparian corridor and is next to the Oka Recharge Ponds.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 11:** Cylindrical metal vault, block-house vault, and concrete vault, camera facing southwest, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Central Pipeline

**L1. Historic and/or Common Name**: Central Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 11

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 592460.14 mE / 4124237.71 mN; on a private Valley Water road along Los Gatos Creek north of Vasona Valve Yard.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location are two concrete vaults, one block-house vault, and one ventilation structure appurtenant to the Central Pipeline (**Photograph 12** and **Photograph 20**). The cylindrical concrete is about five feet in diameter and rises about two feet above grade. It has a metal cover with hinged access doors. Next to it is a rectangular concrete vault measuring approximately eight feet x six feet. The top is flush with the ground and has a flush metal access hatch. The block-house vault is approximately 17 feet x 15 feet and is topped by a low-pitched shed roof with open eaves. A metal personnel door is located in the front of the building and the side walls extend about one foot beyond the front and rear walls. Full-width louvred vents are along the top of the front and rear walls. East of the block house is a cylindrical ventilation structure with a concrete base, tapered metal walls, and a perforated cone-shaped metal top (**Photograph 21**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes by Los Gatos Creek and an area of single-family residences.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**

**Photograph 12.** Concrete vaults, block-house vault (L-R), camera facing northeast, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Central Pipeline

**L1. Historic and/or Common Name**: Central Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 12

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 592225.36 mE / 4124085.20 mN; inside the Vasona Valve Yard.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is the fence-enclosed Vasona Valve Yard, the terminal point of the Central Pipeline. The above-ground appurtenant to the Central Pipeline are a large, gable-roof vault and a cylindrical concrete vault. The gable-roof vault is concrete and measures approximately 19 feet x 18 feet (**Photograph 13**). It is about two feet above grade and covered by a wood-frame roof clad in asphalt sheet roofing. Ventilation screens are in the gable peaks. A square raised access hatch with a metal door is located at the north corner of the roof. Adjacent to the large vault is a cylindrical concrete vault about five feet in diameter and 18 inches above grade. It has a metal cover with hinged access doors (**Photograph 22**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **e. Top Width**: n/a
- **f. Bottom Width**: n/a
- **g. Height or Depth**: n/a
- **h. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The pipeline at this location is in the Vasona Valve Yard next to Los Gatos Creek and an area of single-family residences.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 13.** Large vault at the terminus of the Central Pipeline in the yard of the Vasona Valve Yard, camera facing west, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B6. Construction History (continued):

Additional alterations include installation of pressure taps and ball valves to turnout infrastructure and steel support brackets for pump-out risers in 1972; replacement of buried concrete blowoff piping with 12-inch steel pipe and improvements to discharge structure in 1972; installation of cathodic protection stations in 1975; installation of electric valve actuators at Vasona Valve Lot in 1983; construction of a new vault near Vasona Valve Lot in 1992; installation of a flowmeter at Vasona Valve Lot in 1993; installation of a new line valve vault with upgraded line valve in 1994; relocation of the pipeline at Guadalupe River crossing in 1994; relocation of the pipeline at State Route 87 and Taylor Street to accommodate freeway construction in 2001/2002; installation of a manhole and an in-line valve at Berryessa Road crossing in 2002; relocation of the pipeline between Berryessa Road and Mabury Road in 2002; and relocation of the pipeline at the Berryessa/North San José BART station in 2014.

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.

[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory. Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as “Silicon Valley,” a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José’s expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city’s corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city’s area from 17 to nearly 140 square miles. By 1970, San José had become California’s fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José’s population stood at more than 629,500 people.[6]

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[3] Basin Research Associates, Inc., “Envision San Jose 2040 General Plan,” July 2009, Appendix J, 17-23; Archives & Architecture, “Historical Overview and Context for the City of San Jose,” 10; Young and Griffin, “Recent Land-Use Changes in the San Francisco Bay Area,” 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.
[4] Archives & Architecture, “Historical Overview and Context for the City of San Jose,” 10; Glenna Matthews, “The Los Angeles of the North,” *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, “San Jose General Plan, 1975,” December 1975, 23-24; Arvin Tarleton Henderson, Jr., “Evolution of Commercial Nucleations in San Jose, California,” MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, “San Jose Modernism Historic Context Statement,” prepared for Preservation Action Council of San Jose, June 2009, 26-32.
[5] Basin Research Associates, “Envision San Jose 2040 General Plan,” Appendix J, 17-23; Archives & Architecture, “Historical Overview and Context for the City of San Jose,” 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, “San Jose Modernism Historic Context Statement,” 26-38.
[6] Basin Research Associates, Inc., “Envision San Jose 2040 General Plan,” Appendix J, 17-23; PAST Consulting, “San Jose Modernism Historic Context Statement,” 26-38, 48; Matthews, “The Los Angeles of the North,” 459-461; Richard Bottarini, “California Annexation

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of

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Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.

[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in 1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the

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[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.

Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

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[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.

[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.

[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.

[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

*History of the Central Pipeline*

The Hood Corporation of Whittier, California built the 13.1-mile Central Pipeline on plans by California Pacific Engineering in 1965 (**Plate 1**). The pipeline carries raw water delivered from the South Bay Aqueduct, a State Water Project conduit, at the Piedmont Valve Yard in north San José and carries it generally south under city streets and along Los Gatos Creek to the Vasona Valve Yard in Los Gatos. Initially, the Central Pipeline served exclusively to recharge groundwater through percolation ponds on Los Gatos Creek. Upon completion of the Rinconada Water Treatment Plant in 1967 near the terminal point of the Central Pipeline, water also started being sent to the plant for treatment via the Rinconada Force Main. The Vasona Valve Yard regulates water flow between the Central Pipeline, Rinconada Force Main, and Almaden Valley Pipeline, which all meet at this location. Presently, the Central Pipeline provides water to the Los Gatos Creek percolation ponds, Kirk System and Page System percolation facilities on Los Gatos Creek, and the Rinconada Water Treatment Plant.[20]

Since its construction, several alterations have been made to the Central Pipeline along with general, routine maintenance. A few of the major alterations include construction of the Page Turnout in 1969, construction of a new vault in 1992 near the Vasona Valve Yard in 1993, and realignments of segments under I-280, Guadalupe River, State Route 87, between Berryessa Road and Mabury Road, and under the Berryessa/North San José at BART station. See section B6 above for a complete list of alterations.[21]

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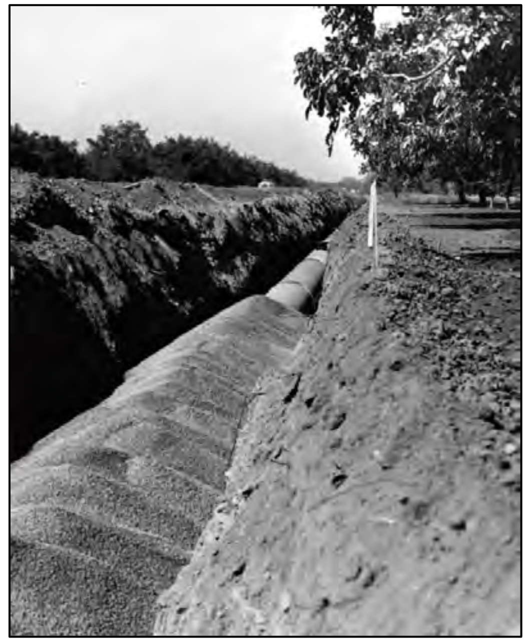
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.
[20] Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1; GIS data provided by SCVWD; RMC & CDM Smith, "South Bay Water Recycling Strategic and Master Planning Report, Part 1," prepared for Santa Clara Valley Water District, December 2014, 6-65; SCVWD, "Annual Survey Report On Groundwater Conditions," March 1966, v; SCVWD, "Specifications and Contract Documents for the Construction of Central Pipeline," March 1964; California Pacific Engineers, "Map and Construction Plans for Central Pipeline," November 1963.
[21] SCVWD, "Final Budget: 1991-1992," 56; SCVWD, "Final Budget: 1974-1975," 54; SCVWD, "Capital Improvement Plan: 2003-2005," 234-237; SCVWD, Pipelines Project Delivery Unit, Pipeline Information, March 9, 2023.

**Plate 1.** Two photographs of the Central Pipeline under construction (courtesy of SCVWD Archives).



## Evaluation

The Central Pipeline, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). The District had this pipeline constructed to carry raw water from the northeastern part of the District to the southwestern areas for groundwater recharge and potable uses. The Central Pipeline is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the Central Pipeline, to meet the demand. The Central Pipeline, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

This pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground steel pipeline is 66 inches in diameter and 13.1 miles long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that California Pacific Engineers or the Hood Corporation, the firms that designed and built the pipeline, rise to the level of masters in their respective fields. The Central Pipeline, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

## Photographs (continued):

**Photograph 14:** View of flat-roof vault and northern cylindrical concrete vault beyond at Point 1, camera facing northwest, February 6, 2023.

**Photograph 15:** Block-house vault at Point 8, camera facing northwest, February 8, 2023.

**Photograph 16:** Southern cylindrical vault at Point 8, camera facing west, February 8, 2023.

**Photograph 17:** Eastern cylindrical vault at Point , camera facing north, February 8, 2023.

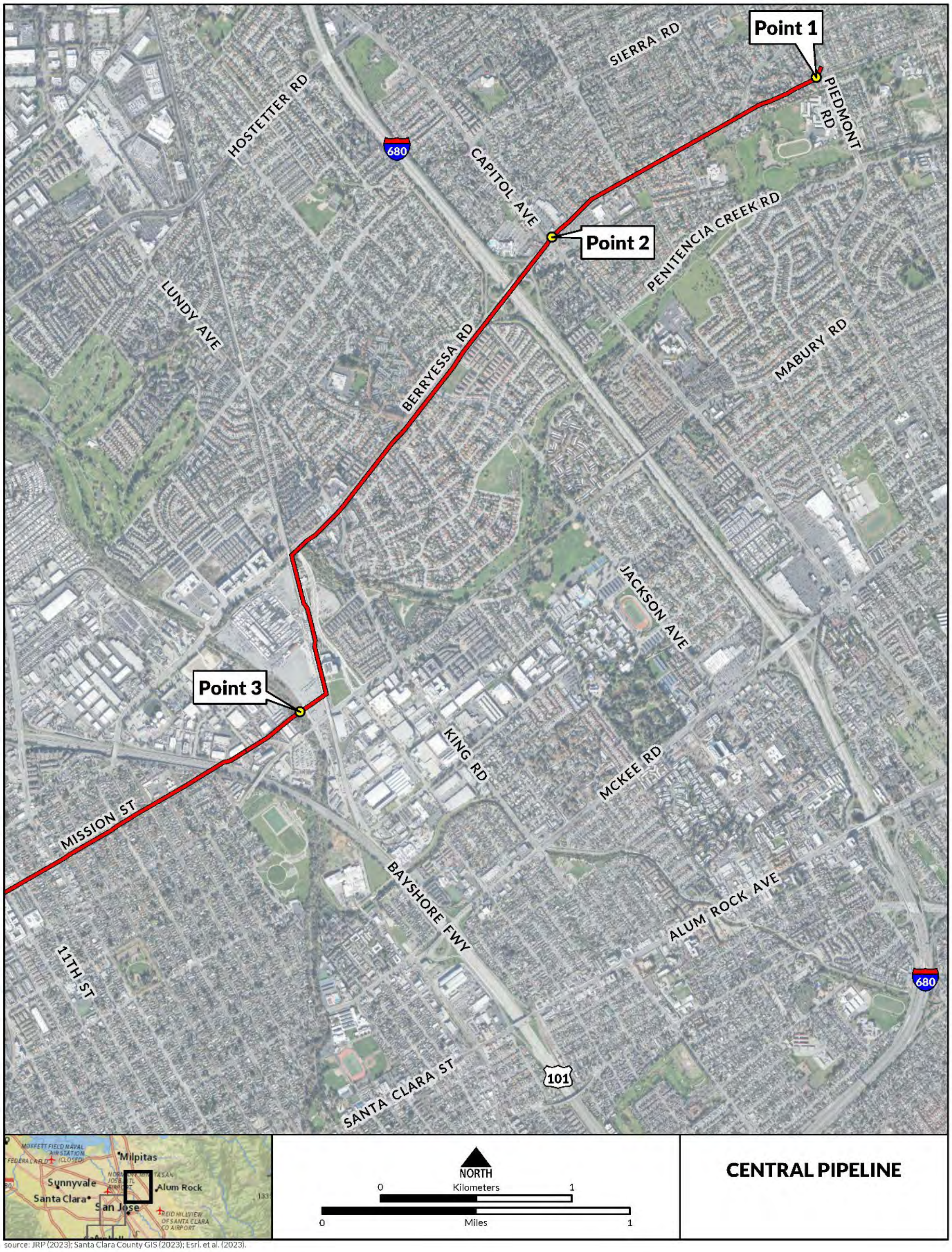
**Photograph 18:** Northern cylindrical vault at Point 8, camera facing northeast, February 8, 2023.

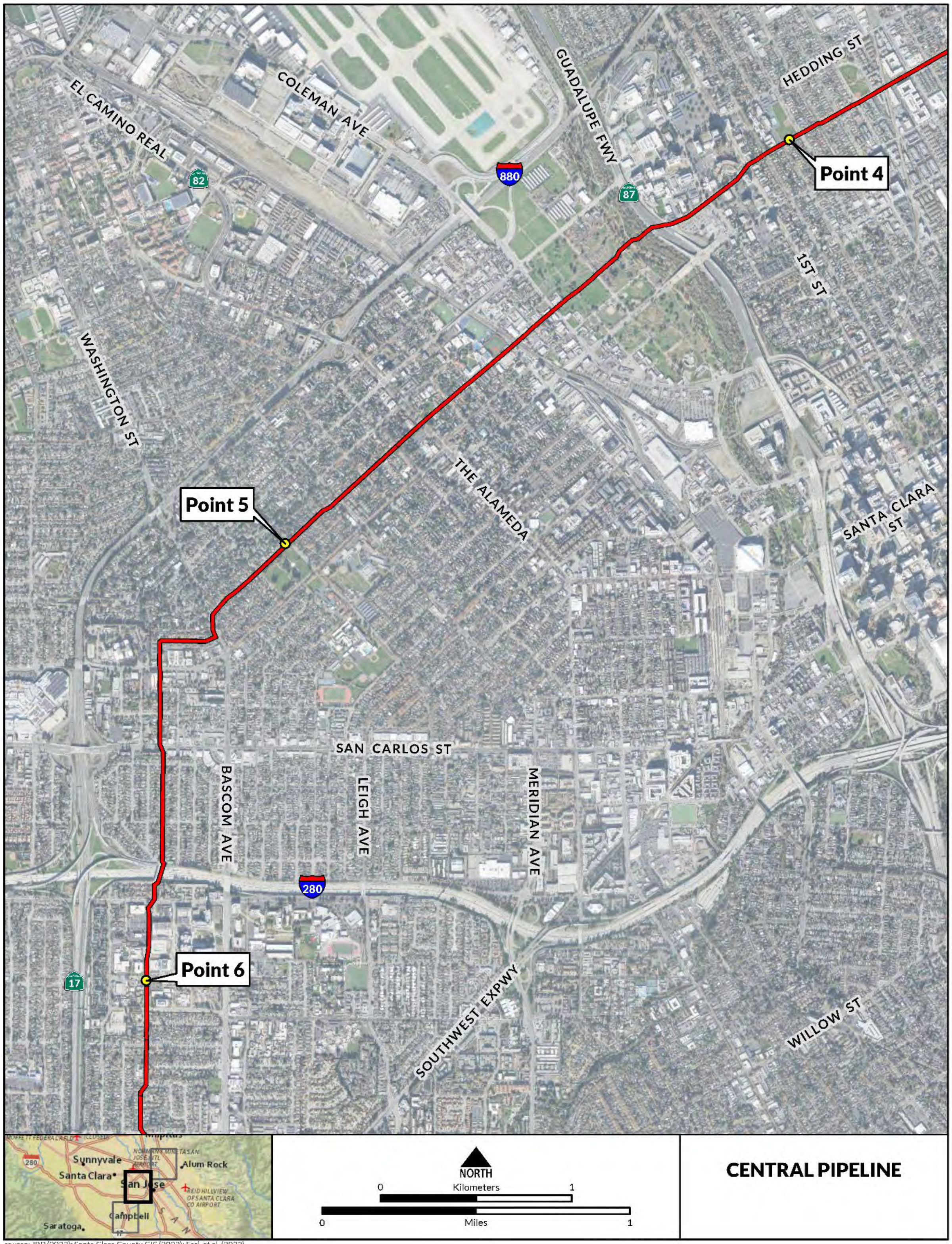
**Photograph 19:** View of the grate on the south side of the concrete vault, below the access hatch, at Point 10, camera facing northeast, February 8, 2023.

**Photograph 20:** View of north and west sides of the block-house vault and ventilation structure (left background) at Point 11, camera facing east, February 8, 2023.

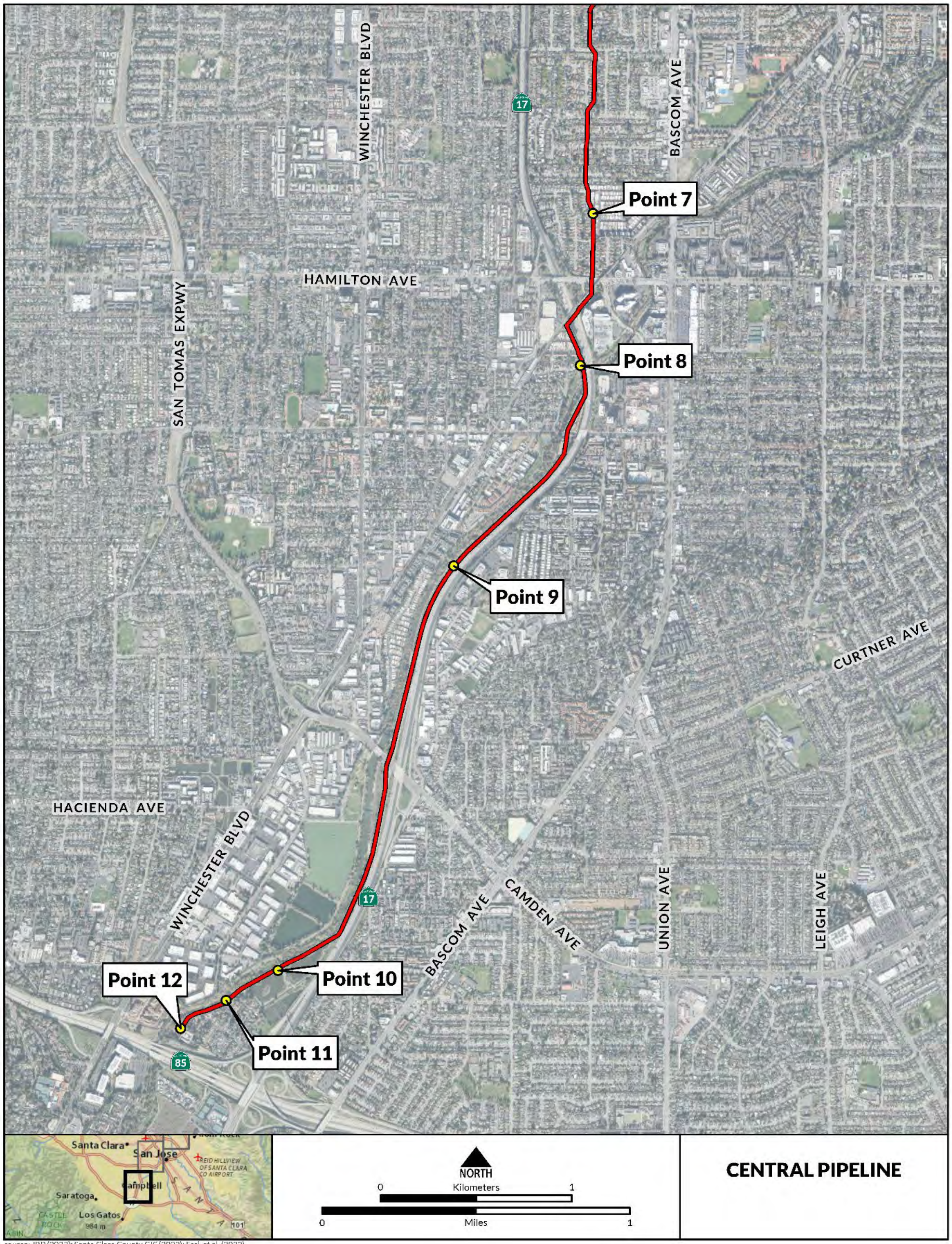
**Photograph 21:** View of the ventilation structure at Point 11, camera facing northeast, February 8, 2023.

**Photograph 22:** Concrete vault at Point 12 in the Vasona Valve Yard, camera facing southeast, February 8, 2023.


Point 1
Point 2
Point 3
SIERRA RD
PIEDMONT RD
HOSTETTER RD
680
CAPITOL AVE
PENITENCIA CREEK RD
LUNDY AVE
BERRYESSA RD
MABURY RD
JACKSON AVE
KING RD
MCKEE RD
MISSION ST
BAYSHORE FWY
ALUM ROCK AVE
11TH ST
SANTA CLARA ST
101
Milpitas
Sunnyvale
Santa Clara
San Jose
Alum Rock
NORTH
Kilometers
0
1
Miles
0
1
CENTRAL PIPELINE
source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).



source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ____________
HRI # ____________
Trinomial ____________
NRHP Status Code 6Z

Other Listings ____________
Review Code ________ Reviewer ____________ Date ________



***Resource Name or #** (Assigned by recorder): East Pipeline

**P1. Other Identifier:** East Pipeline

***P2. Location:** ☐ Not for Publication ☒ Unrestricted ***a. County:** Santa Clara

***b. USGS 7.5' Quad:** Calaveras Reservoir **Date:** 2021 **T:**___; **R:**___; **Sec:**__; Pueblo Lands of San José

***b. USGS 7.5' Quad:** San José East **Date:** 2021 **T:**__; **R:**___; **Sec:**__; Rancho Pala; Rancho Yerba Buena

c. Address: n/a City: San José Zip: n/a

d. UTM: Endpoints: Zone: 10S; 602300.02 m E / 4139277.90 m N (north end); 607033.21 m E / 4130446.74 m N (south end)

e. Other Locational Data:

The pipeline begins near the intersection of Piedmont Road and Maxey Drive and ends at the intersection of Aborn Road and South White Road in San José.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the East Pipeline and a representative sampling of the pipeline's appurtenant above-ground structures. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. This welded steel and prestressed concrete pipeline is 6.4 miles long and 33 to 48 inches in diameter. The pipeline runs entirely along public road rights-of-way (**Photograph 1**). Along the route are various appurtenant above-ground structures such as concrete vaults, electrical equipment boxes, and air vents. Photographs and descriptions of these features are on the attached Linear Feature Records.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1:** Typical view of pipeline right-of-way on North White Road near Pratt Avenue. In this photo, the pipeline runs close to the left curb, camera facing northwest, February 6, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1974 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** February 6, 2023

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ____________

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): East Pipeline

B1. Historic Name: East Pipeline

B2. Common Name: East Pipeline

B3. Original Use: Water conveyance    B4. Present Use: Water conveyance

***B5. Architectural Style**: Utilitarian

***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1974; installation of cathodic protection systems in 1972-73; a 6,000-foot extension on the south end in 1977; installation of a line valve, service valve, and vault at unknown location in 1995; construction of tie-ins with the adjacent Parallel East Pipeline in 2010; "major repairs and improvements" in 2012 including the replacement of all mechanical appurtenances.

***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown**    **Date:** ___    **Original Location:** ___

***B8. Related Features:** ___

B9. Architect: George S. Nolte & Associates, San José, CA    b. Builder: Hood Corporation, Whittier, CA

***B10. Significance: Theme**: n/a    **Area**: Santa Clara Valley

**Period of Significance**: n/a    **Property Type**: Pipeline    **Applicable Criteria**: n/a

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The East Pipeline, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin

***Date of Evaluation**: February 2023

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): East Pipeline

**L1. Historic and/or Common Name**: East Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 602294.71 mE / 4139269.63 mN; on Piedmont Road, across from the intersection of Maxey Drive in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
This recordation point is at the beginning of the pipeline alignment looking down Piedmont Road along the alignment which is close to the left curb in the photo (**Photograph 2**). There are no above-ground features at this location.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a residential neighborhood.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** Beginning of the East Pipeline on Piedmont Road, camera facing east, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): East Pipeline

**L1. Historic and/or Common Name**: East Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 602774.95 mE / 4137608.07 mN; on the southwest corner of the intersection of North White Road and Patt Avenue, San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

At this location, the above-ground features present are two ventilation pipes and three electrical equipment boxes (**Photograph 3**). The ventilation pipes, approximately six inches in diameter, rise out of the ground and curve into an inverted U-shape. The open end stopping a few inches above the ground. These two pipes are housed in a metal grate enclosure. A rectangular electrical equipment box approximately four feet tall sits next to the pipes. On the other side are two identical cylindrical electrical equipment boxes with wide tapered tops.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)

At this location, the pipeline passes through a residential neighborhood.

**L7. Integrity Considerations:** There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**

**Photograph 3.** Ventilation pipes and electrical equipment boxes, camera facing east, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**

Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): East Pipeline

**L1. Historic and/or Common Name**: East Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 605516.36 mE / 4133729.85 mN; on the southwest corner of South White Road and Marten Avenue in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location there is a fence-enclosed yard containing several concrete vaults and other features (**Photograph 4**). Two of the vaults are about eight feet square and rise about one foot about ground. They are capped with metal covers. Two other vaults are about 8 feet x 10 feet and flush with the ground. These have flush metal hatches on top for access. The fifth concrete vault is about four feet square and rises about one foot above grade. It also has a metal access hatch and a metal pipe railing attached to one side. Another concrete vault is about two feet by one foot and has a metal cover. Near the vaults is a cylindrical metal electrical equipment box about four feet tall that tapers at the top. Elsewhere in the yard are three ventilation pipes that emerge from the ground and curve downward. Each measures about six inches in diameter, but they vary in height from six inches to two feet (**Photograph 7**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a residential neighborhood.

**L8a. Photograph, Map, or Drawing.**

**L7. Integrity Considerations:** The setting in at this point has changed somewhat since construction of the pipeline in 1974 with the construction of additional houses.

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Concrete vaults, ventilation pipes, and electrical equipment boxes, camera facing south, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): East Pipeline

**L1. Historic and/or Common Name**: East Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 4

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 606292.82 mE / 4132558.32 mN; on South White Road near Glen Como Way in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical air vent coming through the sidewalk (**Photograph 5**). It is about four feet tall, eight inches in diameter, and has a ten-inch diameter top.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a residential neighborhood.

**L7. Integrity Considerations:** The setting in at this point has changed somewhat since construction of the pipeline in 1974 with the construction of additional houses.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 5.** Cylindrical air vent, camera facing north, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): East Pipeline

**L1. Historic and/or Common Name**: East Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 5

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 607015.42 mE / 4130469.31 mN; on South White Road just north of Aborn Road, near the end of the line, San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical air vent coming through the sidewalk (**Photograph 6**). It is about four feet tall, eight inches in diameter, and has a ten-inch diameter top.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- e. **Top Width**: n/a
- f. **Bottom Width**: n/a
- g. **Height or Depth**: n/a
- h. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a commercial area.

**L7. Integrity Considerations:** The setting in at this point has changed somewhat since construction of the pipeline in 1974 with the construction of additional houses.

**L8a. Photograph, Map, or Drawing.**


**L8b. Description of Photo, Map, or Drawing:**
**Photograph 6.** Cylindrical air vent, camera facing west, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.
[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.
[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.

[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.

[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.

[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.

[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

*History of the East Pipeline*

The East Pipeline is a 6.4-mile pipeline along the east side of the Santa Clara Valley that distributes treated water from the Penitencia WTP to nine turnouts that supply three water retailers: the City of San Jose, the San Jose Water Company, and the

[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

City of Milpitas. In December 1972, the District hired the engineering firm of George S. Nolte & Associates of San José, California to draft plans for the East Pipeline and awarded the construction contract to the Hood Corporation of Whittier, California to carry out the plans in early 1973. The firm completed the East Pipeline in 1974 at a cost of about $3.78 million, coinciding with the construction of the Penitencia WTP located near the beginning of the line and providing it with treated water (**Plate 1**). During planning, the pipeline was called the "Evergreen Pipeline," but the name had changed to the current moniker by 1974. Originally, the District planned for the pipeline to end at the Evergreen Reservoir, but that reservoir was never built. Currently, the East pipeline ends at Aborn Road where it connects with the Snell Pipeline, which was built in 1987-88. In 1996, Valley Water completed the Parallel East Pipeline adjacent to the East Pipeline.[20]

**Plate 1.** Two photographs of the East Pipeline under construction along North White Road in 1973 (courtesy of SCVWD Archives).

Alterations to the pipeline include the installation of cathodic protection systems to reduce corrosion in 1972-3; a 6,000-foot extension on the south end in 1977; installation of a line valve, service valve, and vault in 1995; construction of tie-ins with the adjacent Parallel East Pipeline in 2010; and "major repairs and improvements" in 2012 costing $3.7 million that included the replacement of all mechanical appurtenances.[21]

[20] Baracco & Associates, "Santa Clara Countywide Water Service Review: Final," prepared for SCVWD, December 7, 2011, 112; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1; GIS data provided by SCVWD; SCVWD, "Final Budget: 1971-1972," 99; SCVWD, "Final Budget: 1971-1972," 25; SCVWD, "Annual Financial Analysis, Water Utility Systems," February 1974, Table 6; SCVWD, "Water Utility Enterprise Report," April 1997, 12; SCVWD, "Specifications and Contract Documents for the Construction of Evergreen Pipeline," January 1973; George S. Nolte & Associates, "Map and Construction Plans for Evergreen Pipeline," December 1972.
[21] SCVWD, "Capital Improvement Plan: 2010-2011," III-35, 36; SCVWD, "Annual Report: 2011-2012, 6; SCVWD, "Final Budget: 1976-1977," 61, 62; SCVWD, "Capital Improvement Plan: 2003-2005," 248-349; SCVWD, "Final Budget: 1975-1976," 59; SCVWD, "Annual Survey Report on Ground Water Conditions: 1973-1974," February 1975, 18; AECOM, "Infrastructure Reliability Plan, 2016," prepared for SCVWD, June 30, 2016, Appendix 3.

## Evaluation

The East Pipeline, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). The District had this pipeline constructed in 1974 to carry treated water for distribution on the east side of the District. The East Pipeline is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the East Pipeline, to meet the demand. The East Pipeline, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

This pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground welded steel pipeline is 33 to 48 inches in diameter and 6.4 miles long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that George S. Nolte & Associates or the Hood Corporation, the firms that designed and built the pipeline, rise to the level of masters in their respective fields. The East Pipeline, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

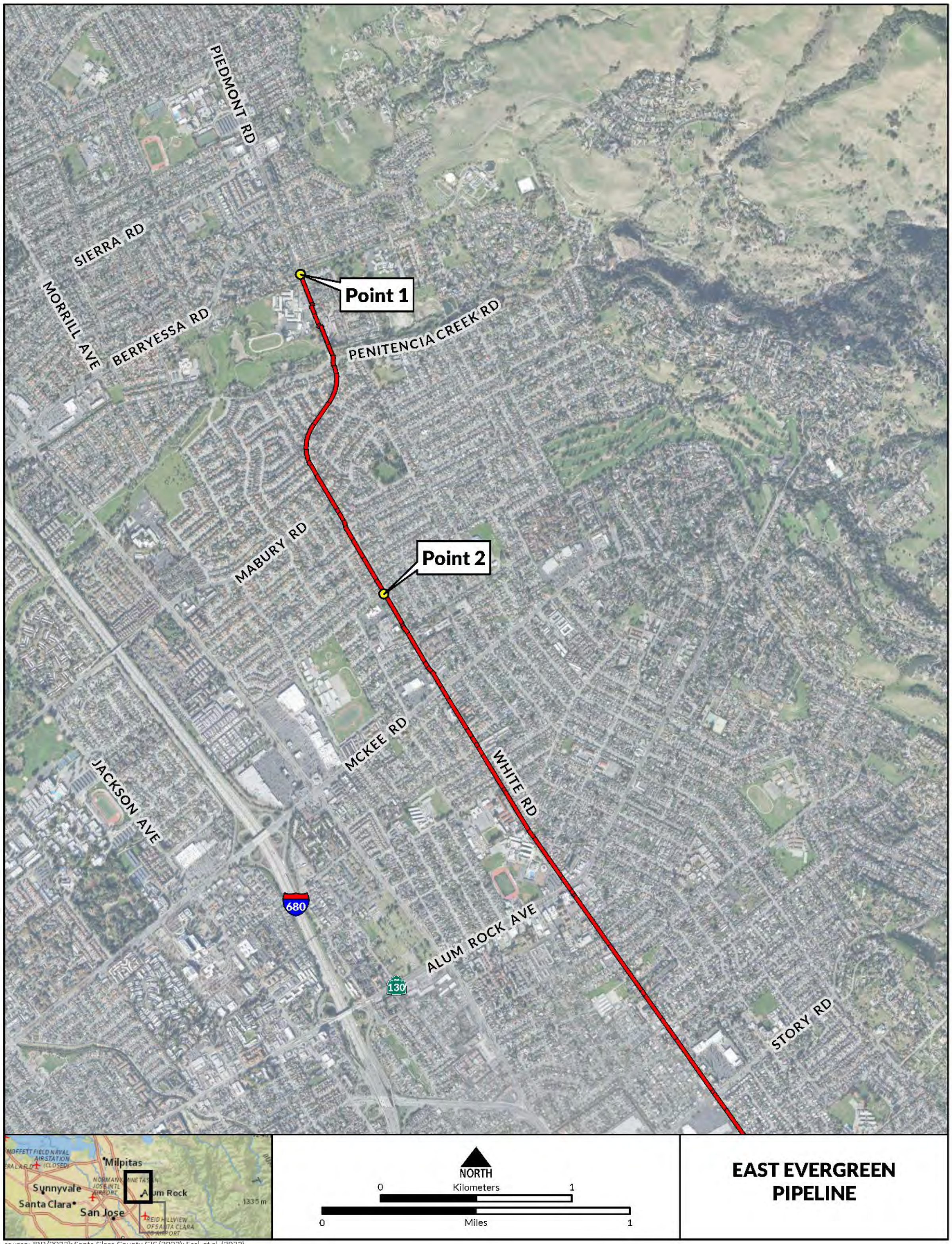
**Photograph 7:** Features within the fence-enclosed yard at Point 3, camera facing northwest, February 6, 2023.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**SKETCH MAP**

Primary # ______
HRI # ______
Trinomial ______



***Resource Name or #** (Assigned by recorder): East Pipeline



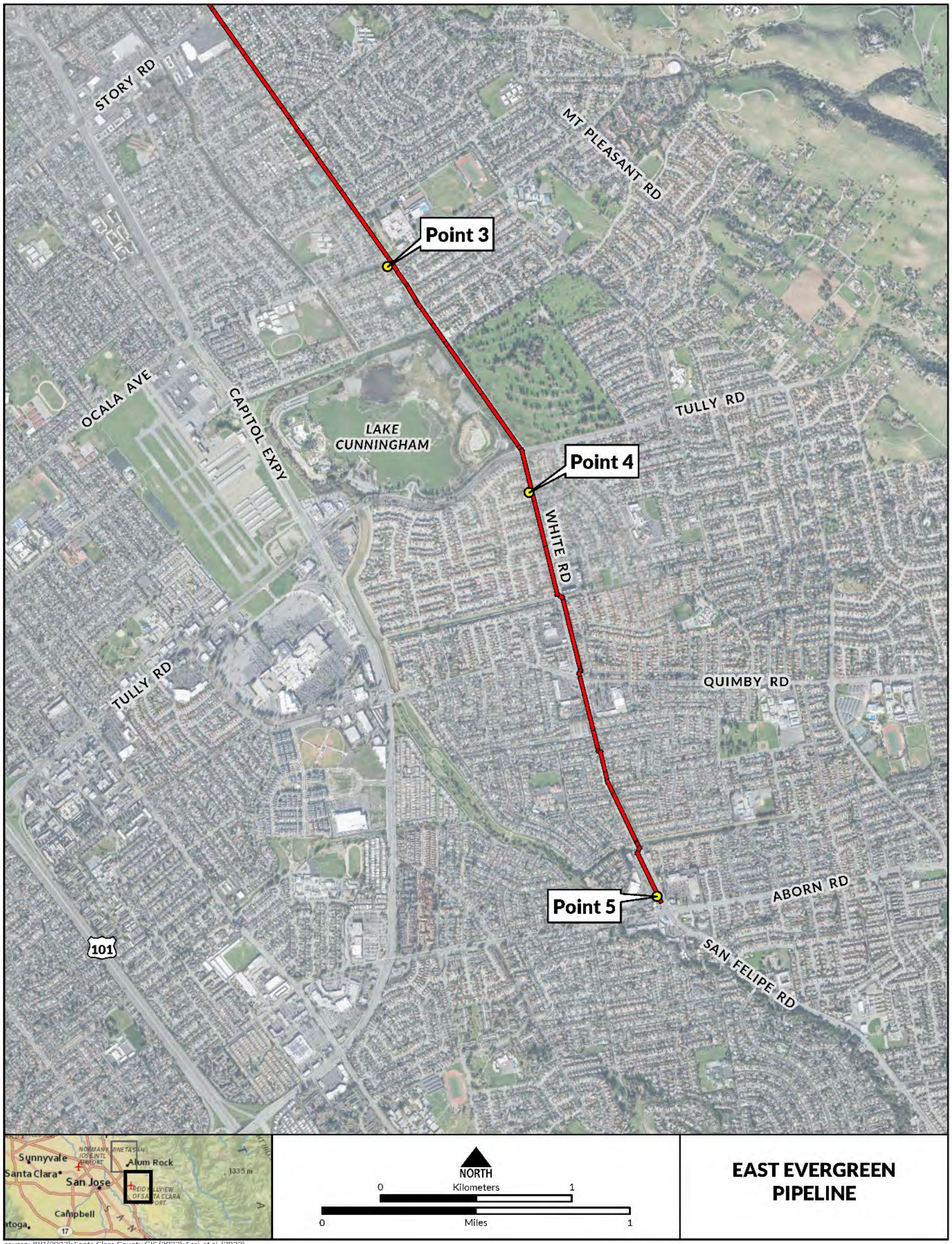

source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**SKETCH MAP**

Primary # ______
HRI # ______
Trinomial ______



***Resource Name or #** (Assigned by recorder): East Pipeline




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ____
HRI # ____
Trinomial ____
NRHP Status Code 6Z

Other Listings ____
Review Code ____ Reviewer ____ Date ____

 ***Resource Name or #** (Assigned by recorder): Ed Levin County Park Turnout

**P1. Other Identifier:** Ed Levin County Park Turnout

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Santa Clara

**and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** Calaveras Reservoir **Date:** 2021 **T:**____; **R:**____; **Sec:**__; Rancho Tularcitos

c. Address: n/a City: Milpitas Zip: n/a

d. UTM: Endpoints: Zone: 10S; 599790.87 m E / 4144880.40 m N (north end); 599796.14 m E / 4144861.80 m N (south end)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

The turnout is located on the west side of Old Calaveras Road about 0.35 miles east of the intersection with Evans Road.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Ed Levin County Park Turnout and its appurtenant above-ground structures. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. The asbestos cement pipeline is 68 feet long and 10 inches in diameter. It runs along the west shoulder of Old Calaveras Road (**Photograph 1**). There are two above-ground appurtenant structures at this location: rectangular concrete vault and a cylindrical concrete vault. See the Linear Feature Record for photographs and a description of the recordation point.

***P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1.** Looking along the pipeline right-of-way on Old Calaveras Road at two concrete vaults (foreground and distant); camera facing south, September 11, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1966 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** September 11, 2023

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☐ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ____

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Ed Levin County Park Turnout

B1. Historic Name: Ed Levin County Park Turnout
B2. Common Name: Ed Levin County Park Turnout
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1966; no known alterations.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** ___ **Original Location:** ___
***B8. Related Features:** ___
B9. Architect: Santa Clara County b. Builder: unknown
***B10. Significance: Theme:** n/a **Area:** Santa Clara Valley
**Period of Significance:** n/a **Property Type:** Pipeline **Applicable Criteria:** n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Ed Levin County Park Turnout, inclusive of its appurtenant structures, does not appear to meet the criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR), nor does it appear to be an historical resource for the purposes of the California Environmental Quality Act (CEQA). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. Melvin
***Date of Evaluation**: October 2023

(This space reserved for official comments.)

(Sketch Map with north arrow required.)

See Sketch Map on last page.

***Resource Name or #** (Assigned by recorder): Ed Levin County Park Turnout

***Recorded by**: S. J. Melvin & A. Lawton ***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Ed Levin County Park Turnout

**L2a. Portion Described:** ☒ Entire Resource ☐ Segment ☐ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10 S, NAD 83, 599790.87 m E / 4144880.40 m N (north end); 599796.14 m E / 4144861.80 m N (south end); on Old Calaveras Road about 0.35 miles east of its intersection with Evans Road.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At the north end of the pipeline is a rectangular concrete vault measuring approximately two feet by three feet (**Photograph 1**). It has a metal cover with a hinged door that sits flush with the ground. Approximately 68 feet south of this vault is a cylindrical concrete vault that rises a few inches above the ground at the south end of the pipeline (**Photograph 2**). It is about five feet in diameter and has a metal cover with hinged access doors. The metal covering is set a few inches above the top of the concrete and has ventilation screens on the side.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This resource is located along a two-lane road that runs through a sparsely settled rural residential area.

**L7. Integrity Considerations**: There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2**. Cylindrical concrete vault at the south end of the pipeline; camera facing southwest, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: September 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.

[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.

[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.

[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.

[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.

[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle,* 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980);

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along

Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in 1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.

[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

*History of the Ed Levin County Park Turnout*

The Ed Levin County Park Turnout is an asbestos cement pipeline 68 feet long and 10 inches in diameter that delivers raw water from the South Bay Aqueduct to Ed Levin County Park for irrigation. It was constructed in 1966 by the Santa Clara County Flood Control and Water District (SCCFCWD). The SCCFCWD was formed in 1951 and governed by the County Board of Supervisors with the purpose of building flood control and water conservation projects in the county. Presumably, the SCCFCWD built the Ed Levin County Park Turnout rather than the SCVWD because the pipeline served a county park. The two agencies served similar purposes and merged in 1968 to eliminate inefficiencies. The 68-foot-long section of Ed Levin County Park Turnout recorded on this form is the only part owned and maintained by SCVWD. The remaining 0.9 miles of pipeline that continues to the park was built by and is currently owned and maintained by Santa Clara County.[20]

**Evaluation**

The Ed Levin County Park Turnout, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). Constructed in 1966, this pipeline carries raw water from the South Bay Aqueduct to Ed Levin County Park for irrigation. The pipeline was built by the SCCFCWD during a time of increasing water demands in the Santa Clara Valley. This short, minor pipeline was one of many water infrastructure projects built by the SCCFCWD and other agencies in the Santa Clara Valley to supply water to customers. The Ed Levin County Park Turnout, therefore, is not associated with any historically significant events, patterns, or trends.

The Ed Levin County Park Turnout is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline, including its appurtenant structures, is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This short, small asbestos cement pipeline is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. The Ed Levin County Park Turnout, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

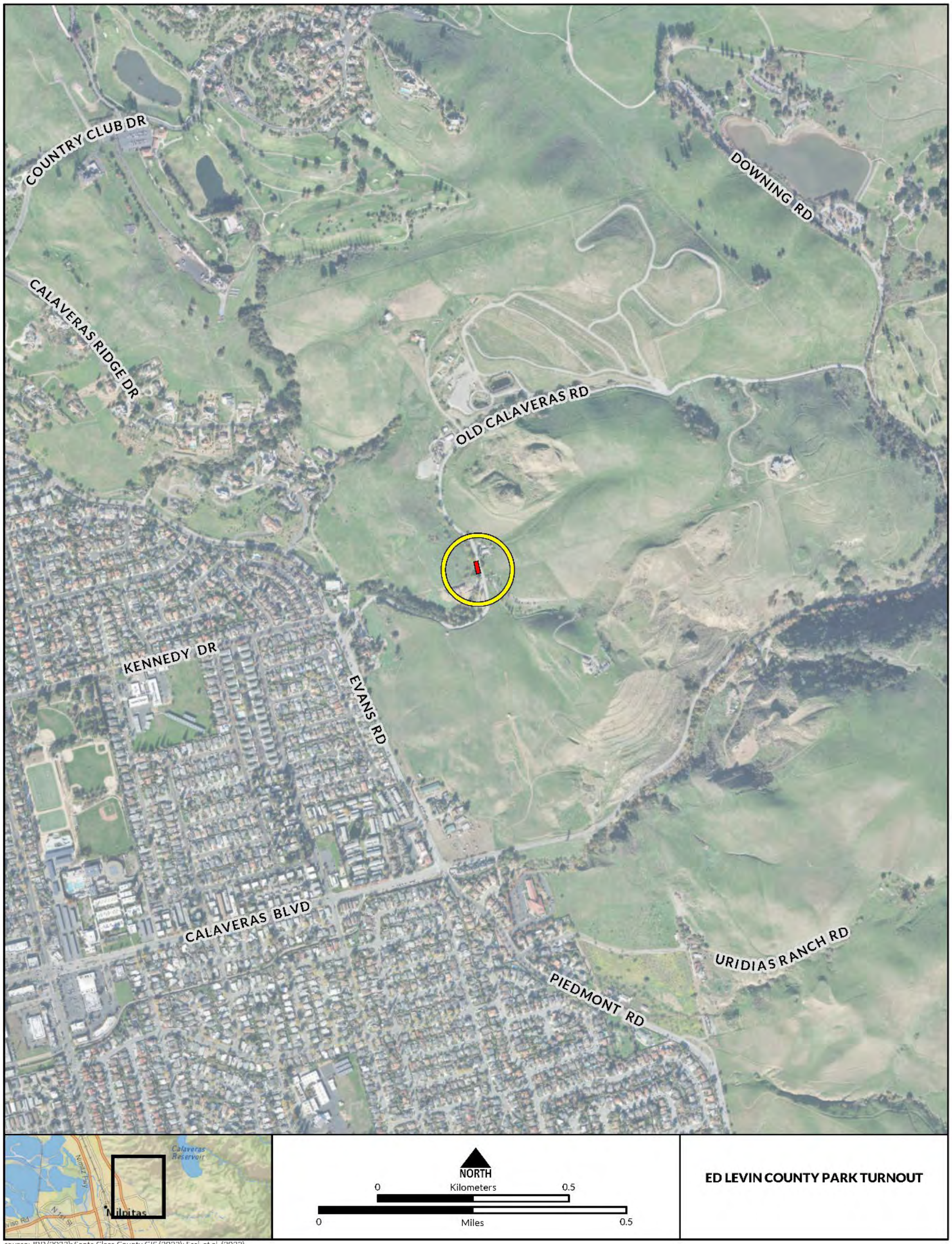
[20] Santa Clara County Flood Control & Water District, "Exhibit A [plans]," May 1966; Santa Clara County Flood Control & Water District, "Memorandum: Explanation of Item # on Agenda of May 24, 1966," May 17, 1966; Santa Clara County Department of Public Works, "Ed R. Levin Reservoir Water Supply System [plans]," April 1966; "County Flood Bonds Urged," *Los Gatos Times-Saratoga Observer*, March 31, 1955, 1; "Water Districts to Merge," *Los Gatos Times-Saratoga Observer*, March 6, 1968, 1.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**SKETCH MAP**

Primary # ______________________
HRI # ______________________
Trinomial ______________________



***Resource Name or #** (Assigned by recorder): Ed Levin County Park Turnout




source: JRP (2023); Santa Clara County GIS (2023); Esri, et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ____________________
HRI # ____________________
Trinomial ____________________
NRHP Status Code 6Z

Other Listings ____________________
Review Code __________ Reviewer ____________________ Date __________



***Resource Name or #** (Assigned by recorder): Guadalupe Water System

**P1. Other Identifier:** Guadalupe Water System

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Santa Clara

***b. USGS 7.5' Quad**: Los Gatos **Date**: 2021 **T:**____; **R:**____; **Sec:**__; Rancho San Juan Bautista

c. Address: n/a City: San José Zip: n/a

d. UTM: Endpoints: Zone: 10S; 597258.05 m E / 4122001.52 m N (west end); 597578.51 m E / 4122321.41 m N (east end)

e. Other Locational Data:

The pipeline begins near the intersection of Camden Avenue and Kooser Road and ends near the intersection of Kooser Road and Ardmore Way in San José.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Guadalupe Water System pipeline. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. This prestressed concrete pipeline is 0.3 miles long and has sections 10, 12, 14, and 16 inches in diameter. The pipeline runs entirely along public road rights-of-way (**Photograph 1**). One above-ground concrete vault was observed during fieldwork for this pipeline. See the Linear Feature Records for photographs and descriptions of the recordation points.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1:** Pipeline right-of-way along Kooser Road, camera facing southwest, February 7, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1961 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded**: February 7, 2023

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ____________________

# BUILDING, STRUCTURE, AND OBJECT RECORD



***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Guadalupe Water System

B1. Historic Name: Guadalupe Water System
B2. Common Name: Guadalupe Water System, Kooser Pipeline
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1961; a portion of the pipeline replaced in 1986.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** ___ **Original Location:** ___
***B8. Related Features:** ___
B9. Architect: Unknown b. Builder: Samco Pipelines, Inc.
***B10. Significance: Theme**: n/a **Area**: Santa Clara Valley
**Period of Significance**: n/a **Property Type**: Pipeline **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Guadalupe Water System, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: February 2023

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Guadalupe Water System

**L1. Historic and/or Common Name**: Guadalupe Water System

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 597256.99 mE / 4122003.59 mN; on Camden Avenue near Kooser Road in San Jose

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
This location is the beginning of the Guadalupe Water System where it receives water from the Almaden Valley Pipeline (AVP). The square concrete vault at the left of the photograph below is associated with the Guadalupe Water System, the other two with the AVP (**Photograph 2**). This square concrete vault measures approximately 7 feet x 7 feet and rises about a foot above grade. It has a two-leaf hinged metal hatch on top.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The setting is mixed commercial and single-family residential.

**L7. Integrity Considerations:** The setting in this area has changed somewhat since construction of the pipeline with the construction of additional houses.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** Concrete vaults, camera facing south, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.

[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.

[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.
[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.
[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.
[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.
[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.
[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.

[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Guadalupe Water System (1961), Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.

[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.

[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.

[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.

[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

*History of the Guadalupe Water System*

The District contracted with Samco Pipelines, Inc. to build this 0.3-mile pipeline in 1961 as part of a series of interconnected pipelines called the Guadalupe Water System. The system pumped water out of a small concrete reservoir next to and supplied by Guadalupe Creek. The main line of the system ran under Camden Avenue with multiple spurs branching off on both sides. The Guadalupe Water System provided irrigation water to farmland along its route, and delivered water to Ross Creek and the Kooser Road Percolation Ponds. The pipeline recorded on this form branched off at Kooser Road and went to the Kooser Percolation Ponds. With the construction of the Almaden Valley Pipeline through this area in 1966 and residential subdivisions replacing farm fields, the Guadalupe Water System became unnecessary and was abandoned except for the segment recorded on this form. This pipeline, also sometimes referred to as the Kooser Pipeline, receives raw water from the Almaden Valley Pipeline at a turnout near the intersection of Camden Avenue and Kooser Road and carries it to the Kooser Percolation Ponds. In 1986, the District replaced a section of this pipeline, the exact length or location is unknown.[20]

**Evaluation**

The Guadalupe Water System, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). The District built this pipeline in 1961 as part of a larger system to deliver water to the Kooser Percolation Ponds in southern San José. The Guadalupe Water System is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the Guadalupe Water System, to meet the demand. The Guadalupe Water System, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

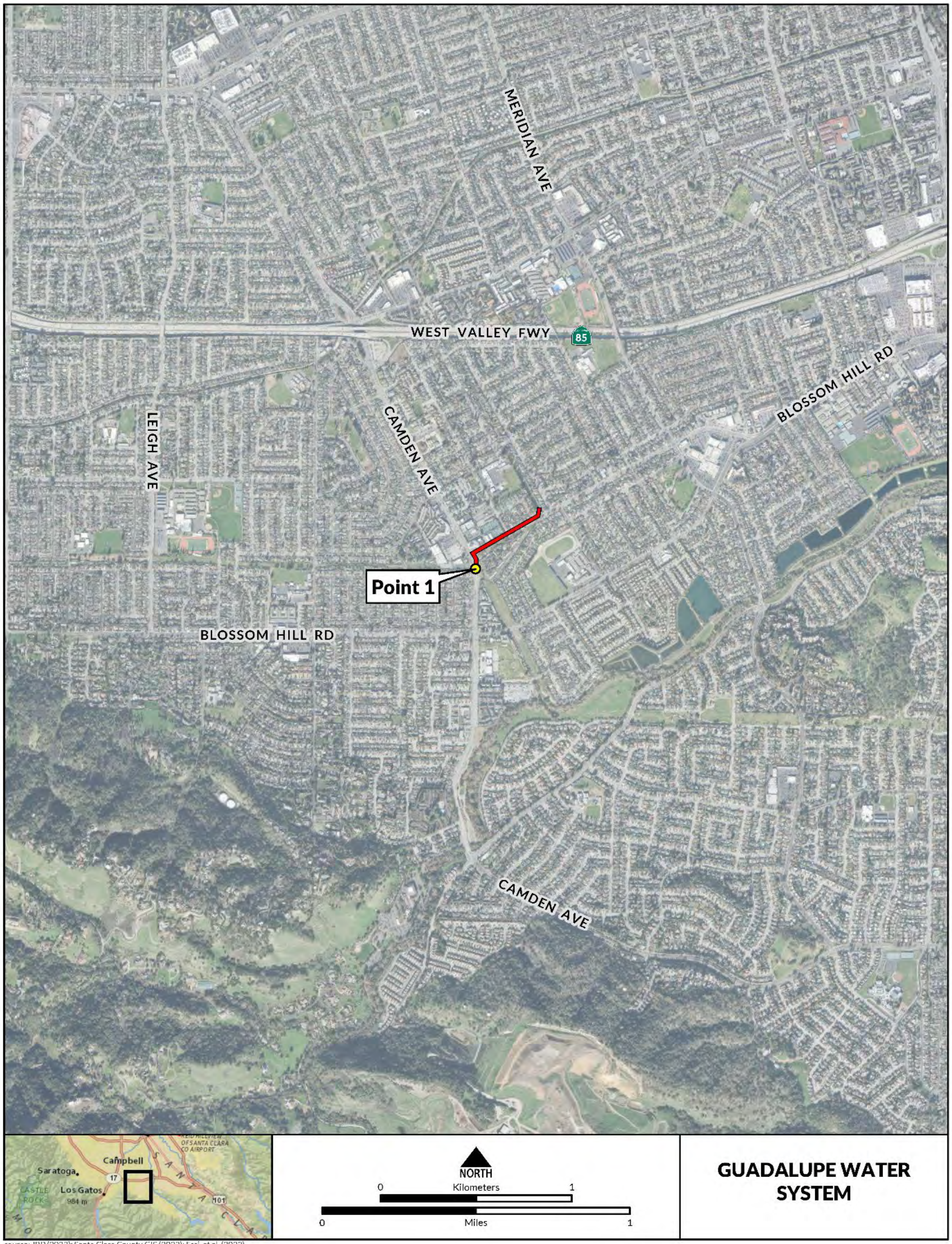
This pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground pipeline is 10 to 16 inches in diameter and 0.3 miles long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that this pipeline is the work of a master as Samco Pipelines, Inc., the firm that built the pipeline, does not rise to the level of master. The Guadalupe Water System, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

[20] Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1; GIS data provided by SCVWD; SCVWD, "Final Budget: 1968-1969," 217; SCVWD, "Final Budget: 1985-1986," 48, 49; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 15; SCVWD, Pipelines Project Delivery Unit, Pipeline Information, March 9, 2023; SCVWD, "Guadalupe Water System, As-Built, General Layout," February 1961; Valley Water Archives, "Guadalupe Water System," Microfilm Roll 6.

***Resource Name or #** (Assigned by recorder): Guadalupe Water System




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ____________
HRI # ____________
Trinomial ____________
NRHP Status Code 6Z

Other Listings ____________
Review Code ______ Reviewer ____________ Date ______

 ***Resource Name or #** (Assigned by recorder): Helmsley/Capitol Percolation Pipeline

**P1. Other Identifier:** Helmsley/Capitol Percolation Pipeline

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Santa Clara
**and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad:** Calaveras Reservoir **Date:** 2021 **T:**___; **R:**___; **Sec:**__; Pueblo Lands of San José
c. Address: n/a City: San José Zip: n/a
d. UTM: Endpoints: Zone: 10S; 601363.79 m E / 4138578.99 m N (west end); 602473.00 m E / 4138871.17 m N (east end)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
The pipeline just east of Piedmont Road near the intersection with Penitencia Creek Road and ends at a percolation pond on the north side of Helmsley Drive near the intersection of Summerview Drive.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This form records the Helmsley/Capitol Percolation Pipeline and representative appurtenant above-ground structures. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. The Helmsley/Capitol Percolation Pipeline is 0.8 miles long, 24 inches in diameter, and made of reinforced concrete. The pipeline runs through Penitencia Creek Park and under a public road right-of-way (**Photograph 1**). See the Linear Feature Records for photographs and descriptions of the recordation points.

***P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline
***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1.** View of the pipeline right-of-way near its beginning (east end), camera facing northwest, September 11, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1964 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:** (Name, affiliation, address)
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** September 11, 2023

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☐ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (list) ____________

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Helmsley/Capitol Percolation Pipeline

B1. Historic Name: Helmsley/Capitol Percolation Pipeline
B2. Common Name: Helmsley/Capitol Percolation Pipeline
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1964; new vault in Penitencia Creek Park, date unknown.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown Date:** ______ **Original Location:** ______
***B8. Related Features:** ______
B9. Architect: Santa Clara Valley Water District b. Builder: unknown
***B10. Significance: Theme**: n/a **Area**: Santa Clara Valley
**Period of Significance**: n/a **Property Type**: Pipeline **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Helmsley/Capitol Percolation Pipeline does not appear to meet the criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR), nor does it appear to be an historical resource for the purposes of the California Environmental Quality Act (CEQA). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ______

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: October 2023

(This space reserved for official comments.)

See Sketch Map on last page.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**LINEAR FEATURE RECORD**

Primary # ______
HRI # ______
Trinomial ______

 ***Resource Name or #** (Assigned by recorder): Helmsley/Capitol Percolation Pipeline
***Recorded by**: S. J. Melvin & A. Lawton *__Date__: September 11, 2023

**L1. Historic and/or Common Name**: Helmsley/Capitol Percolation Pipeline
**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1
***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 602302.96 m E/ 4138921.07 m N; in Penitencia Creek Park, along the northeast section of the Penitencia Creek Trail

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location the pipeline is buried and the only above-ground appurtenant structure is a steel manhole cover flush with the ground covering a cylindrical concrete vault (**Photograph 2**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This resource is located in a park consisting of an open grassy field and scattered trees.

**L7. Integrity Considerations**: There are no apparent or known integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2**. Looking down the pipeline right-of-way, manhole cover on a concrete vault in foreground, camera facing west, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: September 2023

***Resource Name or #** (Assigned by recorder): Helmsley/Capitol Percolation Pipeline

***Recorded by**: S. J. Melvin & A. Lawton ***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Helmsley/Capitol Percolation Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 602084.25 m E/ 4138798.26 m N; in Penitencia Creek Park, near the southeast corner of the pond in the middle of the park.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a concrete vault approximately seven feet square (**Photograph 3**). It rises about six inches above the ground and has hinged metal access doors that sit flush with the top of the concrete. The vault is a turnout diverting water into a nearby percolation pond (**Photograph 4** – See Continuation Sheet).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This resource is located in an open grassy field within a suburban park.

**L7. Integrity Considerations**: This structure appears to be of more recent construction.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 3**. Concrete vault, camera facing northwest, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: September 2023

**Photograph 4.** Outlet pipe delivering water to percolation pond associated with the vault at Point 2, camera facing east, September 11, 2023.

***Resource Name or #** (Assigned by recorder): Helmsley/Capitol Percolation Pipeline

***Recorded by**: S. J. Melvin & A. Lawton ***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Helmsley/Capitol Percolation Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 601778.59 m E/ 4138669.38 m N; on Helmsley Drive, near its intersection with Summersong Court.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
This recordation point is near the east end of Helmsley Drive, where the pipeline right-of-way leaves Penitencia Creek Park and enters a residential neighborhood (**Photograph 5**). The pipeline runs underground along the street right-of-way and there are no above-ground structures at this location.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location the pipeline passes through a residential subdivision.

**L7. Integrity Considerations**: There are no apparent or known integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 5**. View of the pipeline right-of-way along Helmsley Drive, camera facing west September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: September 2023

***Resource Name or #** (Assigned by recorder): Helmsley/Capitol Percolation Pipeline

***Recorded by**: S. J. Melvin & A. Lawton ***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Helmsley/Capitol Percolation Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 4

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 601376.97 m E/ 4138570.61 m N; on the north side of Helmsley Drive at its intersection with Summerview Drive.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location near the end of the pipeline is a round metal manhole cover on top of the berm surrounding a percolation pond (**Photograph 6**). It is 18 inches in diameter and sits nearly flush with the ground. It is covering a metal vault.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This section of the pipeline runs through a subdivision of single-family residences.

**L7. Integrity Considerations**: There are no apparent or known integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 6**. Manhole cover near the end of the pipeline at a percolation pond, camera facing northwest, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: September 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.
[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.
[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.

[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.

[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.

[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.
[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.
[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.

[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

*History of the Helmsley/Capitol Percolation Pipeline*

The Helmsley/Capitol Percolation Pipeline was built in 1964. It carries raw water from the Robert E. Gross (a.k.a. Penitencia) Groundwater Recharge Pond to City Park Percolation Pond, Helmsley Percolation Pond, Capitol Percolation Ponds. The pipeline is part of the Penitencia Percolation System along and in the vicinity of Penitencia Creek. It appears the turnout vault to City Park Percolation Pond has been recently replaced.[20]

## Evaluation

The Helmsley/Capitol Percolation Pipeline, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). Constructed in 1964, this pipeline carries raw water from the Robert E. Gross (Penitencia) Groundwater Recharge Pond to City Park Percolation Pond, Helmsley Percolation Pond, Capitol Percolation Pond . The pipeline is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the Helmsley/Capitol Percolation Pipeline, to meet the demand. The Helmsley/Capitol Percolation Pipeline, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

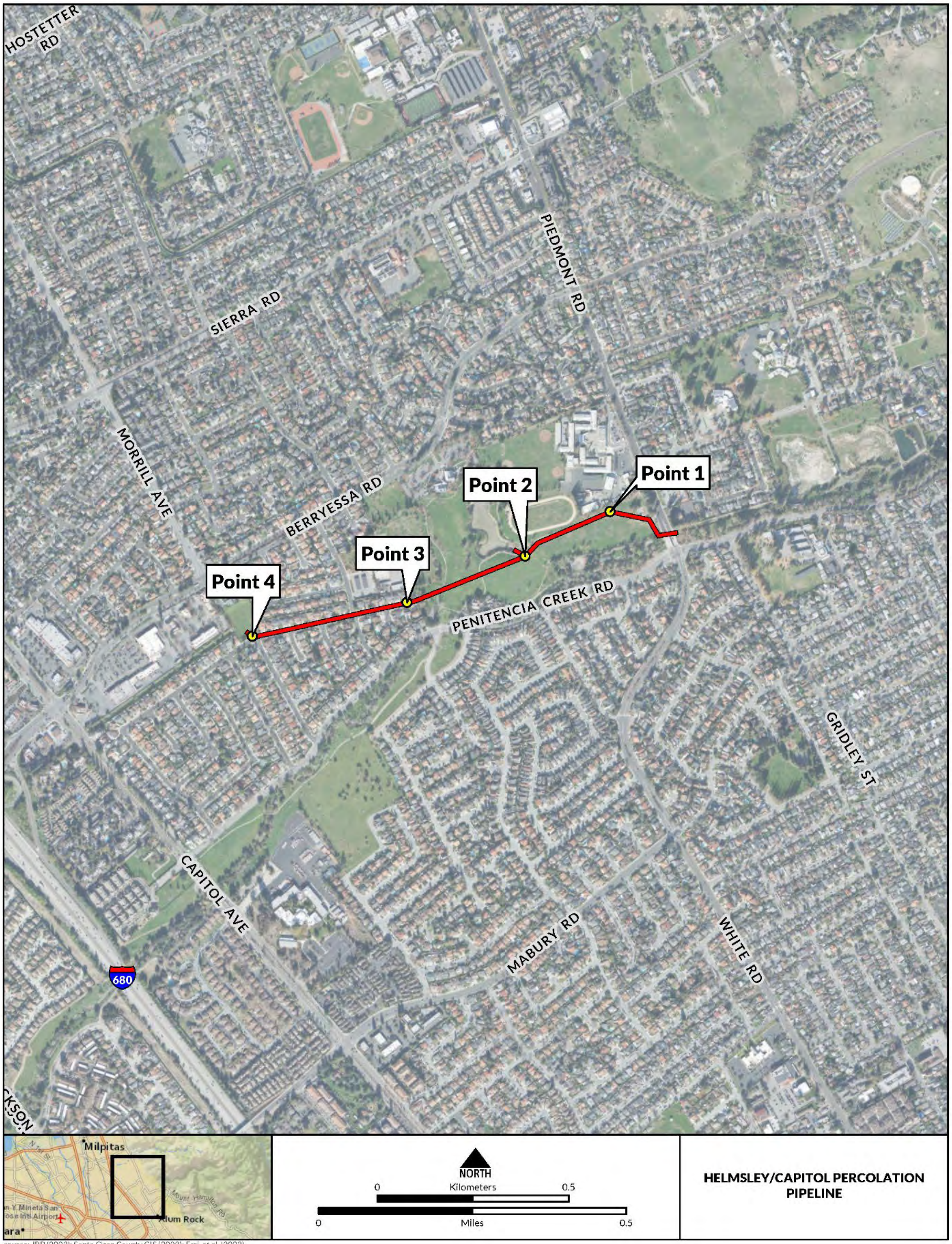
The Helmsley/Capitol Percolation Pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline, including its appurtenant structures, is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground reinforced concrete pipeline is 24 inches in diameter and 0.8-miles long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. The Helmsley/Capitol Percolation Pipeline, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

[20] J. Robert Roll, "Report Upon Ground Water Conditions Within the Santa Clara Valley Water Conservation District," March 8, 1966, 9; RMC Water and Environment and CDM Smith, "South Bay Water Recycling Strategic and Master Planning Report, Volume 1," December 2014, 6-57; Santa Clara County, "Santa Clara Valley Water District Property Ownership Study," September 1, 2005, 19-21.

***Resource Name or #** (Assigned by recorder): Helmsley/Capitol Percolation Pipeline




source: JRP (2023); Santa Clara County GIS (2023); Esri, et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ____
HRI # ____
Trinomial ____
NRHP Status Code 6Z

Other Listings ____
Review Code ____ Reviewer ____ Date ____

 ***Resource Name or #** (Assigned by recorder): Overfelt Garden Percolation Distribution System

**P1. Other Identifier:** Overfelt Garden Percolation Distribution System

***P2. Location:** ☐ Not for Publication ☒ Unrestricted ***a. County:** Santa Clara
**and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** San José East **Date:** 2021 **T:**___; **R:**___; **Sec:**__; Pueblo Lands of San José

c. Address: n/a City: San José Zip: n/a

d. UTM: Endpoints: Zone: 10S; 600880.24 m E / 4136610.56 m N (north end); 601251.44 m E / 4136022.52 m N (south end)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

The pipeline begins at the Mabury Percolation Pond near Maybury Road and ends at the Overfelt Gardens Percolation Pond near the Educational Park Drive Library.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Overfelt Garden Percolation Distribution System and a representative sampling of the pipeline's above-ground appurtenant structures. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. This asbestos cement pipeline is approximately 0.5 miles long, and 18 inches in diameter. The majority of the pipeline runs southeast along the east edge of Educational Park Drive (**Photograph 1**). The beginning runs under a baseball field and the final section runs under the Education Park Drive Library property. At both ends are percolation ponds. Along the route, the single above-ground feature observed was a square concrete vault. See the Linear Feature Records for photographs and descriptions of the recordation points.

***P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)


**P5b. Description of Photo:** (View, date, accession#) **Photograph 1.** View of the pipeline along Educational Park Drive near the center point of the right-of-way, camera facing northwest, September 11, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1976 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** September 11, 2023

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☐ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ____

# BUILDING, STRUCTURE, AND OBJECT RECORD



*NRHP Status Code: 6Z

*Resource Name or # (Assigned by recorder): Overfelt Garden Percolation Distribution System

B1. Historic Name: Overfelt Garden Percolation Distribution System
B2. Common Name: Overfelt Garden Percolation Distribution System
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1976; the vault near the Education Park Library appears of recent construction.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** ___ **Original Location:** ___
***B8. Related Features:** ___
B9. Architect: Santa Clara Valley Water District b. Builder: unknown
***B10.** **Significance: Theme:** n/a **Area:** Santa Clara Valley
**Period of Significance:** n/a **Property Type:** Pipeline **Applicable Criteria:** n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Overfelt Garden Percolation Distribution System does not appear to meet the criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR), nor does it appear to be an historical resource for the purposes of the California Environmental Quality Act (CEQA). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation:** October 2023

(This space reserved for official comments.)

See Sketch Map on last page.

***Resource Name or #** (Assigned by recorder): Overfelt Garden Percolation Distribution System

***Recorded by**: S. J. Melvin & A. Lawton *__Date__: September 11, 2023

**L1. Historic and/or Common Name**: Overfelt Garden Percolation Distribution System

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10 S, NAD 83, 600821.65 m E / 4136469.98 m N; along Educational Park Drive next to the Independence High School baseball field.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this recordation point the pipeline runs under the Independence High School baseball field (**Photograph 2**). There are no above-ground structures at this location.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This resource is located in a suburban area adjacent to a school, park, residences, and an industrial area.

**L7. Integrity Considerations**: There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**


**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** View along the pipeline right-of-way through the Independence High School baseball field, camera facing northeast, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: October 2023

***Resource Name or #** (Assigned by recorder): Overfelt Garden Percolation Distribution System

***Recorded by**: S. J. Melvin & A. Lawton ***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Overfelt Garden Percolation Distribution System

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 601055.63 m E / 4136191.03 m N; in front of Independence High School.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline runs underground along the eastern edge of Education Park Drive (**Photograph 3**). There are no above-ground appurtenant structures at this location.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- **a. Top Width**: n/a
- **b. Bottom Width**: n/a
- **c. Height or Depth**: n/a
- **d. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This resource is located in a suburban area adjacent to a school, park, residences, and an industrial area.

**L7. Integrity Considerations**: There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 3.** View along pipeline right-of-way, camera facing south, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: October 2023

***Resource Name or #** (Assigned by recorder): Overfelt Garden Percolation Distribution System

***Recorded by**: S. J. Melvin & A. Lawton ***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Overfelt Garden Percolation Distribution System

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 601146.15 m E / 4136014.78 m N; in front of the Educational Park Branch Library.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is an approximately five-foot-square concrete vault that rises about six inches above the ground (**Photograph 4**). On top is a flush metal hatch with two hinged access doors.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This resource is located in a suburban area adjacent to a school, park, residences, and an industrial area.

**L7. Integrity Considerations**: This vault appears to be of recent construction.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Square concrete vault, camera facing north, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: October 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.
[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.
[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.

[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.

[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.

[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle,* 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980);

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along

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Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in 1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.
[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.
[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.
[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.

[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.

[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.

[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.

[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

*History of the Overfelt Garden Percolation Distribution System*

The Overfelt Garden Percolation Distribution System is a raw water pipeline completed in 1976 as part of the Penitencia Percolation System. The pipeline begins at the Mabury Percolation Pond and carries water to the Overfelt Garden Percolation Ponds in Overfelt Gardens Park. The Mabury Percolation Pond is adjacent to Penitencia Creek and receives water from the creek by means of a diversion structure. It appears the concrete vault near the Education Park Library has been recently replaced. Research did not determine any other alterations.[20]

**Evaluation**

The Overfelt Garden Percolation Distribution System, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). Constructed in 1976, this pipeline carries raw water from the Mabury Percolation Pond along Penitencia Creek to a percolation pond in Overfelt Garden Park. The pipeline is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the Overfelt Garden Percolation Distribution System, to meet the demand. The Overfelt Garden Percolation Distribution System, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

The Overfelt Garden Percolation Distribution System is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline, including its appurtenant structures, is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground pipeline is 0.5 miles long, 18 inches in diameter, and made of asbestos cement concrete. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. The Overfelt Garden Percolation Distribution System, therefore, lacks significance under this criterion.

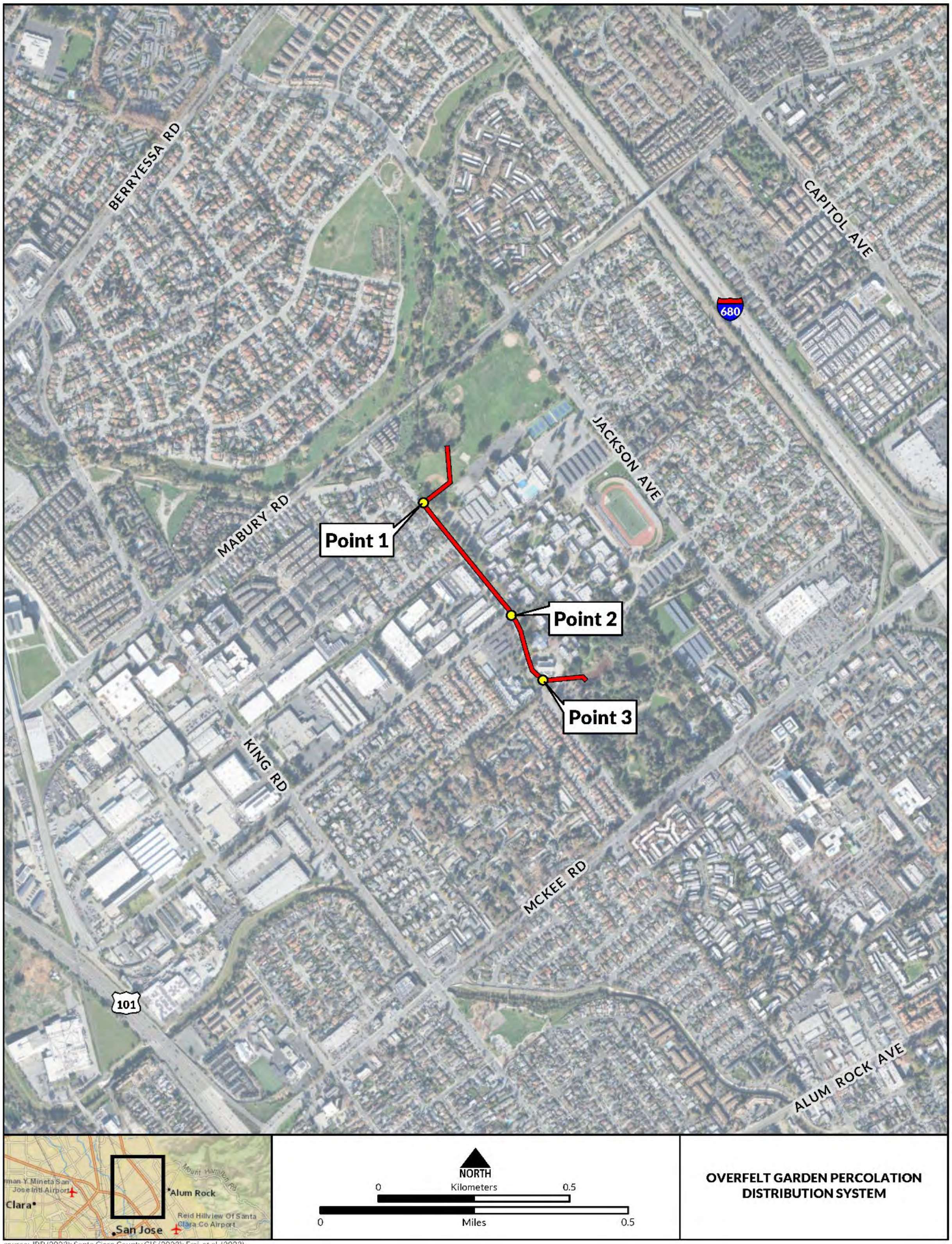
Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

[20] SCVWD, "1974-75 Fiscal Year Final Budget," 55; SCVWD, "1975-76 Fiscal Year Final Budget," 48, 54; SCVWD, "Groundwater Management Plan," 2012, AP 11; RMC Water and Environment and CDM Smith, "South Bay Water Recycling Strategic and Master Planning Report, Volume 1," December 2014, 6-57.

# SKETCH MAP

Primary # ____________
HRI # ____________
Trinomial ____________

 ***Resource Name or #** (Assigned by recorder): Overfelt Garden Percolation Distribution System



source: JRP (2023); Santa Clara County GIS (2023); Esri, et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ____
HRI # ____
Trinomial ____
NRHP Status Code 6Z

Other Listings ____
Review Code ____ Reviewer ____ Date ____

 ***Resource Name or #** (Assigned by recorder): Page Distribution System

**P1. Other Identifier:** Page Distribution System

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Santa Clara

**and** (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** San José West **Date:** 2021 **T:**_; **R:**____; **Sec:**__; Rancho Rinconada de los Gatos

c. Address: n/a City: Campbell Zip: n/a

d. UTM: Endpoints: Zone: 10S; 592480.78 m E / 4126065.44 m N (north end); 592339.04 m E / 4125428.12 m N (south end)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)

The pipeline begins at the Page Percolation Ponds just south of West Sunnyoaks Avenue and ends at the Budd Percolation Pond on Waldo Road at the intersection with Old Orchard Road.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Page Distribution System and a representative sampling of the pipeline's appurtenant above-ground structures. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. The Page Distribution System is an asbestos cement pipeline 0.5 miles long and 24 inches in diameter. The pipeline runs through private property, Valley Water property, a fire station, and under public road rights-of-way (**Photograph 1**). Along the route are various appurtenant above-ground structures including vaults, discharge pipes, and equipment boxes. See the Linear Feature Records for photographs and descriptions of the recordation points.

***P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1.** View of the pipeline right-of-way (under gravel road) at its beginning (south end), camera facing south, September 11, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1963 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** September 11, 2023

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☐ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (list) ____

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Page Distribution System

B1. Historic Name: Page Distribution System
B2. Common Name: Page Distribution System
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1963; alterations: new inlet structure, date unknown; replacement PVC turnout pipes at Sunnyoaks Percolation Ponds, date unknown.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown Date:** ________ **Original Location:** ________
***B8. Related Features:** ________
B9. Architect: Santa Clara Valley Water District b. Builder: unknown
***B10. Significance: Theme:** n/a **Area:** Santa Clara Valley
**Period of Significance:** n/a **Property Type:** Pipeline **Applicable Criteria:** n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Page Distribution System, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ____

***B12. References**: J. Robert Roll, “Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District,” 1956; Santa Clara Valley Water District, “Urban Water Management Plan,” April 2001; Stone & Youngberg, “Water Supply for the North Santa Clara Valley,” September 1962; Santa Clara Valley Water Conservation District, “This Is Your Santa Clara Valley Water Conservation District,” ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. “Mel” Melvin
***Date of Evaluation**: October 2023

(This space reserved for official comments.)

See Sketch Map on last page.

***Resource Name or #** (Assigned by recorder): Page Distribution System

***Recorded by**: S. J. Melvin & A. Lawton

***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Page Distribution System

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 592339.64 m E / 4125428.23 m N; at the Page Percolation Ponds of Sunnyoaks Avenue.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

This location is the beginning of the Page Distribution System pipeline at the Page Percolation Ponds. At this point is an inlet structure on the bank of a percolation pond measuring approximately five feet wide, five feet long, and two feet high. The structure is concrete, trapezoidal in shape, and has a sloped face covered by a metal debris screen (**Photograph 2**). Another metal debris screen with hinges covers the top of the structure.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)

This part of the pipeline is set amid seven percolation ponds.

**L7. Integrity Considerations**: The inlet structure at this location appears to be of recent construction.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**

**Photograph 2**. Concrete vault, camera facing west, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**

Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: October 2023

***Resource Name or #** (Assigned by recorder): Page Distribution System
***Recorded by**: S. J. Melvin & A. Lawton
***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Page Distribution System

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 592360.63 m E / 4125851.40 m N; at the Sunnyoaks Fire Station on West Sunnyoaks Avenue.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location the pipeline is entirely underground and there are no above-ground appurtenant structures (**Photograph 3**). The pipeline runs beneath a fire station parking lot.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location the pipeline passes through a fire station parking lot adjacent to a residential subdivision.

**L7. Integrity Considerations**: There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 3**. Pipeline right-of-way through parking lot, camera facing south, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: October 2023

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**LINEAR FEATURE RECORD**

Primary # ______
HRI # ______
Trinomial ______



***Resource Name or #** (Assigned by recorder): Page Distribution System

***Recorded by**: S. J. Melvin & A. Lawton

***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Page Distribution System

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 592364.19 m E / 4125745.72 m N; at north end of the Sunnyoaks Fire Station parking lot.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical equipment house made of corrugated metal with a conical metal top (**Photograph 4**). It measures approximately eight feet tall and three feet in diameter and stands on a concrete slab foundation approximately four-foot-square and six inches tall. A hinged door is on the north side of the structure.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **a. Top Width**: n/a
- **b. Bottom Width**: n/a
- **c. Height or Depth**: n/a
- **d. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location the pipeline passes through a fire station parking lot adjacent to a residential subdivision.

**L7. Integrity Considerations**: There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Cylindrical metal equipment house, camera facing south, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: October 2023

***Resource Name or #** (Assigned by recorder): Page Distribution System

***Recorded by**: S. J. Melvin & A. Lawton ***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Page Distribution System

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 4

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 592360.63 m E / 4125851.40 m N; at one of the Sunnyoaks Percolation Ponds south of Waldo Road.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a PVC pipe discharging water from pipeline into one of the Sunnyoaks Percolation Ponds (**Photograph 5**). Another vertical section of PVC pipe set above the pipeline alignment is a ventilation pipe. It rises about two feet above ground and has a metal cap on top.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location the pipeline passes alongside the Sunnyoaks Percolation Ponds adjacent to a residential subdivision.

**L7. Integrity Considerations**: The PVC pipe appears to be of recent vintage.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 5**. PVC discharge pipe and vertical ventilation pipe (R), camera facing northeast, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: October 2023

***Resource Name or #** (Assigned by recorder): Page Distribution System

***Recorded by**: S. J. Melvin & A. Lawton ***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Page Distribution System

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 5

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 592358.65 m E / 4125934.45 m N; at one of the Sunnyoaks Percolation Ponds south of Waldo Road.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical metal equipment box approximately three feet in diameter with a conical metal top (**Photograph 6**). The box is mounted on a vertical corrugated metal pipe about one foot in diameter. The structure is about six feet above the ground. A small, hinged door is on one side of the equipment box. At this location the pipeline runs north/south adjacent to a gravel access road and the Sunnyoaks Percolation Ponds.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **a. Top Width**: n/a
- **b. Bottom Width**: n/a
- **c. Height or Depth**: n/a
- **d. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location the pipeline passes alongside the Sunnyoaks Percolation Ponds adjacent to a residential subdivision.

**L7. Integrity Considerations**: There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 6**. Cylindrical equipment vault, looking north along pipeline alignment, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: October 2023

***Resource Name or #** (Assigned by recorder): Page Distribution System
***Recorded by**: S. J. Melvin & A. Lawton
***Date**: September 11, 2023

**L1. Historic and/or Common Name**: Page Distribution System

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 6

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 592481.38 m E / 4126053.61 m N; at the Budd Percolation Ponds at the pipeline's north end.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
This recordation point is at the end of the pipeline alignment at the Budd Percolation Ponds (**Photograph 7**). There are two concrete vaults and an electrical equipment box at this location. One vault is round, approximately five feet in diameter and has a hinged metal cover. This vault is located on the edge of the percolation pond. The second vault is approximately five-feet square with a hinged metal cover. The tops of both vaults are flush with the ground. A metal equipment box, rectangular and approximately three feet tall, is situated next to the square vault.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- **a. Top Width**: n/a
- **b. Bottom Width**: n/a
- **c. Height or Depth**: n/a
- **d. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location the pipeline runs through a residential subdivision.

**L7. Integrity Considerations**: There are no apparent or documented integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 7**. One round and one square concrete vault and an electrical equipment box, camera facing southeast September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: October 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.

[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.

[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.

[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.

[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.

[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle,* 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980);

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along

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Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in 1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.

[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

*History of the Page Distribution System*

The Page Distribution System is a pipeline that carries raw water from the Page Percolation Ponds to the Sunnyoaks Percolation Ponds and the Budd Percolation Ponds. The pipeline was completed in 1963, but the Sunnyoaks and Budd Avenue ponds were not completed until 1966. The only apparent alterations to the pipeline have been the replacement of the inlet structure at the Page Percolation Ponds and the turnout pipes at the Sunnyoaks Percolation Ponds.[20]

## Evaluation

The Page Distribution System, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). Constructed in 1963, this pipeline carries raw water from the Page Percolation Ponds just south of West Sunnyoaks Avenue to the Sunnyoaks and Budd percolation ponds. The pipeline is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the Page Distribution System, to meet the demand. The Page Distribution System, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

The Page Distribution System is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline, including its appurtenant structures, is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground asbestos cement pipeline is 0.5 miles long and 24 inches in diameter. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. The Page Distribution System, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

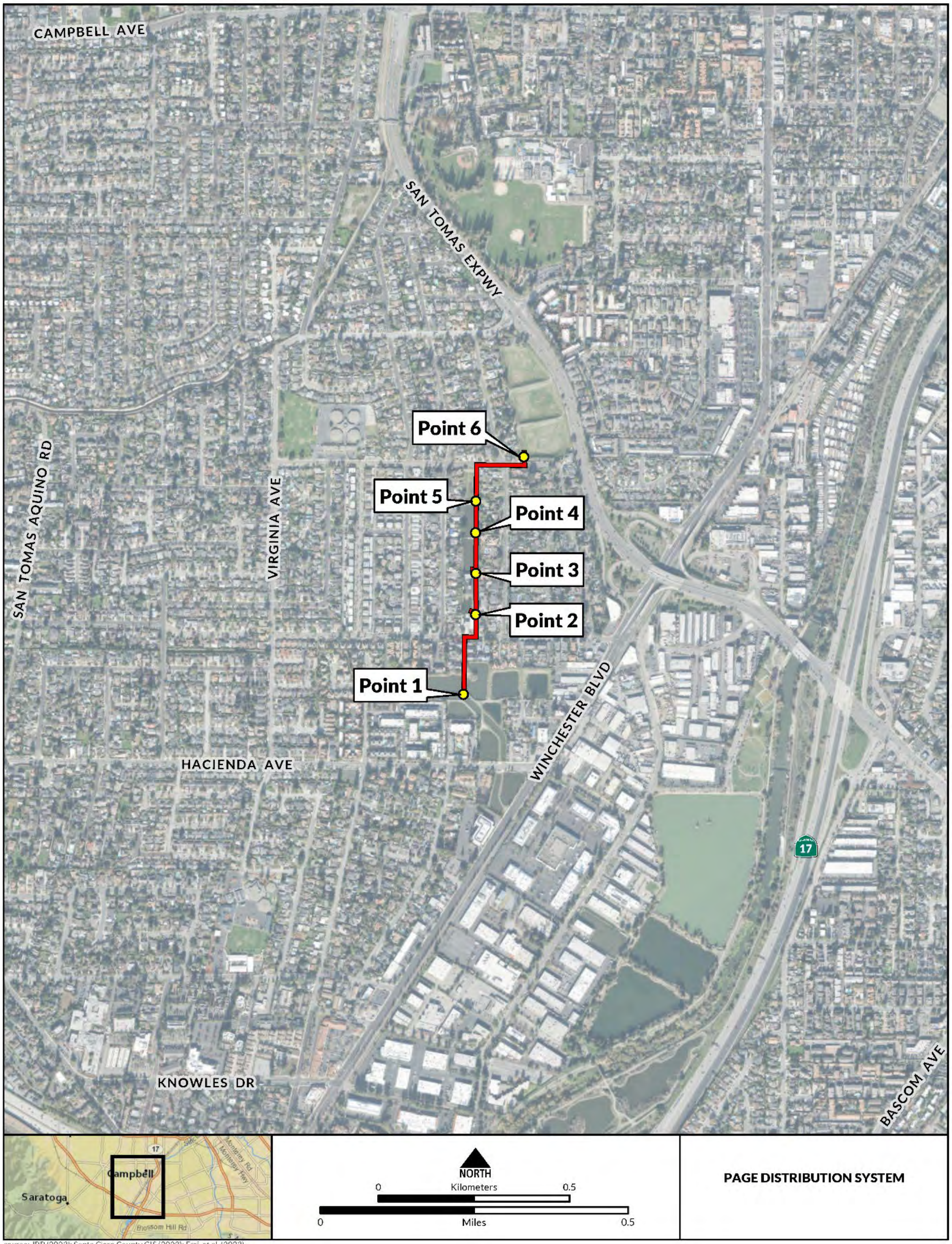
[20] Robert J. Roll, SCVWD, Report Upon Ground Water Conditions Within Santa Clara Valley Water Conservation District, March 14, 1967, 13; SCVWD, Pipeline Information, October 12, 2023; SCVWCD, "Page Pipeline, Construction Plans," June 1963.

**SKETCH MAP**

Primary # ______
HRI # ______
Trinomial ______



***Resource Name or #** (Assigned by recorder): Page Distribution System




source: JRP (2023); Santa Clara County GIS (2023); Esri, et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ______
HRI # ______
Trinomial ______
NRHP Status Code 6Z

Other Listings ______
Review Code ______ Reviewer ______ Date ______

 ***Resource Name or #** (Assigned by recorder): Rinconada Force Main

**P1. Other Identifier:** Rinconada Force Main

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Santa Clara

***b. USGS 7.5' Quad**: San José West **Date**: 2021 **T**:__; **R**:____; **Sec**:__; Rancho Rinconada de Los Gatos

c. Address: n/a City: Los Gatos Zip: n/a

d. UTM: Endpoints: Zone: 10S; 592236.96 m E / 4124099.52 m N (east end); 590220.18 m E / 4123932.32 m N (west end)

e. Other Locational Data:

The pipeline begins at the Vasona Valve Yard near the Highway 17 / Highway 85 interchange and ends at the Rinconada Water Treatment Plant on More Avenue in Los Gatos.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Rinconada Force Main pipeline and representative appurtenant above-ground structures. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. This welded steel pipeline is 1.62 miles long and 72 inches in diameter. The pipeline runs along public road rights-of-way and beneath private property (**Photograph 1**). See the Linear Feature Records for photographs and descriptions of the recordation points, all of which are in Los Gatos.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☒ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1:** View looking southwest along pipeline alignment near the Rinconada Water Treatment Plant, February 7, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1967 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded**: February 7, 2023

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐ Other (list) ______

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Rinconada Force Main

B1. Historic Name: Rinconada Force Main
B2. Common Name: Rinconada Force Main
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1967; installation of cathodic protection systems in 1978; section of pipeline under Highway 85 realigned in 1991; relocation of approximately 350 feet of the pipeline under Pollard Road in 1992.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** ___ **Original Location:** ___
***B8. Related Features:** ___
B9. Architect: California Pacific Engineers, San José b. Builder: Hood Corporation, Whittier, CA
***B10. Significance: Theme**: n/a **Area**: Santa Clara Valley
**Period of Significance**: n/a **Property Type**: Pipeline **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Rinconada Force Main, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: February 2023

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Rinconada Force Main

**L1. Historic and/or Common Name**: Rinconada Force Main

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** UTM: Zone 10S; 592226.63 mE / 4124101.98 mN; in the Vasona Valve Yard.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

This location at the beginning of the pipeline includes four above-ground structures: three vaults and a concrete block building. The first vault has a low-pitched gable roof, measures approximately 13 feet x 18 feet, and rises about three feet above the ground at its peak (**Photograph 2**). It has two rectangular hatchways on top and is clad in rolled composition roofing. The gable ends have vents and the roof is attached to a concrete base. The concrete block building measures approximately 10 feet x 1 feet and has a gable roof with wood shingles and vents in the gable ends. On one side is a metal personnel door and two metal louvered vents. The other two features are cylindrical concrete vaults measuring approximately 5 feet in diameter and rising about one foot above the ground. Both have metal covers with hinged access doors and vents on the sides (**Photographs 7** & **8** – See Continuation Sheet.)

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)

This section of the pipeline runs along Los Gatos Creek and is in a mixed commercial and multi-family residential area.

**L7. Integrity Considerations:** There are no apparent or known integrity considerations at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** Vault, camera facing north, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Rinconada Force Main

**L1. Historic and/or Common Name**: Rinconada Force Main

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 591921.26 mE / 4124123.29 mN; along Winchester Boulevard at Winchester Circle.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline is buried in a vacant lot. The only above-ground feature is a cylindrical concrete vault measuring approximately 5 feet in diameter and rising about one foot above the ground (**Photograph 3**). It has a metal cover with hinged access doors. The metal cover is a few inches above the top of the concrete to allow for ventilation.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- e. **Top Width**: n/a
- f. **Bottom Width**: n/a
- g. **Height or Depth**: n/a
- h. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This section of the pipeline runs through a mixed commercial and multi-family residential area.

**L7. Integrity Considerations:** There are no apparent or known integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 3.** Vault, looking east along pipeline right-of-way, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Rinconada Force Main

**L1. Historic and/or Common Name**: Rinconada Force Main

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 591586.30 mE / 4124232.91 mN; along Vasona Avenue near Dardanelli Lane.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline is buried along a public street. There are no appurtenant structures (**Photograph 4**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This section of the pipeline runs through a neighborhood of single-family residences.

**L7. Integrity Considerations:** There are no apparent or known integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Looking east along Vasona Avenue, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Rinconada Force Main

**L1. Historic and/or Common Name**: Rinconada Force Main

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 4

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 591095.87 mE / 4124150.88 mN; on Wedgewood Avenue near Browns Lane.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline is buried along a public street. There are no appurtenant structures (**Photograph 5**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This section of the pipeline runs along a golf course and a neighborhood of single-family residences.

**L7. Integrity Considerations:** There are no apparent or known integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**


**L8b. Description of Photo, Map, or Drawing:**
**Photograph 5.** Pipeline right-of-way along Wedgewood Avenue, camera facing east, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Rinconada Force Main

**L1. Historic and/or Common Name**: Rinconada Force Main

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 5

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 590443.67 mE / 4123989.79 mN; in La Rinconada Park along Granada Way.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is an octagonal concrete vault standing about two feet above the ground (**Photograph 6**). It measures approximately 5 feet wide and has a round metal cover on top for access. A small concrete vault a few feet away is square, measuring approximately 2 feet x 2 feet, and nearly level with the ground. It has a small metal cover secured with a hasp and padlock.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This section of the pipeline runs through a city park surrounded by a golf course on one side and single-family residences on the other.

**L7. Integrity Considerations:** There are no apparent or known integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 6.** Two concrete vaults, camera facing northeast, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.
[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.
[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.
[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.
[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.
[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.
[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.
[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.
[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

*History of the Rinconada Force Main*

The Rinconada Force Main is a 1.62-mile-long pipeline completed in 1967 by the Hood Corporation of Whittier, California on plans drawn by California Pacific Engineers of San José (**Plate 1** and **Plate 2**). The pipeline carries raw water from either

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

the Central Pipeline or the Almaden Pipeline via the Vasona Valve Yard to the Stevens Creek Pipeline, built in 1968, and the Rinconada WTP, built in 1967. The pipeline was built under a construction contract that included the West Pipeline, Stevens Creek Pipeline, Campbell Distributary, and Santa Clara Distributary, all of which were completed in 1967 or 1968. Since the pipeline's construction, Valley Water has undertaken various improvement to the pipeline including the installation of a cathodic protection system in 1978, realignment of a section under Highway 85 to accommodate freeway construction in 1991, and in 1992, the relocation of approximately 350 feet of pipeline under Pollard Road.[20]


**Plate 1.** Two photos of the Rinconada Force Main under construction in October 1966 along Wedgewood Avenue (courtesy of SCVWD Archives).

**Plate 2**. Photo of the Rinconada Force Main under construction on Vasona Avenue in October 1966 (courtesy of SCVWD Archives).

[20] SCVWD, "Final Budget: 1991-92," 56; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1; GIS data provided by SCVWD; SCVWD, "Annual Survey Report on Ground Water Conditions: 1967," March 1967, 40; AECOM, "Infrastructure Reliability Plan, 2016," prepared for SCVWD, June 30, 2016, Appendix 3; SCVWD, Pipelines Project Delivery Unit, Pipeline Information, March 9, 2023; SCVWD, "Specifications and Contract Documents for the Construction of Rinconada Force Main, West Pipeline, Stevens Creek Pipeline, Santa Clara Distributary, and Campbell Distributary," April 1965; California Pacific Engineers, "Map and Construction Plans for Rinconada Force Main, West Pipeline, Stevens Creek Pipeline, Santa Clara Distributary, and Campbell Distributary," December 1965.

## Evaluation

The Rinconada Force Main, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). The District built this pipeline in 1967 to deliver raw water to the Rinconada WTP in Los Gatos. The Rinconada Force Main is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the Rinconada Force Main, to meet the demand. The Rinconada Force Main, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

This pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground welded steel pipeline is 72 inches in diameter and 1.62 miles long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that California Pacific Engineers or the Hood Corporation, the firms that designed and built the pipeline, rise to the level of masters in their respective fields. The Rinconada Force Main, therefore, lacks significance under this criterion.

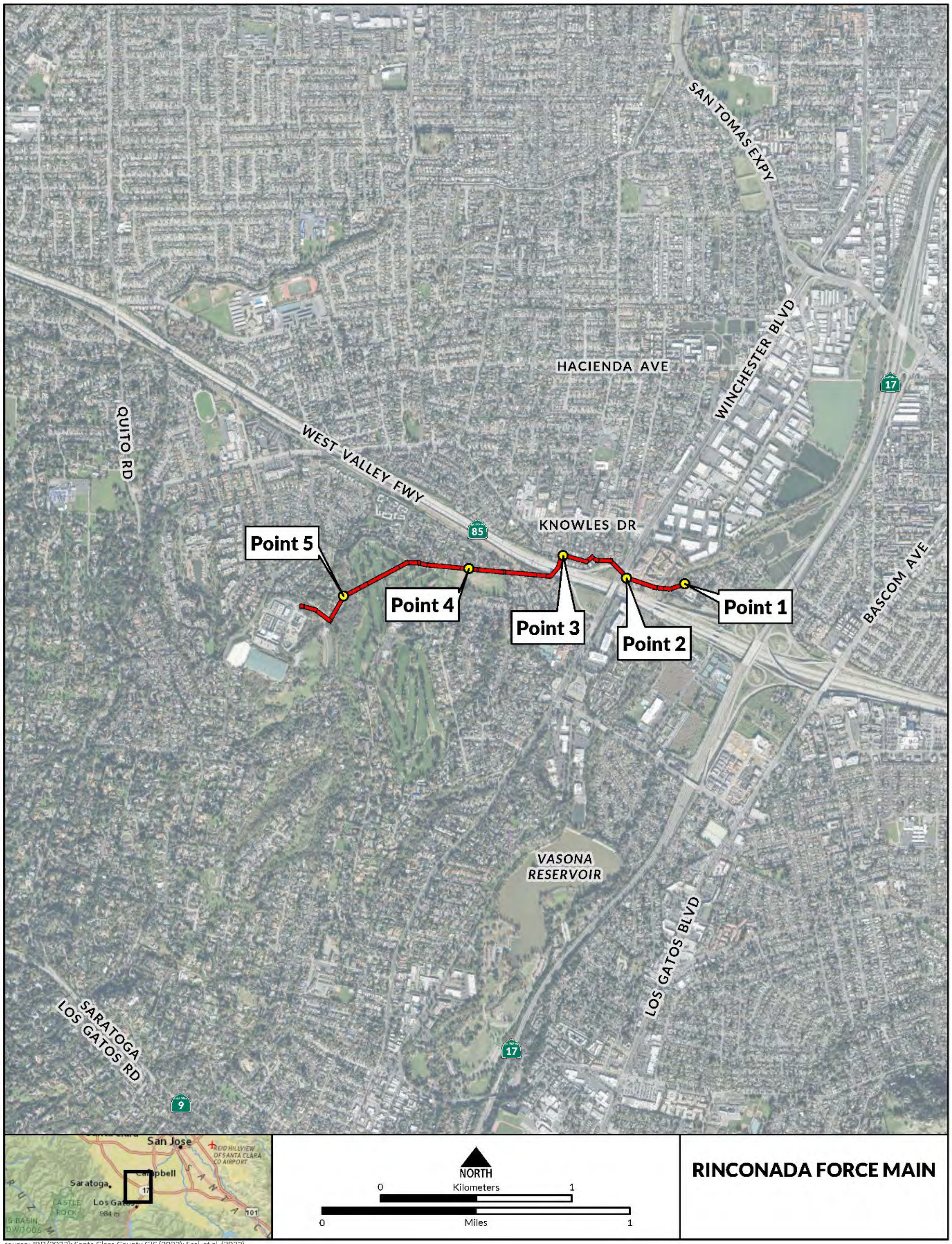
Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

## Photographs (continued):

**Photograph 7.** Concrete block building and cylindrical concrete vault for the Rinconada Force Main at the Vasona Valve Yard, camera facing north, February 7, 2023.


**Photograph 8.** Cylindrical concrete vault for the Rinconada Force Main at the Vasona Valve, camera facing northeast, February 7, 2023.

***Resource Name or #** (Assigned by recorder): Rinconada Force Main




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ______
HRI # ______
Trinomial ______
NRHP Status Code 6Z

Other Listings ______
Review Code ______ Reviewer ______ Date ______

 ***Resource Name or #** (Assigned by recorder): Santa Clara Distributary

**P1. Other Identifier:** Santa Clara Distributary
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Santa Clara
***b. USGS 7.5' Quad**: San José West **Date**: 2021 **T**:__; **R**:____; **Sec**:_; Rancho Quito
c. Address: n/a City: San José and Santa Clara Zip: n/a
d. UTM: Endpoints: Zone: 10S; 589203.41 m E / 4125331.05 m N (south end); 588325.67 m E / 4131436.72 m N (north end)
e. Other Locational Data:

The pipeline begins near the intersection of Quito Road and Highway 85 in San José and ends near Mono Way in Santa Clara.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Santa Clara Distributary pipeline and appurtenant above-ground structures. The pipeline is almost entirely below ground, and thus the description of the pipeline is derived from documentary sources. This welded steel pipeline is 4.12 miles long and 30 and 36 inches in diameter. The pipeline runs along public road rights-of-way and beneath private property (**Photograph 1**). See the Linear Feature Records for photographs and descriptions of the recordation points.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline
***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1:** Pipeline right-of-way along Quito Road near beginning of the line, camera facing north, February 6, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1967 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded**: February 6, 2023

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ______

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Santa Clara Distributary

B1. Historic Name: Santa Clara Distributary
B2. Common Name: Santa Clara Distributary
B3. Original Use: Water conveyance    B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1967; installation of cathodic protection system in 1992; new turnout at unknown location constructed in 2010; manholes installed ca. 2017.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown**    **Date:** ___    **Original Location:** ___
***B8. Related Features:** ___
B9. Architect: California Pacific Engineers, San José    b. Builder: Hood Corporation, Whittier, CA
***B10. Significance: Theme**: n/a    **Area**: Santa Clara Valley
**Period of Significance**: n/a    **Property Type**: Pipeline    **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Santa Clara Distributary, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: February 2023

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Santa Clara Distributary

**L1. Historic and/or Common Name**: Santa Clara Distributary

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 589194.52 mE / 4125687.83 mN; in San Jose on Quito Road just north of Yorkton Way.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
The pipeline at this location is buried along the edge of a public street (**Photograph 2**). The above-ground structures include a concrete vault with a metal hatch and a cylindrical metal air vent about three feet tall perforated with small holes. The vault measures approximately 2 feet x 3 feet and its top is flush with the ground. The air vent measures approximately 6 inches in diameter and rises about 2 feet above grade.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The pipeline passes through a residential area of single-family homes.

**L7. Integrity Considerations:** There are no known or apparent integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** Vault and air vent, camera facing north, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Santa Clara Distributary

**L1. Historic and/or Common Name**: Santa Clara Distributary

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 589130.80 mE / 4126759.38 mN; in San Jose on Quito Road at Bucknall Road.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

The pipeline at this location is buried along the edge of a public street (**Photograph 3**). The above-ground structures include a cylindrical concrete air vent measuring approximately 2 feet in diameter and rising about three feet above the ground, an at-grade concrete vault with a metal hatch, measuring approximately 2 feet x 3 feet, and two small cylindrical at-grade vaults with metal caps about eight inches in diameter. The air vent has a concrete base and a metal top perforated with small holes.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **a. Top Width**: n/a
- **b. Bottom Width**: n/a
- **c. Height or Depth**: n/a
- **d. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)

The pipeline passes through a residential area of single-family homes.

**L7. Integrity Considerations:** There are no known or apparent integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:** **Photograph 3.** Appurtenant structures along the edge of the sidewalk, camera facing south, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**

Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Santa Clara Distributary

**L1. Historic and/or Common Name**: Santa Clara Distributary

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 589108.38 mE / 4127374.54 mN; in San Jose on Quito Road just south of the Saratoga Avenue intersection.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
The pipeline at this location is buried under a sidewalk (**Photograph 4**). The above-ground structures include a cylindrical metal air vent about 6 inches in diameter and three feet tall, perforated with small holes, a concrete vault with a metal hatch measuring approximately 2 feet x 2 feet, and a large rectangular metal electrical equipment box about four feet tall.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- **a. Top Width**: n/a
- **b. Bottom Width**: n/a
- **c. Height or Depth**: n/a
- **d. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The pipeline at this point is located in a commercial area.

**L7. Integrity Considerations:** It appears that the metal electrical box is not original to the 1967 date of construction of this pipeline.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Appurtenant features, camera facing south, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Santa Clara Distributary

**L1. Historic and/or Common Name**: Santa Clara Distributary

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 4

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 588843.93 mE / 4128041.53 mN; in San Jose on Lawrence Expressway just north of Prospect Road intersection.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault approximately 5 feet in diameter that rises about one foot above the ground (**Photograph 5**). The vault has a metal cover with a hinged access door. The cover is a few inches above the top of the vault to allow for ventilation. Next to the vault is a vertical metal pipe.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The pipeline at this point runs along a busy thoroughfare. On the other side of a soundwall from the recordation point are single-family homes.

**L7. Integrity Considerations:** There are no integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 5.** Concrete vault, camera facing north, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Santa Clara Distributary

**L1. Historic and/or Common Name**: Santa Clara Distributary

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 5

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 588950.59 mE / 4128989.30 mN; in San Jose on Lawrence Expressway just south of the Doyle Road intersection.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault, approximately 5 feet in diameter, which rises about three feet above the ground (**Photograph 6**). The vault has an attached metal top set about six inches above the concrete with a round metal access cover. Attached to the side of the concrete is a vertical metal pipe.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The pipeline at this point runs along a busy thoroughfare with Saratoga Creek on the other side.

**L7. Integrity Considerations:** There are no integrity considerations at this point.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 6.** Concrete vault, camera facing south, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Santa Clara Distributary

**L1. Historic and/or Common Name**: Santa Clara Distributary

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 6

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 588958.22 mE / 4131021.84 mN; in San Jose adjacent to Lawrence Expressway just north of I-280 and near the end of the line.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline crosses over a concrete channel carrying Saratoga Creek. The cylindrical pipe emerges from the ground on the east side, crosses the creek, then disappears into the earth again on the west side (**Photograph 7**). The pipeline rests on low concrete saddles on both ends and on the west end is a vertical element for pipeline access. The pipe measures approximately one foot in diameter. Fan-shaped barbed wire fence structures are attached near both ends to prevent walking on top of the pipe.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- **e. Top Width**: n/a
- **f. Bottom Width**: n/a
- **g. Height or Depth**: n/a
- **h. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The pipeline at this point runs along a busy thoroughfare in a generally commercial area.

**L8a. Photograph, Map, or Drawing.**

**L7. Integrity Considerations:** There are no integrity considerations at this point.

**L8b. Description of Photo, Map, or Drawing:** **Photograph 7.** Pipeline, camera facing southwest, February 6, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. “Mel” Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B10. Significance (continued):

### Historic Context

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.

[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.

[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.
[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.
[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.
[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.
[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.
[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.
[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.
[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.
[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

*History of the Santa Clara Distributary*

The Santa Clara Distributary is a treated water pipeline completed in 1967 (**Plate 1**). It receives water from the West Pipeline, also built in 1967, and carries 4.12 miles to water retailers the California Water Service Company and City of Santa Clara.

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

The pipeline also has a turnout for the Campbell Distributary pipeline, likewise built in 1967. The Hood Corporation of Whittier, California built the pipeline and California Pacific Engineers designed the structure. The pipeline was built under a construction contract that included the Rinconada Force Main, West Pipeline, Stevens Creek Pipeline, and Campbell Distributary, all of which were completed in 1967 or 1968. Valley Water has undertaken various improvement to the pipeline since its construction including installation of a cathodic protection system in 1992, construction of a new turnout in 2010, and installation of manholes ca. 2017.[20]

**Plate 1.** Santa Clara Distributary under construction in 1966 (courtesy of Valley Water Archives).

## Evaluation

The Santa Clara Distributary, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). The District built this pipeline in 1967 to deliver treated water to water retailers. The Santa Clara Distributary is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the Santa Clara Distributary, to meet the demand. The Santa Clara Distributary, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

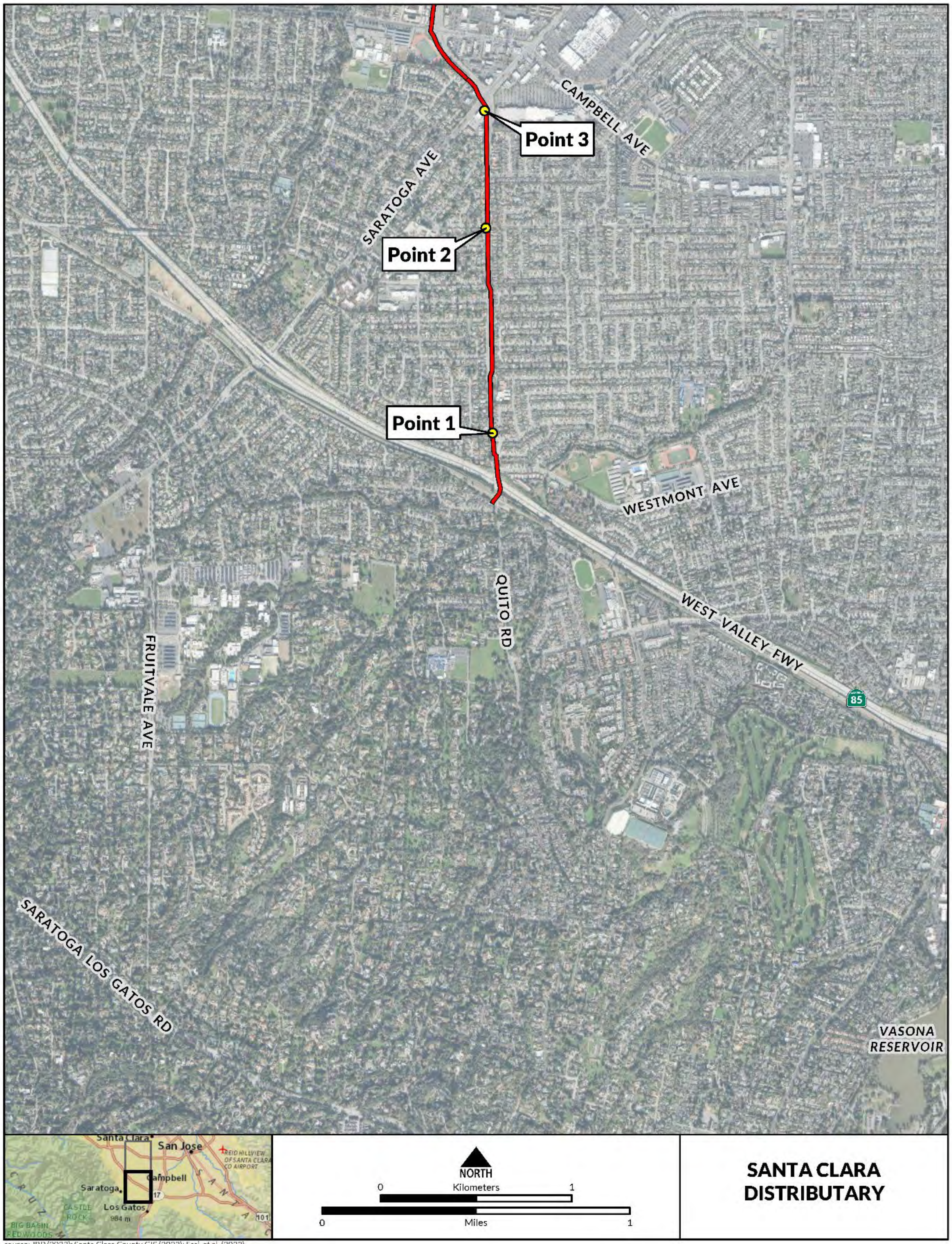
This pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

[20] SCVWD, "2009-2010 Capital Improvement Plan," III-57, 58; SCVWD, "Capital Improvement Plan: Fiscal Year 2013-2017," May 15, 2012, II-47; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1; GIS data provided by SCVWD; SCVWD, Pipelines Project Delivery Unit, Pipeline Information, March 9, 2023; SCVWD, "Specifications and Contract Documents for the Construction of Rinconada Force Main, West Pipeline, Stevens Creek Pipeline, Santa Clara Distributary, and Campbell Distributary," April 1965; California Pacific Engineers, "Map and Construction Plans for Rinconada Force Main, West Pipeline, Stevens Creek Pipeline, Santa Clara Distributary, and Campbell Distributary," December 1965.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground welded steel pipeline is 30 to 36 inches in diameter and 4.12 miles long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that California Pacific Engineers or the Hood Corporation, the firms that designed and built the pipeline, rise to the level of masters in their respective fields. The Santa Clara Distributary, therefore, lacks significance under this criterion.

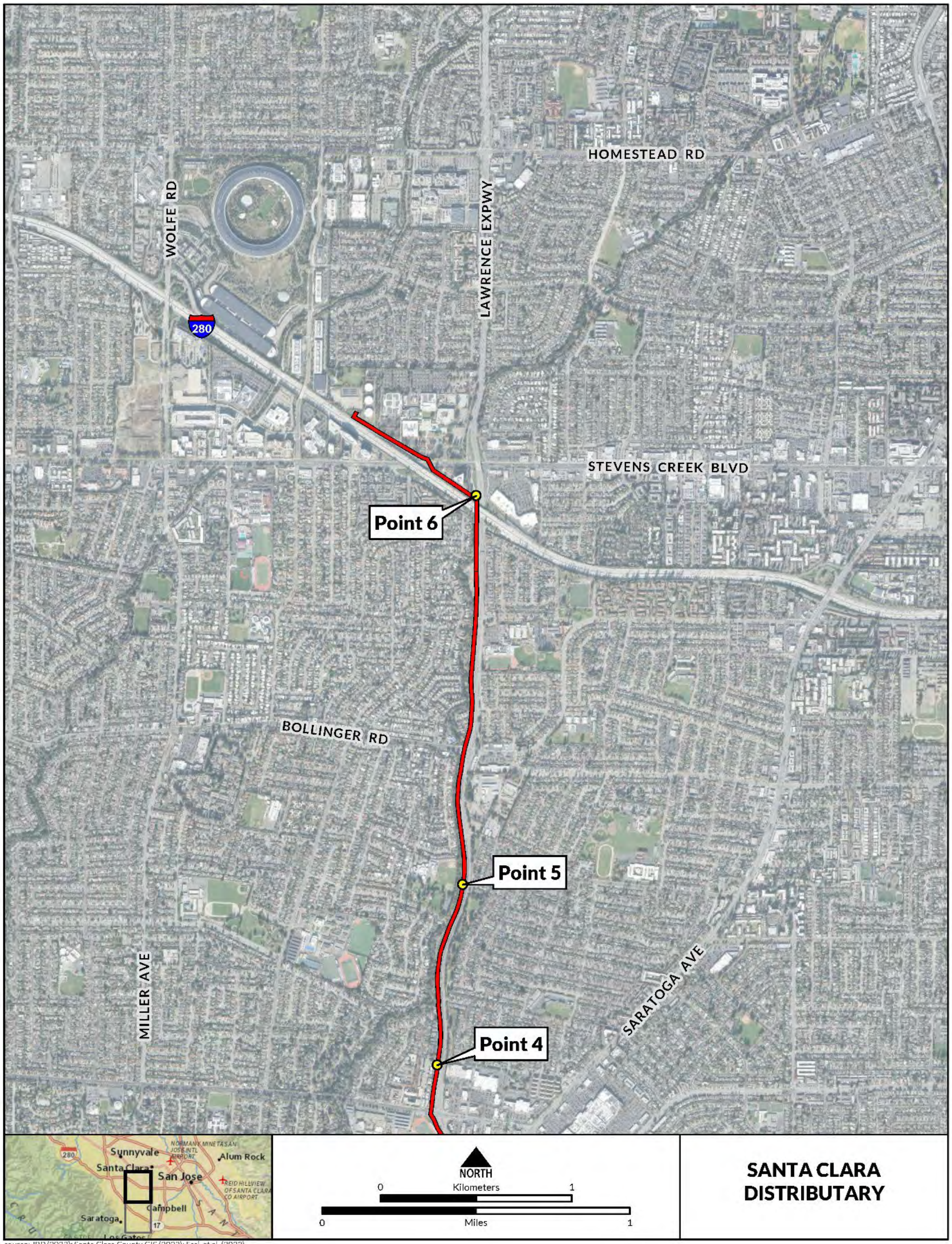
Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

***Resource Name or #** (Assigned by recorder): Santa Clara Distributary



source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

***Resource Name or #** (Assigned by recorder): Santa Clara Distributary




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

 ***Resource Name or #** (Assigned by recorder): SBA Flowmeter/Dumbarton Quarry Surface Water Turnout

**P1. Other Identifier:** South Bay Aqueduct (SBA) Flowmeter/Dumbarton Quarry Surface Water Turnout

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Santa Clara
**and** (P2b and P2c or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad**: Milpitas **Date**: 2021 **T:**___; **R:**____; **Sec:**__; Rancho Ague Caliente
c. Address: n/a City: Milpitas Zip: n/a
d. UTM: Endpoints: Zone: 10S; 598384.97 m E / 4146934.70 m N (east end); 598375.46 m E / 4146932.21 m N (west end)
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate)
The pipeline is located along an access road for Curtner Quarry off of Scott Creek Road.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
This form records the South Bay Aqueduct (SBA) Flowmeter/Dumbarton Quarry Surface Water Turnout and its appurtenant above-ground structures. The structure has below- and above-ground elements and some descriptive information has been derived from documentary sources. The SBA Flowmeter/Dumbarton Quarry Surface Water Turnout steel pipeline is approximately 44 feet long and 6 inches in diameter (**Photograph 1**). The pipeline carries water from the South Bay Aqueduct to the Dumbarton Quarry. The above-ground structures appurtenant to this short pipeline are grouped together in a gravel lot. These include several concrete vaults of various sizes and an electrical equipment box. See the Linear Feature Records for photographs and a description of the recordation point.

***P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline
***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1.** Three concrete vaults and an electrical equipment box, camera facing northeast, September 11, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1963 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:** (Name, affiliation, address)
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded**: September 11, 2023

***P10. Survey Type:** (Describe) Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☐ Location Map ☒ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ____

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): SBA Flowmeter/Dumbarton Quarry Surface Water Turnout

B1. Historic Name: SBA Flowmeter/Dumbarton Quarry Surface Water Turnout
B2. Common Name: SBA Flowmeter/Dumbarton Quarry Surface Water Turnout
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1963; no known alterations.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown Date:** ___ **Original Location:** ___
***B8. Related Features:** ___
B9. Architect: Santa Clara Valley Water District b. Builder: unknown
***B10. Significance: Theme:** n/a **Area:** Santa Clara Valley
**Period of Significance:** n/a **Property Type:** Pipeline **Applicable Criteria:** n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The SBA Flowmeter/Dumbarton Quarry Surface Water Turnout does not appear to meet the criteria for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR), nor does it appear to be an historical resource for the purposes of the California Environmental Quality Act (CEQA). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: October 2023

(This space reserved for official comments.)

See Sketch Map on last page.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**LINEAR FEATURE RECORD**

Primary # ______
HRI # ______
Trinomial ______

 ***Resource Name or #** (Assigned by recorder): SBA Flowmeter/Dumbarton Quarry Surface Water Turnout

***Recorded by**: S.J. Melvin & A. Lawton ***Date**: September 11, 2023

**L1. Historic and/or Common Name**: SBA Flowmeter/Dumbarton Quarry Surface Water Turnout

**L2a. Portion Described:** ☒ Entire Resource ☐ Segment ☐ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10, NAD 83, 598384.97 m E / 4146934.70 m N (east end); 598375.46 m E / 4146932.21 m N (west end); on the north side of an access road that runs through Curtner Quarry.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
The above-ground appurtenant structures at this location include two cylindrical concrete vaults, one large rectangular concrete vault, four small concrete vaults, and a metal equipment box (**Photograph 2**). The two cylindrical vaults are both approximately five feet in diameter and standing three feet above ground. They both have metal covers with hinged access doors. On one of the vaults, the metal cover is mounted a few inches above the top of the concrete vault to allow for ventilation. The other cylindrical vault has a metal ventilation pipe mounted on the top of the cover. (See Continuation Sheet.)

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The setting is adjacent to an active quarry in a hilly area of grasslands, scattered trees.

**L8a. Photograph, Map, or Drawing.**

**L7. Integrity Considerations**: There are no apparent or documented integrity considerations at this point.

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2**. Various appurtenant structures, camera facing east, September 11, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: October 2023

## L3. Description (continued):

Between the two cylindrical vaults is a large rectangular concrete vault measuring approximately six feet by eight feet (**Photograph 3**). It is on a slope with the highest part about four feet above ground. The vault has a stamped diamond steel plate steel cover that has a slight pitch. At one corner of the cover is a raised metal hinged access hatch and a short metal ladder attached to the side. At the opposite corner is a metal air turbine vent. Adjacent to the large rectangular vault is a metal electrical box mounted on two steel posts on a concrete pad. The posts also support a small, metal-clad gable roof covering the box. Also at this location are several small square or rectangular concrete vaults ranging in size from three feet square to two feet by one foot (**Photograph 4**). These all rise just a few inches above ground level and have metal covers.

**Photograph 1.** Large rectangular concrete vault, camera facing west, September 11, 2023.


**Photograph 2.** Large rectangular concrete vault, camera facing west, September 11, 2023.

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.
[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.
[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as “Silicon Valley,” a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José’s expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city’s corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city’s area from 17 to nearly 140 square miles. By 1970, San José had become California’s fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José’s population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, “Historical Overview and Context for the City of San Jose,” 10; Glenna Matthews, “The Los Angeles of the North,” *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, “San Jose General Plan, 1975,” December 1975, 23-24; Arvin Tarleton Henderson, Jr., “Evolution of Commercial Nucleations in San Jose, California,” MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, “San Jose Modernism Historic Context Statement,” prepared for Preservation Action Council of San Jose, June 2009, 26-32.

[5] Basin Research Associates, “Envision San Jose 2040 General Plan,” Appendix J, 17-23; Archives & Architecture, “Historical Overview and Context for the City of San Jose,” 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, “San Jose Modernism Historic Context Statement,” 26-38.

[6] Basin Research Associates, Inc., “Envision San Jose 2040 General Plan,” Appendix J, 17-23; PAST Consulting, “San Jose Modernism Historic Context Statement,” 26-38, 48; Matthews, “The Los Angeles of the North,” 459-461; Richard Bottarini, “California Annexation Procedures: A Case Study in the City of Mountain View,” MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.

[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, “Historic Context Statement for the City of Morgan Hill,” 36-38; Richard Bottarini, “California Annexation Procedures: A Case Study in the City of Mountain View,” MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.

[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

*History of the South Bay Aqueduct / Dumbarton Quarry Surface Water Turnout*

This pipeline was built in 1963 to deliver raw water from the South Bay Aqueduct (SBA) to the Dumbarton Quarry, currently called the Curtner Quarry. The steel pipeline is approximately 44 feet long and 6 inches in diameter. Research did not find any further information on this pipeline.[20]

**Evaluation**

The SBA Flowmeter/Dumbarton Quarry Surface Water Turnout, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). Constructed in 1963, this pipeline carries raw water from the South Bay Aqueduct to a rock quarry. The pipeline is part of the District's vast system of pipelines and other structures that serve to efficiently deliver, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and deliver additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the SBA Flowmeter/Dumbarton Quarry Surface Water Turnout, to meet the demand. Thus, the SBA Flowmeter/Dumbarton Quarry Surface Water Turnout is not associated with any historically significant events, patterns, or trends, rather it is part of the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

The SBA Flowmeter/Dumbarton Quarry Surface Water Turnout is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline, including its appurtenant structures, is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground welded steel pipeline is approximately 44 feet long and 6 inches in diameter. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. The SBA Flowmeter/Dumbarton Quarry Surface Water Turnout, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

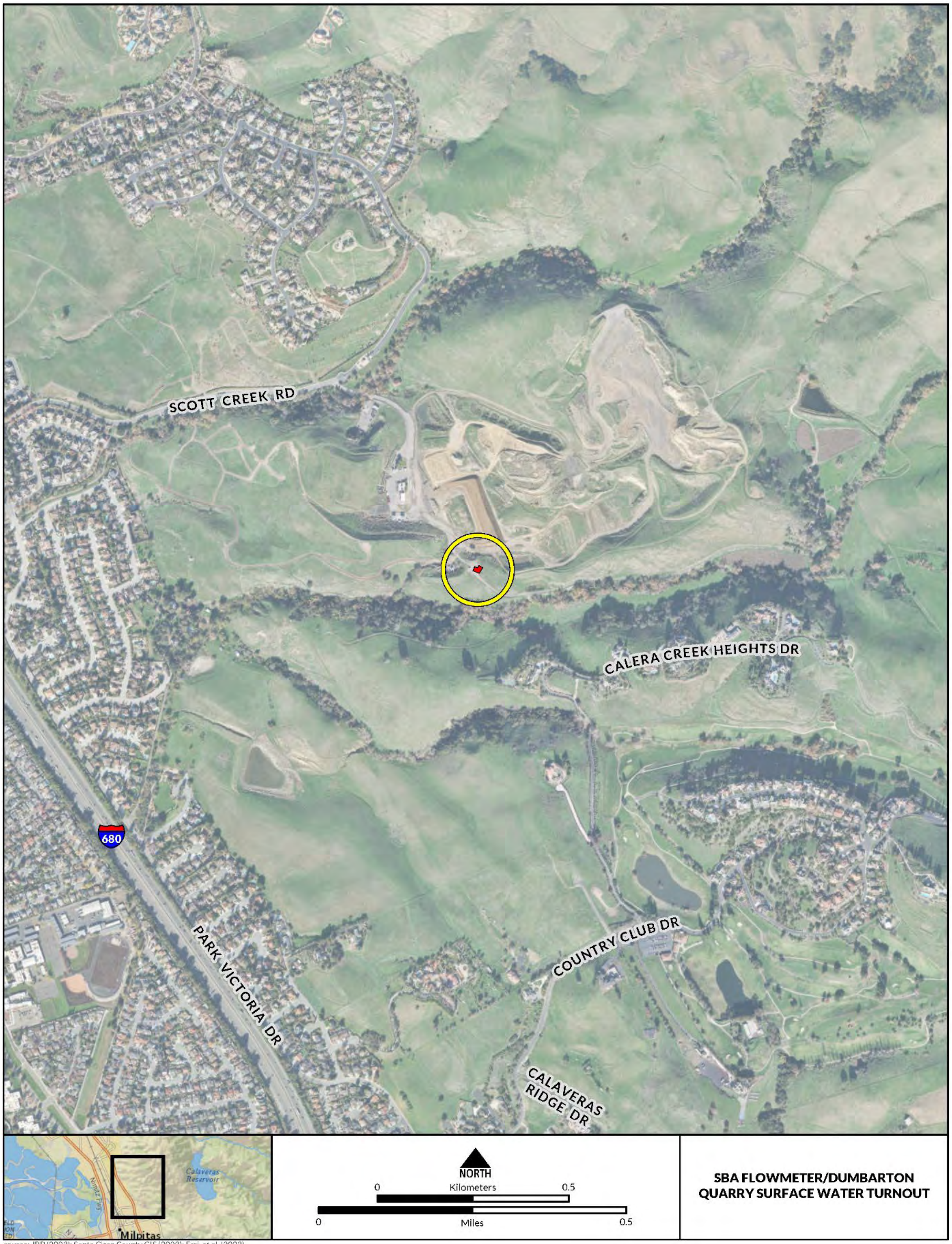
[20] SCVWD, Pipeline Information Database.

**SKETCH MAP**

Primary # ______
HRI # ______
Trinomial ______



***Resource Name or #** (Assigned by recorder): SBA Flowmeter/Dumbarton Quarry Surface Water Turnout




source: JRP (2023); Santa Clara County GIS (2023); Esri, et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ______________________
HRI # ______________________
Trinomial ______________________
NRHP Status Code 6Z

Other Listings ______________________
Review Code __________ Reviewer ______________________ Date __________

 ***Resource Name or #** (Assigned by recorder): South County Recycled Water 1978 Pipeline

**P1. Other Identifier:** South County Recycled Water 1978 Pipeline

***P2. Location:** ☐ Not for Publication ☒ Unrestricted ***a. County:** Santa Clara

***b. USGS 7.5' Quad**: Chittenden **Date**: 2021 **T:**_____; **R:**____; **Sec:**__; Rancho San Ysidro; Rancho Las Animas

***b. USGS 7.5' Quad**: Gilroy **Date**: 2021 **T:**_; **R:**____; **Sec:**__; Rancho Las Animas; Rancho Solis

c. Address: n/a City: Gilroy Zip: n/a

d. UTM: Endpoints: Zone: 10S; 630663.90 m E / 4093812.24 m N (east end); 622220.30 m E / 4097018.86 m N (west end)

e. Other Locational Data:

The pipeline begins at the South County Regional Wastewater Authority (SCRWA) water treatment plant in Gilroy and ends near the intersection of Burchell Road and Highway 152 in western Gilroy.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the South County Recycled Water (SCRW) 1978 Pipeline and appurtenant above-ground structures. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. This welded steel pipeline is 7.5 miles long and varies in diameter from 12 to 36 inches. The pipeline runs along public road rights-of-way and beneath public and private property (**Photograph 1**). See the Linear Feature Records for photographs and descriptions of the recordation points, which are all in Gilroy.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1:** Looking southwest along pipeline right-of-way near the beginning of the pipeline, February 8, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1978 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded**: February 8, 2023

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ______________________

**BUILDING, STRUCTURE, AND OBJECT RECORD**

Primary # ___
HRI # ___



***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): South County Recycled Water 1978 Pipeline

B1. Historic Name: South County Recycled Water Pipeline
B2. Common Name: South County Recycled Water 1978 Pipeline
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1978; installation of corrosion protection system in 1979; portions realigned, segments replaced, and new valves installed in 2003.
***B7. Moved?** ☒ No ☐ Yes ☐ Unknown **Date:** ___ **Original Location:** ___
***B8. Related Features:** ___
B9. Architect: Harris & Associates of San José b. Builder: S.H. Construction Company of San José
***B10. Significance: Theme**: n/a **Area**: Santa Clara Valley
**Period of Significance**: n/a **Property Type**: Pipeline **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The South County Recycled Water 1978 Pipeline, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: February 2022

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): South County Recycled Water 1978 Pipeline

**L1. Historic and/or Common Name**: South County Recycled Water 1978 Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 629355.28 mE / 4095509.20 mN; Venture Way at Camino Arroyo.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline is buried along a drainage ditch. There are several appurtenant structures at this point: a cylindrical metal air vent about one foot in diameter and three feet tall, a manhole, and an at-grade, rectangular concrete vault with a metal hatch (**Photograph 2**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
This segment of the pipeline goes through a mixed agricultural and industrial area.

**L7. Integrity Considerations:** There are no known or apparent integrity considerations at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** Vault, manhole, air vent (L to R), camera facing northwest, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): South County Recycled Water 1978 Pipeline

**L1. Historic and/or Common Name**: South County Recycled Water 1978 Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 628059.16 mE / 4095372.58 mN; just west of Automall Parkway.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline is buried along a drainage ditch. The only above-ground appurtenant structure at this point is a cylindrical metal air vent about one foot in diameter and three feet tall (**Photograph 3**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline goes through an industrial area.

**L7. Integrity Considerations:** There are no known or apparent integrity considerations at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 3.** Pipeline right-of-way, camera facing west, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): South County Recycled Water 1978 Pipeline

**L1. Historic and/or Common Name**: South County Recycled Water 1978 Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 627699.62 mE / 4095329.76 mN; just west of Monterey Highway.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline is buried along a drainage ditch. The only above-ground appurtenant structures are two manholes with metal covers (**Photograph 4**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The pipeline at this location passes through a residential area.

**L7. Integrity Considerations:** There are no known or apparent integrity considerations at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Photo showing one of the manholes, camera facing west, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): South County Recycled Water 1978 Pipeline

**L1. Historic and/or Common Name**: South County Recycled Water 1978 Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 4

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 627526.07 mE / 4095330.11 mN; at Church Street crossing.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline is buried along a drainage ditch. The above-ground appurtenant structures include three electrical equipment boxes. One box is cube-shaped, measuring approximately three feet square. The two other equipment boxes are rectangular, measuring approximately five feet tall by one foot deep. One is roughly one foot wide, the other roughly five feet wide. A data transmittal antenna is attached to the larger equipment box (**Photograph 5**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The pipeline at this location passes through a residential area.

**L7. Integrity Considerations:** There are no known or apparent integrity considerations at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 5.** Photo showing the pipeline right-of-way and electrical equipment boxes, camera facing west, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): South County Recycled Water 1978 Pipeline

**L1. Historic and/or Common Name**: South County Recycled Water 1978 Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 5

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 627526.07 mE / 4095330.11 mN; just west of Rosanna Drive crossing.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline is buried along a drainage ditch. There are no above-ground appurtenant structures at this location (**Photograph 6**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The pipeline at this location passes through a residential area.

**L7. Integrity Considerations:** There are no known or apparent integrity considerations at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 6.** Photo showing the pipeline right-of-way, camera facing west, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): South County Recycled Water 1978 Pipeline

**L1. Historic and/or Common Name**: South County Recycled Water 1978 Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 6

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 624891.41 mE / 4096077.73 mN; at Club Drive crossing.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

At this location, the pipeline runs through vacant land. There are no above-ground appurtenant structures at this location (**Photograph 7**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)

The pipeline at this location passes through large vacant lots; Solarsano Middle School is nearby.

**L7. Integrity Considerations**: There are no known or apparent integrity considerations at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**

**Photograph 7.** Photo looking along the pipeline right-of-way, camera facing northwest, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**

Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): South County Recycled Water 1978 Pipeline

**L1. Historic and/or Common Name**: South County Recycled Water 1978 Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 7

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 622450.96 mE / 4097035.80 mN; parallel with Highway 152 just east of Burchell Road.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline is buried between Highway 152 and a bike path. There are no above-ground appurtenant structures at this location (**Photograph 8**).

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **e. Top Width**: n/a
- **f. Bottom Width**: n/a
- **g. Height or Depth**: n/a
- **h. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
The pipeline at this location passes by vacant lots and a residential subdivision.

**L7. Integrity Considerations:** The setting has changed since the construction of the pipeline with the construction of a residential subdivision.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 8.** Photo looking along the pipeline right-of-way, camera facing east, February 8, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B10. Significance (continued):

**Historic Context**

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[1]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[2]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[3]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it

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[1] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[2] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[3] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in 1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[4]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[5]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[6]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[7] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[4] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.
[5] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11.
[6] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District (SCVWD), "Groundwater Management Plan," 2012, Appendix A.
[7] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[8]

The water added to the District's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[9]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[10]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[11]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[12]

To further the efficient use of water, the District also became involved in recycled water projects. The first of these was the South County Recycled Water Project (SCRWP) begun in 1978 near Gilroy as a partnership with the City of Gilroy and the Gavilan Water Conservation District (see below). In addition to the SCRWP, the District has also partnered with other entities

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[8] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[9] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[10] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[11] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[12] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

on recycled water projects providing technical and financial support including the City of San José in 1994, City of Sunnyvale in 1997, and the City of Palo Alto in 2019.[13]

*History of the South County Recycled Water 1978 Pipeline*

This pipeline was constructed in 1978 as the first pipeline of the South County Recycled Water Project (SCRWP) located in Gilroy and vicinity. The pipeline was built by a partnership consisting of the District, City of Gilroy, and the Gavilan Water Conservation District to deliver recycled water from the South County Regional Wastewater Authority (SCRWA) water treatment plant in Gilroy to mostly agricultural customers along Hecker Pass Road west of Gilroy. The engineering firm of Harris & Associates of San José designed the system and S.H. Construction Company also of San José built it. At the time of its construction, this pipeline was called an "emergency irrigation system," suggesting the system was originally intended to be used during times of drought. The 7.5-mile pipeline began carrying water in 1978, and a corrosion protection system was installed in 1979, but owing to operational and water quality problems, it only operated intermittently over the next 20 years. In an effort to fix the system, the SCRWP reorganized in 1999 and prepared a system-wide improvement plan. As a result of the reorganization SCRWA serves as supplier, the District as wholesaler, and the City of Gilroy as retailer of the water. This first phase of the project, completed in 2003, included portions of the 1978 pipeline that were replaced, segments realigned, and new valves installed. The pipeline currently provides irrigation water to farmland, golf courses, and parks. The SCRWP added five more pipelines to its system between 2011 and 2021, and expanded the water treatment plant to provide more recycled water.[14]

## Evaluation

The South County Recycled Water 1978 Pipeline, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). This pipeline was built in 1978 by the District and two other partners to distribute recycled water in the Gilroy area. This was the District's first involvement in a recycled water program in the Santa Clara Valley as it sought to utilize recycled water for non-potable purposes to increase the supply of potable water to meet increasing demand. Although this was the first recycled water project, the small scope of the project and the problems it experienced over the first 20 years of operation resulted in a very limited effect. Thus, this pipeline is not associated with any historically significant events, patterns, or trends and does not meet this criterion.

This pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground welded steel pipeline is 12 to 36 inches in diameter and 7.5 miles long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise,

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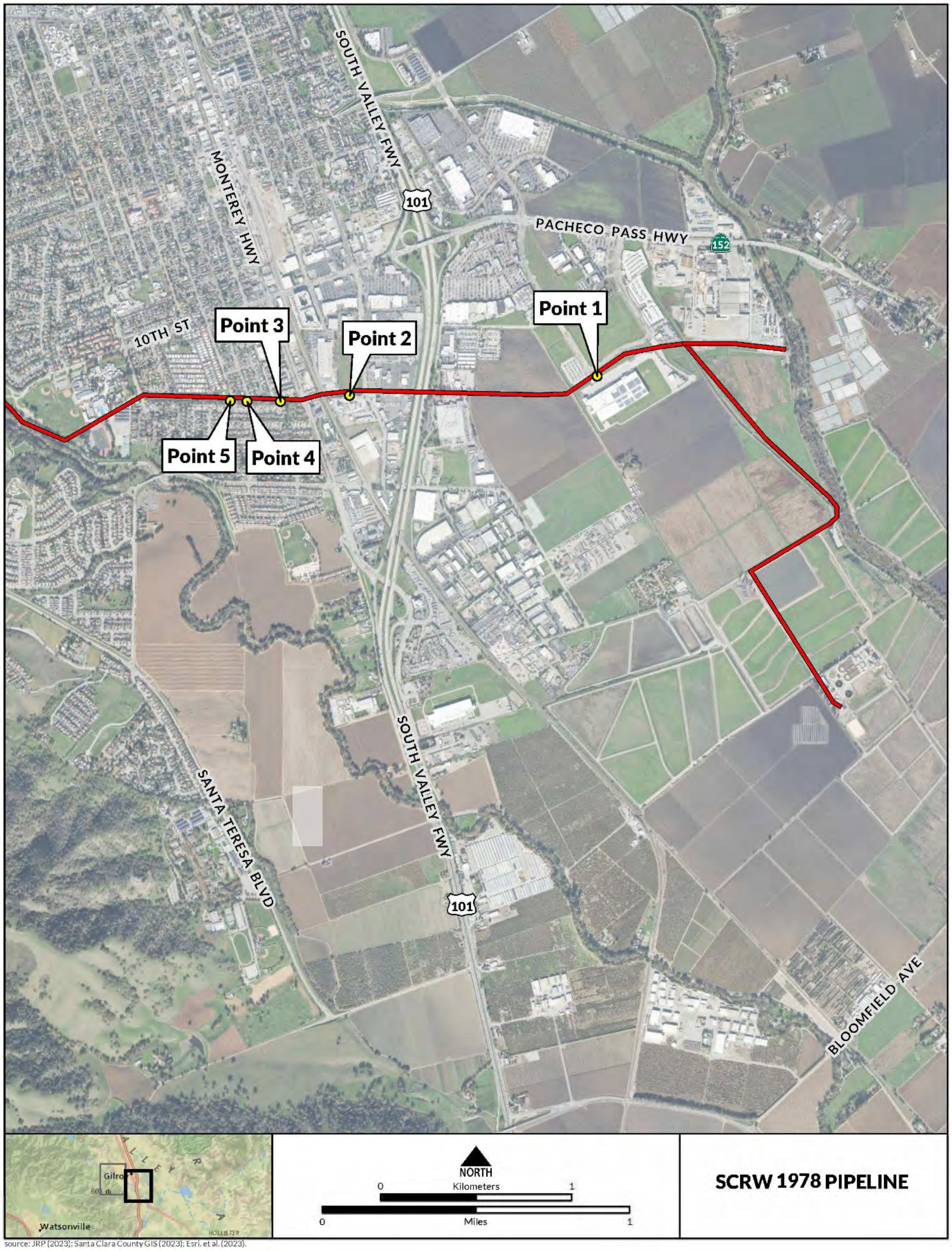
[13] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 59-60; Santa Clara Valley Water District, "Water Use Efficiency Program Annual Report," 2004, 29, 30; Santa Clara Valley Water District, "South County Recycled Water Master Plan – Final," October 18, 2004, 3-2, Figure 3-1; ESA, "South County Regional Wastewater Authority Recycled Water Booster Pump Station and Reservoir, IS/MND," March 6, 2000, 3, 10; SCVWD, "Water Use Efficiency Program Annual Report: Fiscal Year 2002-2003," 26-30; SCVWD, "Water Use Efficiency Program, Year-End Report: Fiscal Year 2006-07," 27; Silicon Valley Advanced Water Purification Center, "Recycled Water Projects," accessed January 2022 at https://purewater4u.org/recycled-water-projects/.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 59-60; Santa Clara Valley Water District, "Water Use Efficiency Program Annual Report," 2004, 29, 30; Santa Clara Valley Water District, "South County Recycled Water Master Plan – Final," October 18, 2004, 3-2, Figure 3-1; ESA, "South County Regional Wastewater Authority Recycled Water Booster Pump Station and Reservoir, IS/MND," March 6, 2000, 3, 10; SCVWD, "1998-99 Capital Improvement Plan," May 26, 1998, 69; SCVWD, "Urban Water Management Plan, 2010," 2010, 7-7; SCVWD, Pipelines Project Delivery Unit, Pipeline Information, March 9, 2023; Harris & Associates, "Plans for Construction of Emergency Irrigation System Near the City of Gilroy," prepared for the SCVWD, July 12, 1978; SCVWD, "Specifications and Contract Documents for the Construction of Emergency Irrigation System Near the City of Gilroy," January 20, 1977.

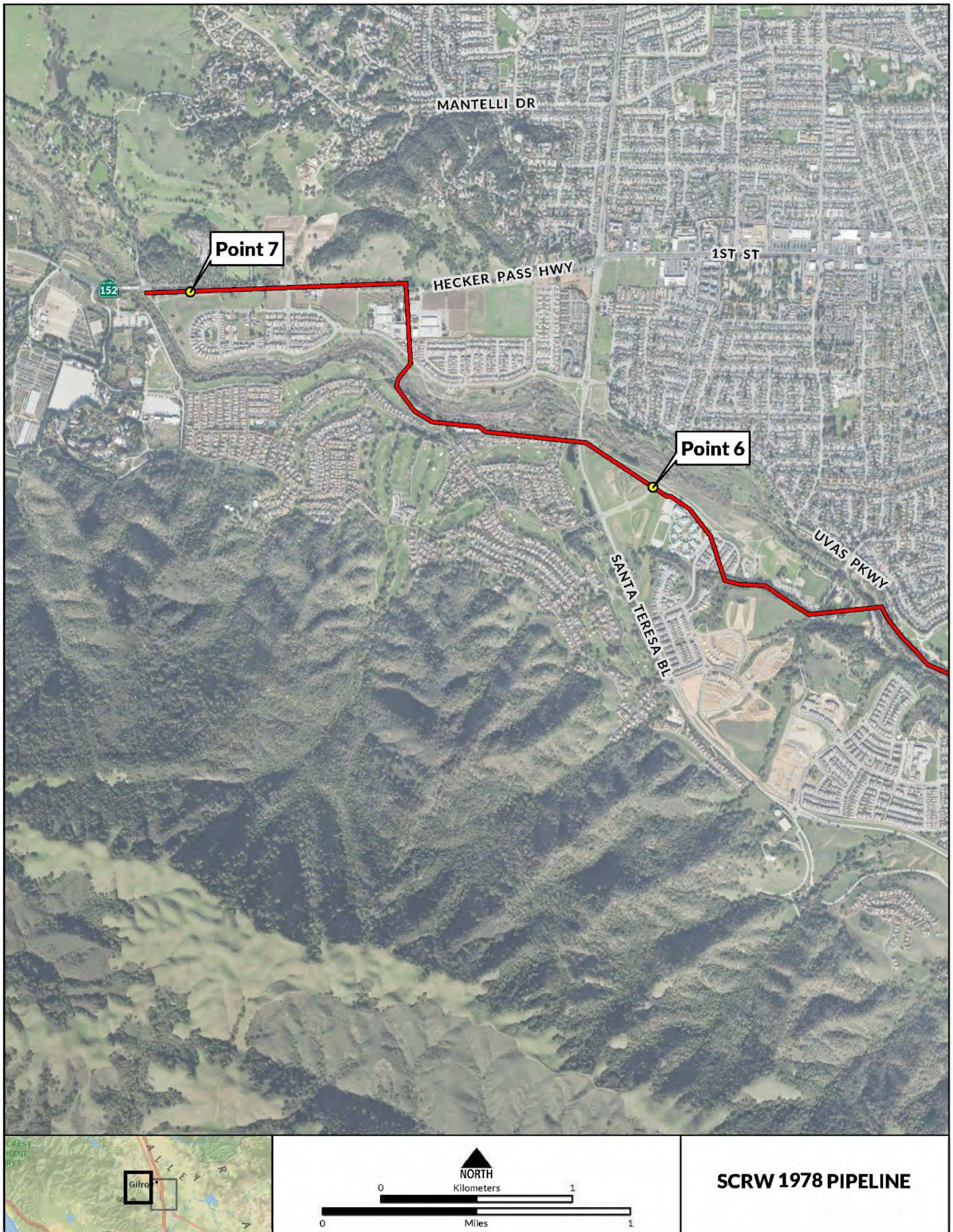
all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that Harris & Associates or S.H. Construction Company, the firms that designed and built this pipeline, rise to the level of masters in their respective fields. This pipeline, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

***Resource Name or #** (Assigned by recorder): South County Recycled Water 1978 Pipeline



***Resource Name or #** (Assigned by recorder): South County Recycled Water 1978 Pipeline




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

# PRIMARY RECORD

Primary # ______
HRI # ______
Trinomial ______
NRHP Status Code 6Z

Other Listings ______
Review Code ______ Reviewer ______ Date ______

 ***Resource Name or #** (Assigned by recorder): Stevens Creek Pipeline

**P1. Other Identifier:** Stevens Creek Pipeline

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Santa Clara

***b. USGS 7.5' Quad:** San José West **Date:** 2021 **T:**__; **R:**____; **Sec:**__; Rancho Rinconada de Los Gatos

***b. USGS 7.5' Quad:** Cupertino **Date:** 2021 **T:**_____; **R:**____; **Sec:**__; Rancho Quito

c. Address: n/a City: Los Gatos, Saratoga, Cupertino Zip: n/a

d. UTM: Endpoints: Zone: 10S; 590797.33 m E / 4124176.38 m N (south end); 583202.48 m E / 4131099.24 m N (north end)

e. Other Locational Data:

The pipeline begins on Wedgewood Avenue near Mulberry Drive in Los Gatos and ends at the Stevens Creek Boulevard crossing of Stevens Creek in Cupertino.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Stevens Creek Pipeline and a representative sampling of the pipeline's appurtenant above-ground structures. The pipeline is almost entirely below ground, and thus the description of the pipeline is derived from documentary sources. The Stevens Creek Pipeline is 20 and 37 inches in diameter, 9.8 miles long, and largely made of welded steel. Most of the pipeline runs along a railroad right-of-way (**Photograph 1**). Along the route are various appurtenant above-ground structures largely consisting of concrete vaults and electrical equipment boxes. See the Linear Feature Records for photographs and descriptions of the recordation points.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1:** View along the pipeline adjacent to railroad, camera facing southeast from Point 2, February 7, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1953/1967 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded:** February 7, 2023

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ______

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Stevens Creek Pipeline

B1. Historic Name: Stevens Creek Pipeline
B2. Common Name: Stevens Creek Pipeline
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1953 and 1967; construction of a new turnout in 1970; replacement of segment between Saratoga Creek and Calabazas Creek in 1971; relocation at Imperial Avenue in 1981; installation of a line valve, vault, and modifications to the Calabazas Creek turnout ca. 1992; replacement of approximately 3,700 feet of pipeline ca. 1993; and replacement of ultrasonic flowmeter in 1994.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** ___ **Original Location:** ___
***B8. Related Features:** ___
B9. Architect: Santa Clara Valley Water District (1953); California Pacific Engineers (1967)
b. Builder: Hood Corporation, Whittier, CA (1967)
***B10. Significance: Theme**: n/a **Area**: Santa Clara Valley
**Period of Significance**: n/a **Property Type**: Pipeline **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Stevens Creek Pipeline, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: February 2023

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Stevens Creek Pipeline

**L1. Historic and/or Common Name**: Stevens Creek Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 590760.38 mE / 4124205.04 mN; on Wedgewood Avenue near Mulberry Drive in Los Gatos.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
This location is the beginning of the pipeline which is buried along the edge of a public street (**Photograph 2**). There are no appurtenant structures at this location.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
On one side of the pipeline is a golf course, on the other side are single family residences.

**L7. Integrity Considerations:** The pipeline appears to have a high degree of integrity at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** Pipeline right-of-way, camera facing northwest, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Stevens Creek Pipeline

**L1. Historic and/or Common Name**: Stevens Creek Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 589321.00 mE / 4125292.00 mN; just east of Quito Road and south of Highway 85 in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline (on right side of photo below) crosses over Wildcat Creek (**Photograph 3**). The pipeline is concrete, 20 inches in diameter, and is supported by a concrete saddle on each side of this narrow waterway. The adjacent pipeline is not a Valley Water facility, but owned by a different water agency.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **a. Top Width**: n/a
- **b. Bottom Width**: n/a
- **c. Height or Depth**: n/a
- **d. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline runs along a railroad corridor through residential subdivisions.

**L7. Integrity Considerations:** The setting has changed somewhat since construction of the pipeline in 1968 with the construction of additional houses in the area.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 3.** Stevens Creek Pipeline is on the right, camera facing west, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Stevens Creek Pipeline

**L1. Historic and/or Common Name**: Stevens Creek Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 587689.00 mE / 4126207.00 mN; in Saratoga east of Glen Brae Drive near where Highway 85 and the railroad cross Saratoga Creek.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault roughly five feet in diameter and a square concrete vault measuring approximately 5 feet x 5 feet. Both rise about two feet above the ground (**Photograph 4**). They each have metal covers with hinged access doors.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline runs along a railroad corridor with a park on one side and a residential subdivision on the other.

**L7. Integrity Considerations:** The setting has changed somewhat since construction of the pipeline in 1968 with the construction of the park additional houses in the area.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Concrete vaults, camera facing southeast, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Stevens Creek Pipeline

**L1. Historic and/or Common Name**: Stevens Creek Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 4

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 586901.01 mE / 4126647.39 mN; southeast of the Union Pacific Railroad Cox Road crossing and adjacent to the West Valley Fire Station in Saratoga.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault, approximately five feet in diameter and rising about three feet above the ground (**Photograph 5**). The vault has a metal cover with a hinged access door. The cover is a few inches above the top of the vault to allow for ventilation.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline runs along a railroad corridor with residential subdivisions on both sides.

**L7. Integrity Considerations:** The setting has changed somewhat since construction of the pipeline in 1968 with the construction of additional houses in the area.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 5.** Concrete vault, camera facing southeast, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Stevens Creek Pipeline

**L1. Historic and/or Common Name**: Stevens Creek Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 5

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 585140.00 mE / 4127778.00 mN; south of Prospect Road and South Steling Road in Saratoga.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault, approximately five feet in diameter and rising about two feet above grade (**Photograph 6**). The vault has a metal cover with a hinged access door. The cover is a few inches above the top of the vault to allow for ventilation.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline runs along a railroad corridor with residential subdivisions on both sides.

**L7. Integrity Considerations:** The setting has changed somewhat since construction of the pipeline in 1968 with the construction of additional houses in the area.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 6.** Concrete vault, camera facing southeast, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Stevens Creek Pipeline

**L1. Historic and/or Common Name**: Stevens Creek Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 6

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 584784.00 mE / 4128661.00 mN; just south of Rainbow Drive and east of 7 Springs Lane in Cupertino.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault, approximately five feet in diameter and rising a few inches above the ground (**Photograph 7**). The vault has a metal cover with a hinged access door. The cover is a few inches above the top of the vault to allow for ventilation. A vertical pipe is attached to the metal cover. Two elbow joints turn the open end of the pipe downward to prevent foreign particles from entering the pipeline.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline runs along a railroad corridor with residential subdivisions on both sides.

**L7. Integrity Considerations:** The setting has changed somewhat since construction of the pipeline in 1968 with the construction of additional houses in the area.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 7.** Concrete vault, camera facing south, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): Stevens Creek Pipeline

**L1. Historic and/or Common Name**: Stevens Creek Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 7

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 583201.00 mE / 4131097.0 mN; at end of pipeline along Stevens Creek Boulevard near Stevens Creek in Cupertino.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault, approximately five feet in diameter and rising a few inches above the ground (**Photograph 8**). The vault has a metal cover with a hinged access door. The metal cover is flush with the top of the concrete. Next to the vault are two metal electrical equipment boxes. These are about three feet tall, one foot deep, and 1-3 feet wide.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)
- **e. Top Width**: n/a
- **f. Bottom Width**: n/a
- **g. Height or Depth**: n/a
- **h. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline runs along Stevens Creek Boulevard and residential subdivisions.

**L7. Integrity Considerations:** The setting has changed somewhat since construction of the pipeline in 1968 with the construction of additional houses in the area. The electrical boxes do not appear to date to 1968.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 8.** Concrete vault and electrical boxes, camera facing southwest, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.

[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.

[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.

[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.

[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.

[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.

[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

*History of the Stevens Creek Pipeline*

The Stevens Creek Pipeline is comprised of multiple segments constructed at different times. The District built the first component in 1953 with the installation of a pipeline called the Vasona Canal Extension (sometimes called the Vasona Distribution System). This pipeline drew water from the Vasona Canal just east of More Avenue (near the beginning point of the current pipeline) and ran northwest along the railroad right-of-way to Saratoga Creek. In 1958, the District extended this line northwest to Calabazas Creek. The Vasona Canal Extension discharged water into Saratoga Creek and Calabazas Creek to recharge groundwater in this part of the Santa Clara Valley. The Vasona Canal Extension was designed in-house by District engineers; the name of the construction contractor is not known.[20]

As part of the District's modernization and expansion of its system in the mid-1960s, and corresponding construction of multiple pipelines and water treatment plants, it conceived of the Stevens Creek Pipeline comprised of the Vasona Canal Extension and new segments on both ends. At the south end, the District decided to bypass the Vasona Canal as the water source and instead constructed a new 0.76-mile segment between the existing line to the Rinconada Force Main (under construction at the same time), which would provide the Stevens Creek Pipeline with water. At the north end, the project called for construction of a new three-mile segment from the end of the Vasona Canal Extension at Calabazas Creek to Stevens Creek. The new segments, both completed in 1967, were designed by California Pacific Engineers of San José and built by the Hood Corporation of Whittier, California, under the same construction contract that included the Rinconada Force Main, West Pipeline, Campbell Distributary, and Santa Clara Distributary, all of which were completed in 1967 or 1968. The new Stevens Creek Pipeline when finished spanned 9.8 miles carrying raw water from the Rinconada Force Main to the McClellan Recharge Ponds, Stevens Creek, and other smaller streams along its route including Calabazas, Regnart, Rodeo, Saratoga, Wildcat, San Tomas, and Smith creeks (**Plate 1**).[21]

Among the alterations and improvements to the pipeline are construction of a new turnout at an unknown location in 1970; replacement of the 1.6-mile segment constructed in 1958 between Saratoga Creek and Calabazas Creek; relocation at Imperial Avenue in 1981; installation of a line valve, vault, and modifications to the Calabazas Creek turnout ca. 1992; replacement of approximately 3,700 feet of pipeline ca. 1993 near Quito Road; and replacement of an ultrasonic flowmeter in 1994.[22]

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[20] SCVWD, "Vasona Canal Extension, Plan and Profile," July 1953; SCVWD, "Saratoga-Calabazas Conduit, Plan and Profile," July 1957; SCVWD, "Vasona Canal Ext. Right of Way & As-Built Map," February 27, 1959; From J. Robert Roll, "Report Upon Ground Water Conditions Within Santa Clara Valley Water Conservation District," March 14, 1967, 12.

[21] SCVWD, "Specifications and Contract Documents for the Construction of Rinconada Force Main, West Pipeline, Stevens Creek Pipeline, Santa Clara Distributary, and Campbell Distributary," April 1965; California Pacific Engineers, "Map and Construction Plans for Rinconada Force Main, West Pipeline, Stevens Creek Pipeline, Santa Clara Distributary, and Campbell Distributary," December 1965; SCVWD, "Specifications and Contract Documents for Construction of Vasona Distribution System, Stevens Creek Pipeline, Part III," February 15, 1968; From J. Robert Roll, "Report Upon Ground Water Conditions Within Santa Clara Valley Water Conservation District," March 14, 1967, 12.

[22] Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for SCVWD, June 2022, Table 1; GIS data provided by SCVWD; SCVWD, "Final Budget: 1969-1970," 73; SCVWD, "Final Budget: 1992-1993," 58. SCVWD, "Final Budget: 1990-1991," 61; SCVWD, "Final Budget: 1991-1992," 57; SCVWD, "Final Budget: 1994-95," 569, 572; RMC & CDM Smith, "South Bay Water Recycling Strategic and Master Planning Report, Part 1," prepared for SCVWD, December 2014, 9-20; J. Robert Roll, "Report Upon Ground Water Conditions Within Santa Clara Valley Water Conservation District," March 14, 1967, 11; AECOM, "Infrastructure Reliability Plan, 2016," prepared for SCVWD, June 30, 2016, Appendix 3; SCVWD, Pipelines Project Delivery Unit, Pipeline Information, March 9, 2023.

**Plate 1.** Photo of the Stevens Creek Pipeline (the larger pipe) in 1968 crossing Saratoga Creek (courtesy of Valley Water Archives).

**Evaluation**

The Stevens Creek Pipeline, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). The District built this to carry raw water to the west side of the District. The Stevens Creek Pipeline is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The majority of this pipeline was built during a period from the mid-1960s through the late 1970s along with several other pipelines to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the Stevens Creek Pipeline, to meet the demand. The Stevens Creek Pipeline, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

The Stevens Creek Pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground welded steel pipeline is 20 and 37 inches in diameter and 9.8 miles long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that California Pacific Engineers or the Hood Corporation, the firms that designed and built the 1967 segments of the pipeline, rise to the level of masters in their respective fields. The Stevens Creek Pipeline, therefore, lacks significance under this criterion.

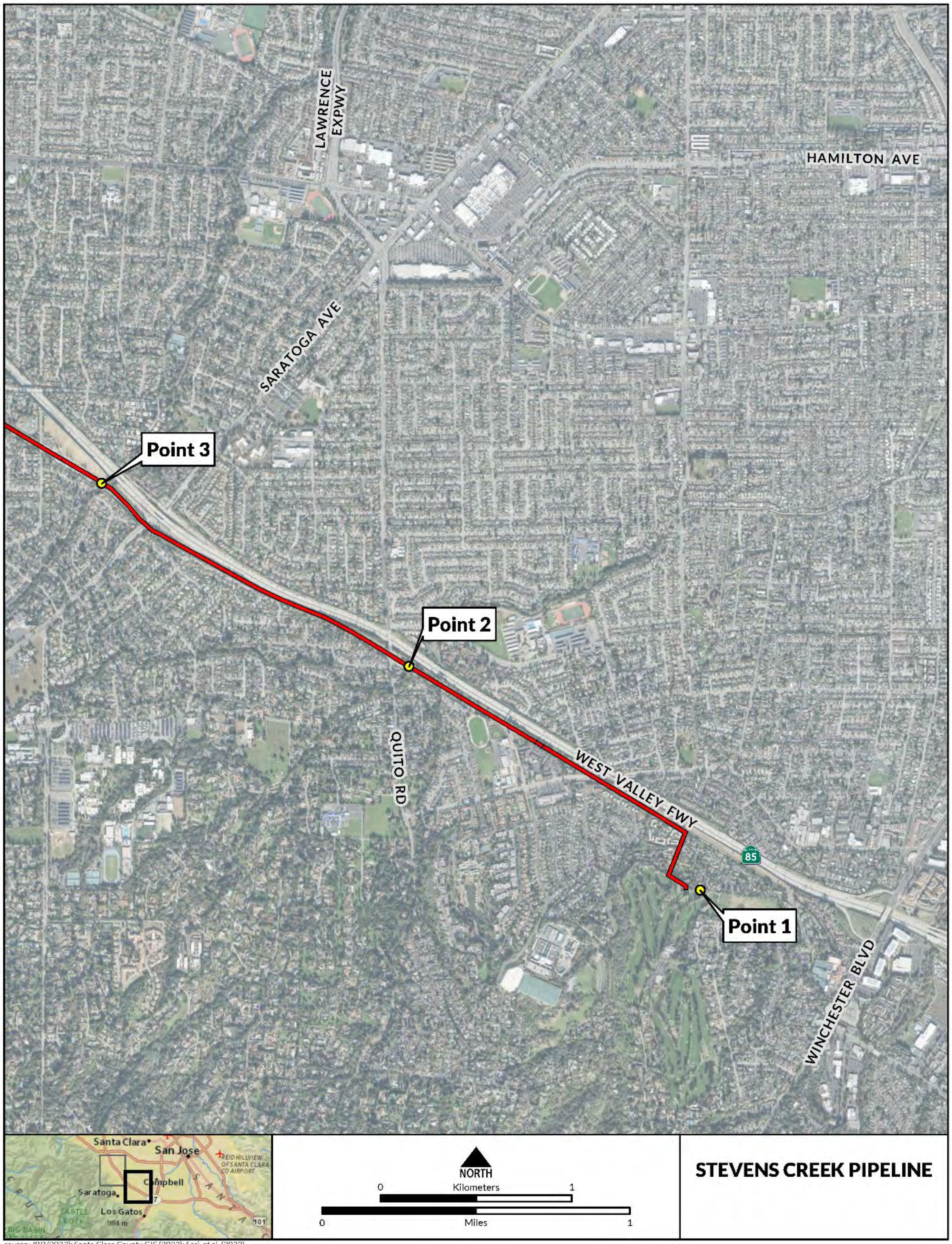
Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

# SKETCH MAP

Primary # ______
HRI # ______
Trinomial ______



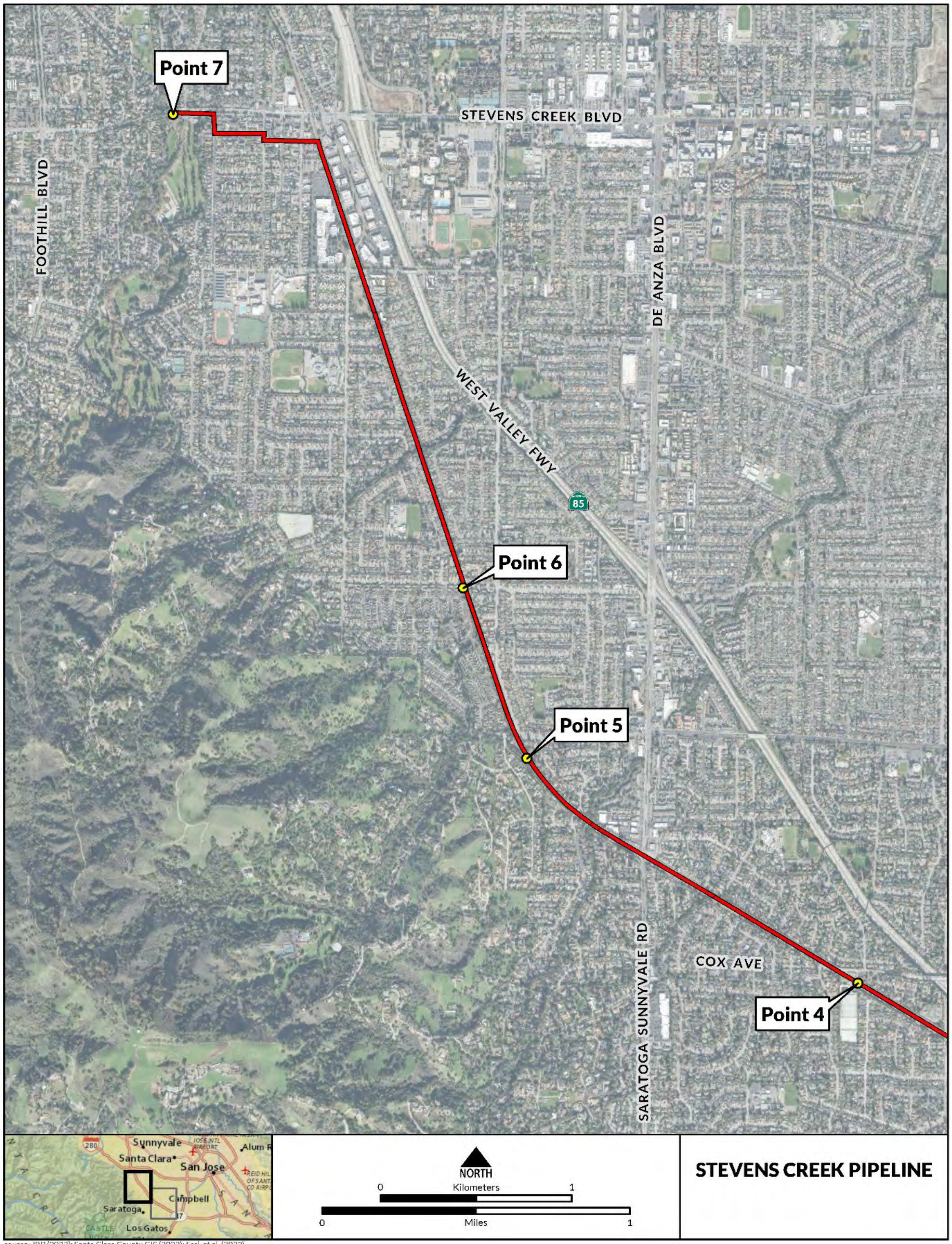
***Resource Name or #** (Assigned by recorder): Stevens Creek Pipeline




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).



*Required Information




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ____________
HRI # ____________
Trinomial ____________
NRHP Status Code 6Z

Other Listings ____________
Review Code ________ Reviewer ____________ Date ________

 ***Resource Name or #** (Assigned by recorder): Sunnyvale Distributary

**P1. Other Identifier:** Sunnyvale Distributary

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Santa Clara

***b. USGS 7.5' Quad**: Cupertino **Date**: 2021 **T:**____; **R:**____; **Sec:**__; Rancho Quito

c. Address: n/a City: Cupertino & Sunnyvale Zip: n/a

d. UTM: Endpoints: Zone: 10S; 582908.14 m E / 4132424.08 m N (west end); 583536.84 m E / 4132389.15 m N (east end)

e. Other Locational Data:

The pipeline begins near the intersection of Peninsular Avenue and Barranca Drive in Cupertino and ends near Calgary Drive and Pendleton Avenue in Sunnyvale.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Sunnyvale Distributary pipeline. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. The Sunnyvale Distributary is a welded steel pipeline 0.5 miles long and 33 inches in diameter. The pipeline runs along public road rights-of-way and under Highway 85 (**Photograph 1**). One above-ground concrete vault was observed during fieldwork for this pipeline. See the Linear Feature Records for photographs and descriptions of the recordation points.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1:** Pipeline alignment following Hibiscus Drive, camera facing west, February 7, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1969 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded**: February 7, 2023

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ____________

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Sunnyvale Distributary

B1. Historic Name: Sunnyvale Distributary
B2. Common Name: Sunnyvale Distributary
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1969; replacement of valve and spool pieces in 2012.
***B7. Moved?** ☒ No ☐ Yes ☐ Unknown **Date:** ___ **Original Location:** ___
***B8. Related Features:** ___
B9. Architect: Santa Clara Valley Water District b. Builder: Hood Corporation, Whittier, CA
***B10. Significance: Theme**: n/a **Area**: Santa Clara Valley
**Period of Significance**: n/a **Property Type**: Pipeline **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Sunnyvale Distributary, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ___

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: February 2023

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code:** 6Z

***Resource Name or #** (Assigned by recorder): Sunnyvale Distributary

**L1. Historic and/or Common Name:** Sunnyvale Distributary

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation:** Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 582914.00 mE / 4132429.00 mN; at the west end of Barranca Drive near Stevens Creek in Cupertino.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
This location is at the beginning of the pipeline and features a concrete vault (**Photograph 2**). The vault is rectangular, measuring approximately 3 feet x 4 feet. There is a rectangular element protruding from the top that is covered by a metal hatch. A vertical metal pipe is coming out of the hatch. Two elbow joints turn the open end of the pipe downward to prevent foreign particles from entering the pipeline.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width:** n/a
b. **Bottom Width:** n/a
c. **Height or Depth:** n/a
d. **Length of Segment:** n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing:**

N/A

**L5. Associated Resources:** None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline is in a residential subdivision.

**L8a. Photograph, Map, or Drawing.**

**L7. Integrity Considerations:** The setting in this area has changed somewhat since construction of the pipeline in 1967 with the construction of additional houses.

**L8b. Description of Photo, Map, or Drawing:** **Photograph 2.** Concrete vault, camera facing southeast, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date:** February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Sunnyvale Distributary

**L1. Historic and/or Common Name**: Sunnyvale Distributary

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 583273.00 mE / 4132453.00 mN; at intersection of Hibiscus Drive and Maxine Avenue in Cupertino.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline is buried under a public street and residential lots (**Photograph 3**). There are no above-ground structures.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline is in a residential subdivision.

**L7. Integrity Considerations:** The setting in this area has changed somewhat since construction of the pipeline in 1967 with the construction of additional houses.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 3.** Looking along pipeline right-of-way, camera facing east, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.
[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.
[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.
[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.
[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.
[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.

[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970) East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

*History of the Sunnyvale Distributary*

The Sunnyvale Distributary is a one-half mile long treated water pipeline constructed in 1970 by the Hood Corporation of Whittier, California with the design plans drafted in-house by the District (**Plate 1**). The pipeline receives water from the West Pipeline, which was built in 1967, and carries it to water tanks in Sunnyvale for distribution to users in that city by the City of Sunnyvale's municipal water system. The only known alterations to the pipeline are valve and spool piece replacements in 2012.[20]

**Plate 1.** Sunnyvale Distributary under construction in February 1970 (courtesy of Valley Water Archives).

## Evaluation

The Sunnyvale Distributary, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). Constructed in 1970, this pipeline carries treated water into the City of Sunnyvale for distribution. The pipeline is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the Sunnyvale Distributary, to meet the demand. The Sunnyvale Distributary, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

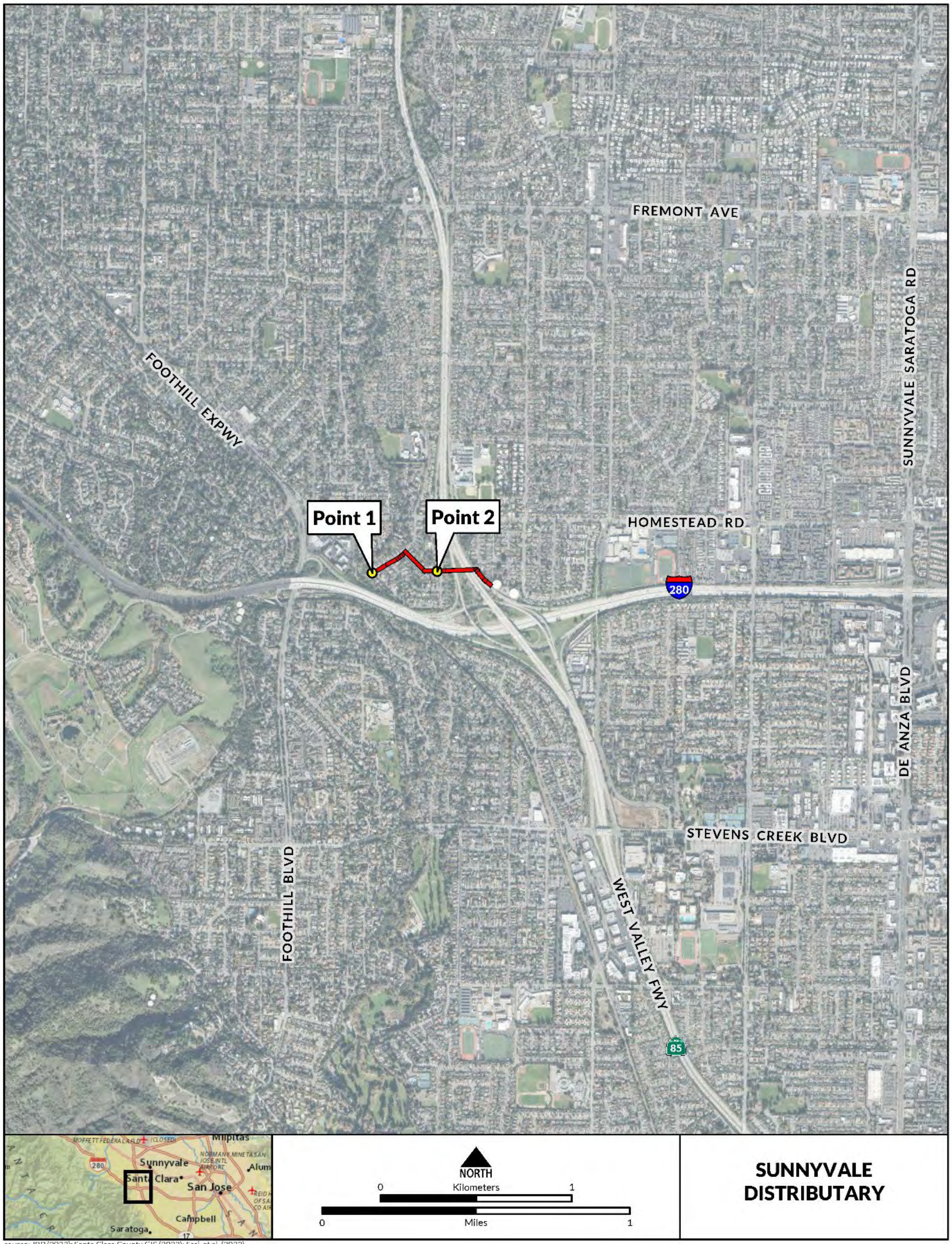
The Sunnyvale Distributary is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

[20] Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1; GIS data provided by SCVWD; AECOM, "Infrastructure Reliability Plan, 2016," prepared for SCVWD, June 30, 2016, Appendix 3; SCVWD, Pipelines Project Delivery Unit, Pipeline Information, March 9, 2023; SCVWD, "Map and Construction Plans for Sunnyvale Distributary Pipeline," October 22, 1969; SCVWD, "Specifications and Contract Documents for Construction of Sunnyvale Distributary," October 28, 1969.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground welded steel pipeline is 33 inches in diameter and one-half mile long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that the Hood Corporation, the firm that built the pipeline, rises to the level of master in its respective fields. The Sunnyvale Distributary, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

***Resource Name or #** (Assigned by recorder): Sunnyvale Distributary




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ____________
HRI # ____________
Trinomial ____________
NRHP Status Code 6Z

Other Listings ____________
Review Code ________ Reviewer ____________ Date ________

 ***Resource Name or #** (Assigned by recorder): Uvas-Llagas Transfer Pipeline

**P1. Other Identifier:** Uvas-Llagas Transfer Pipeline

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted** ***a. County:** Santa Clara

***b. USGS 7.5' Quad**: Mt. Madonna **Date**: 2021 **T:**__; **R:**____; **Sec:**__; Rancho San Francisco de las Llagas

c. Address: n/a City: n/a Zip: n/a

d. UTM: Endpoints: Zone: 10S; 616592.77 m E / 4102978.94 m N (south end); 619920.93 m E / 4105202.82 m N (north end)

e. Other Locational Data: The pipeline is southwest of Morgan Hill. It begins at Uvas Dam and extends southeasterly for about one mile and then runs northeasterly for about 2.3miles, ending at Llagas Creek east of the Watsonville Road Bridge over Llagas Creek.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the Uvas-Llagas Transfer Pipeline. The pipeline is entirely below ground, and thus the description of the pipeline is derived from documentary sources. The Uvas-Llagas Transfer Pipeline is a reinforced concrete pipeline 3.3 miles long and 27 to 39 inches in diameter. Most of the pipeline runs through agricultural land and intersects with several roads (**Photograph 1**). No above-ground structures were observed during fieldwork for this pipeline. See the Linear Feature Records for photographs and descriptions of the recordation points.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1:** Pipeline alignment crossing County Road G8 looking west toward the beginning of the pipeline, February 9, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1957 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded**: February 9, 2023

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ____________

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Uvas-Llagas Transfer Pipeline

B1. Historic Name: Uvas-Llagas Transfer Pipeline
B2. Common Name: Uvas-Llagas Transfer Pipeline
B3. Original Use: Water conveyance B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1957; replacement of a control valve, installation of a low flow bypass pipeline valve and flowmeter, and replacement of a 12-inch blow-off pipe in 1994.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** ______ **Original Location:** ______
***B8. Related Features:** ______
B9. Architect: Blackie & Wood, San Francisco b. Builder: A. J. Peters & Son of San José
***B10. Significance: Theme**: n/a **Area**: Santa Clara Valley
**Period of Significance**: n/a **Property Type**: Pipeline **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Uvas-Llagas Transfer Pipeline, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ______

***B12. References**: J. Robert Roll, “Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District,” 1956; Santa Clara Valley Water District, “Urban Water Management Plan,” April 2001; Stone & Youngberg, “Water Supply for the North Santa Clara Valley,” September 1962; Santa Clara Valley Water Conservation District, “This Is Your Santa Clara Valley Water Conservation District,” ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. “Mel” Melvin
***Date of Evaluation**: February 2023

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Uvas-Llagas Transfer Pipeline

**L1. Historic and/or Common Name**: Uvas-Llagas Transfer Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 618099.50 mE / 4102430.31 mN; crossing County Road G8, south of entry to Uvas Pines RV Park.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline crosses under a public road and runs through agricultural land. The pipeline route is indicated by a roadside blue-capped post (**Photograph 2**). There are no above-ground structures at this location.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a rural agricultural landscape.

**L7. Integrity Considerations**: No known or apparent integrity considerations.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** Looking along pipeline alignment, camera facing northeast, February 9, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Uvas-Llagas Transfer Pipeline

**L1. Historic and/or Common Name**: Uvas-Llagas Transfer Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 618550.73 mE / 4102635.67 mN; crossing County Road G8.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline crosses under a public road and runs through agricultural land. The pipeline route is designated by a roadside blue-capped post (**Photograph 3**). There are no above-ground structures at this location.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **e. Top Width**: n/a
- **f. Bottom Width**: n/a
- **g. Height or Depth**: n/a
- **h. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a rural agricultural landscape.

**L7. Integrity Considerations**: No known or apparent integrity considerations.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 3.** Looking along pipeline alignment, camera facing northeast, February 9, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

# LINEAR FEATURE RECORD

Primary # ___
HRI # ___
Trinomial ___



***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Uvas-Llagas Transfer Pipeline

**L1. Historic and/or Common Name**: Uvas-Llagas Transfer Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 618923.00 mE / 4103305.00 mN; crossing Sycamore Drive.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline crosses under a public road and runs through agricultural land. The pipeline route is designated by a roadside blue-capped post (**Photograph 4**). There are no above-ground structures at this location.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a rural agricultural landscape.

**L7. Integrity Considerations**: No known or apparent integrity considerations.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Looking along pipeline alignment, camera facing northeast, February 9, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): Uvas-Llagas Transfer Pipeline

**L1. Historic and/or Common Name**: Uvas-Llagas Transfer Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 4

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 619805.00 mE / 4104858.00 mN; on West San Martin Avenue near the intersection of Watsonville Court.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline crosses under a public road and runs through agricultural land. The pipeline route is designated by a roadside blue-capped post (**Photograph 5**). There are no above-ground structures at this location.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a rural agricultural landscape.

**L7. Integrity Considerations**: No known or apparent integrity considerations.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Looking along pipeline alignment, camera facing south, February 9, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.
[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.
[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.

[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.

[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.

[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.

[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.

[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s, such as the Gavlian Water Conservation District that constructed the Uvas-Llagas Pipeline.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.

[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

*History of the Uvas-Llagas Transfer Pipeline*

In 1955, the Gavilan Water Conservation District hired San Francisco-based engineers Blackie & Wood to design and A. J. Peters & Son of San José to construct the Uvas-Llagas Transfer Pipeline. The 3.3-mile pipeline ran from Uvas Creek just below Uvas Dam to Llagas Creek across private rural, agricultural property of pasture, orchards, and grain fields. The conduit was built to carry raw water to in-stream percolation ponds on Llagas Creek for groundwater recharge. The District acquired the Gavilan Water Conservation District and all of its facilities – including the Uvas-Llagas Transfer Pipeline – in 1987. The only known alterations to the pipeline occurred in 1994 when the District replaced a control valve and 12-inch blow-off pipe and installed a low flow bypass pipeline valve and flowmeter.[20]

**Evaluation**

The Uvas-Llagas Transfer Pipeline, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). Constructed in 1957, this pipeline carries raw water to Llagas Creek for groundwater percolation. The pipeline was built by the Gavilan Water Conservation District as part of its system to conserve water in the South County and provide for its customers, much as had been underway in multiple water districts in the Santa Clara Valley since the 1930s. The pipeline represents a typical improvement undertaken by the Gavilan Water Conservation District to accommodate increasing demand. The Uvas-Llagas Transfer Pipeline, therefore, is not associated with any historically significant events, patterns, or trends and does not meet this criterion.

The Uvas-Llagas Transfer Pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground reinforced concrete pipeline is 3.3 miles long and 27 to 39 inches in diameter. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that Blackie & Wood or A. J. Peters & Son, the firms that designed and built the pipeline, rise to the level of masters in their respective fields. The Uvas-Llagas Transfer Pipeline, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

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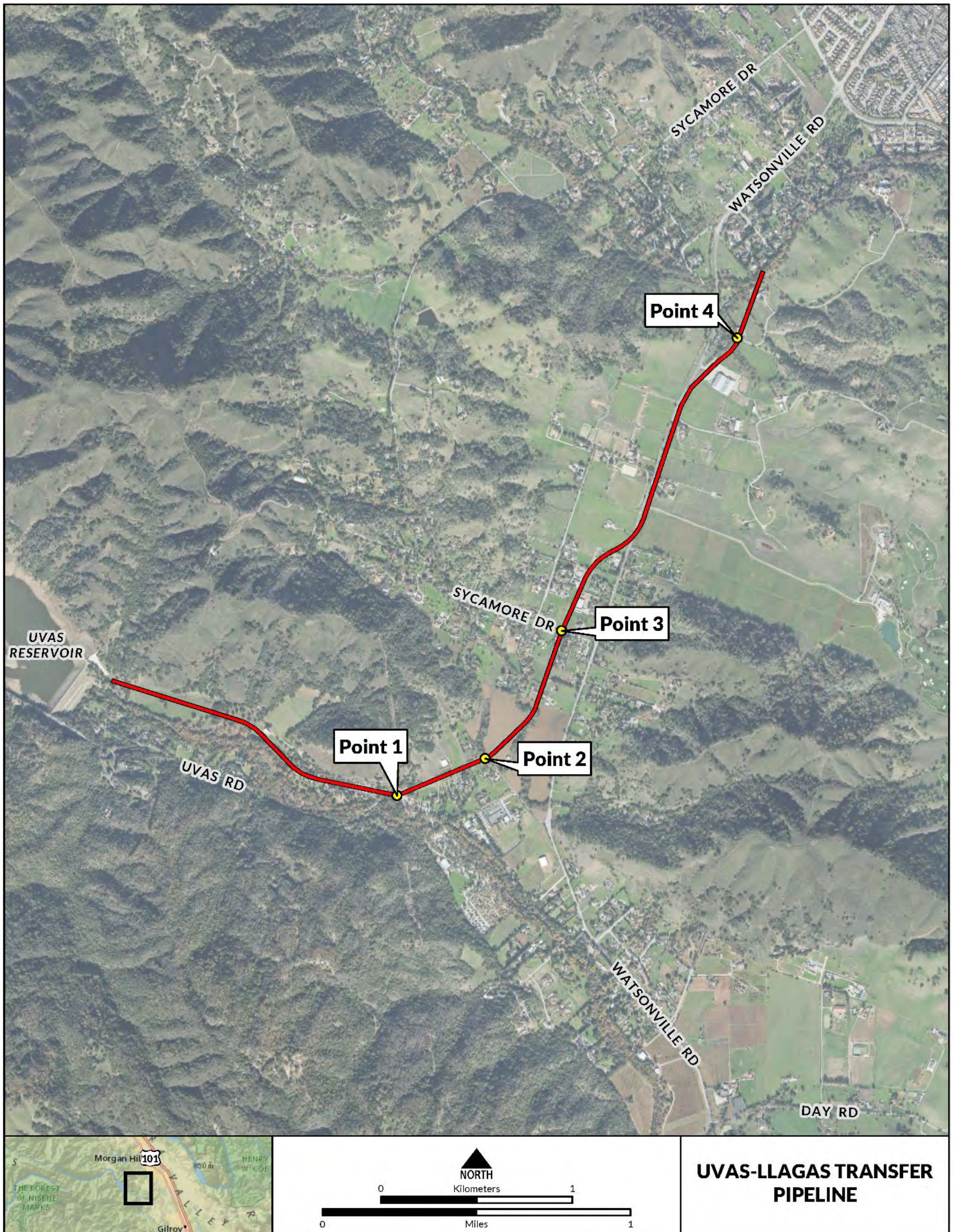
[20] SCVWD, "Groundwater Management Plan," 2012, Appendix A; SCVWD, "1992-93 Final Budget," 1992, 50; SCVWD, "1994-95 Final Budget," 1994, 537; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1; GIS data provided by SCVWD; Blackie & Wood, "Uvas – Llagas Pipe Line, Profile, Alignment, Details," prepared for South Santa Clara Valley Water Conservation District, June 1955; Blackie & Wood, "Contract Documents for Furnishing and Constructing Uvas – Llagas Pipe Line," Project Report No. 26, prepared for South Santa Clara Valley Water Conservation District, June 1955

**SKETCH MAP**

Primary # ____
HRI # ____
Trinomial ____



***Resource Name or #** (Assigned by recorder): Uvas-Llagas Transfer Pipeline




source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
**PRIMARY RECORD**

Primary # ____
HRI # ____
Trinomial ____
NRHP Status Code 6Z

Other Listings ____
Review Code ____ Reviewer ____ Date ____



***Resource Name or #** (Assigned by recorder): West Pipeline

**P1. Other Identifier:** West Pipeline

***P2. Location:** ☐ Not for Publication ☒ Unrestricted *a. County: Santa Clara

***b. USGS 7.5' Quad**: San José West **Date**: 2021 **T**:__; **R**:____; **Sec**:__; Rancho Rinconada de Los Gatos

***b. USGS 7.5' Quad**: Cupertino **Date**: 2021 **T**:______; **R**:____; **Sec**:__; Rancho Quito

***b. USGS 7.5' Quad**: Cupertino **Date**: 2021 **T**:______; **R**:____; **Sec**:__; Rancho San Antonio

c. Address: n/a City: Los Gatos, Saratoga, San José, Cupertino, and Los Altos Zip: n/a

d. UTM: Endpoints: Zone: 10S; 590055.55 m E / 4123944.36 m N (south end); 580910.75 m E / 4134245.42 m N (north end)

e. Other Locational Data:

The pipeline begins at the Rinconada Water Treatment Plant in Los Gatos and ends on Granger Avenue near A Street in Los Altos.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

This form records the West Pipeline and a representative sampling of the pipeline's appurtenant above-ground structures. The pipeline is almost entirely below ground, and thus the description of the pipeline is derived from documentary sources. The West Pipeline varies in diameter from 30 to 84 inches, is 9.0 miles long, and made of welded steel pipe. The pipeline runs largely along public road rights-of-way and a railroad right-of-way (**Photograph 1**). Along the route are various appurtenant above-ground structures largely consisting of concrete vaults and electrical equipment boxes. See the Linear Feature Records for photographs and descriptions of the recordation points.

**P3b. Resource Attributes:** (List attributes and codes) HP20 – Canal/Aqueduct/Pipeline

***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

**P5b. Description of Photo:** (View, date, accession#) **Photograph 1:** Concrete vault along pipeline at Bubb Road looking south along pipeline alignment, February 7, 2023.

***P6. Date Constructed/Age and Sources:** ☒ Historic ☐ Prehistoric ☐ Both
1967 (SCVWD Records)

***P7. Owner and Address:**
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

***P8. Recorded by:**
Steven J. "Mel" Melvin &
Abigail Lawton
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

***P9. Date Recorded**: February 7, 2023

***P10. Survey Type:** (Describe)
Intensive

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.") JRP Historical Consulting, LLC, "Historic Resources Report for the Santa Clara Valley Water District Pipeline Maintenance Program," prepared for Panorama Environmental and Valley Water, 2024.

***Attachments:** ☐ None ☒ Location Map ☐ Sketch Map ☒ Continuation Sheet ☒ Building, Structure, and Object Record ☐ Archaeological Record ☐ District Record ☒ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record ☐ Artifact Record ☐ Photograph Record ☐Other (list) ____

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): West Pipeline

B1. Historic Name: West Pipeline
B2. Common Name: West Pipeline
B3. Original Use: Water conveyance  B4. Present Use: Water conveyance
***B5. Architectural Style**: Utilitarian
***B6. Construction History**: (Construction date, alteration, and date of alterations) Built in 1967; installation of cathodic protection system in 1971; installation of six meters at turnout points in 1977; rehabilitation of a six-mile segment in 2010 consisting of the replacement of air release valves, nozzles, flanges, pipe fittings, and blow-off valves.
***B7. Moved?** ☒ **No** ☐ **Yes** ☐ **Unknown** **Date:** ________ **Original Location:** ________
***B8. Related Features:** ________
B9. Architect: California Pacific Engineers, San José  b. Builder: Hood Corporation, Whittier, CA
***B10. Significance: Theme**: n/a **Area**: Santa Clara Valley
**Period of Significance**: n/a **Property Type**: Pipeline **Applicable Criteria**: n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The West Pipeline, inclusive of its appurtenant structures, is not eligible for listing in the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHR). This property has been evaluated in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) and Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code. This pipeline is not a historical resource for the purposes of CEQA.

The historic context for this pipeline is within the development of mid-twentieth century water infrastructure in the Santa Clara Valley that provided water for groundwater recharging, as well as agricultural, commercial, domestic, and industrial uses. (See Section B10 on Continuation Sheet.)

B11. Additional Resource Attributes: (List attributes and codes) ______

***B12. References**: J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 1956; Santa Clara Valley Water District, "Urban Water Management Plan," April 2001; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962; Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957; See also footnotes.

B13. Remarks:

***B14. Evaluator**: Steven J. "Mel" Melvin
***Date of Evaluation**: February 2023

(This space reserved for official comments.)

See Sketch Maps on last page.

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): West Pipeline

**L1. Historic and/or Common Name**: West Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 1

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 590081.18 mE / 4124103.75 mN; intersection of More Avenue and Roxbury Lane in Los Gatos.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
This recordation point is at the beginning of the pipeline alignment near the Rinconada Water Treatment Plant (**Photograph 2**). The pipeline is underground and there are no above-ground structures at this location.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width**: n/a
- b. **Bottom Width**: n/a
- c. **Height or Depth**: n/a
- d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a residential subdivision.

**L7. Integrity Considerations:** The setting in this area has changed somewhat since construction of the pipeline in 1967 with the construction of additional houses.

**L8a. Photograph, Map, or Drawing.**


**L8b. Description of Photo, Map, or Drawing:**
**Photograph 2.** View of the pipeline right-of-way along More Avenue, camera facing northwest, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z
***Resource Name or #** (Assigned by recorder): West Pipeline

**L1. Historic and/or Common Name**: West Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 2

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 589306.56 mE / 4125276.63 mN; just east of Quito Road and south of Highway 85 in San Jose.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault, approximately five feet in diameter and rising about three feet above grade (**Photograph 3**). Its metal cover with hinged access doors sits flush with the top of the concrete.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline runs along a railroad right-of-way and passes through a residential subdivision.

**L7. Integrity Considerations:** The setting has changed somewhat since construction of the pipeline in 1967 with the construction of additional houses in the area.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 3.** Concrete vault, camera facing southeast, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

*NRHP Status Code: 6Z
*Resource Name or # (Assigned by recorder): West Pipeline

**L1. Historic and/or Common Name:** West Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation:** Point 3

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 587720.26 mE / 4126160.39 mN; along Joe's Trail de Saratoga de Anza, east of Glen Brae Drive and south of Congress Springs Park in Saratoga.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault, approximately five feet in diameter and flush with the ground (**Photograph 4**). It has a metal cover with hinged access doors. The metal cover is a few inches above the top of the concrete to allow for ventilation.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- a. **Top Width:** n/a
- b. **Bottom Width:** n/a
- c. **Height or Depth:** n/a
- d. **Length of Segment:** n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing:**

N/A

**L5. Associated Resources:** None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes along a railroad right-of-way through a suburban subdivision.

**L7. Integrity Considerations:** The setting has changed somewhat since construction of the pipeline in 1967 with the construction of additional houses in the area.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 4.** Concrete vault, camera facing southeast, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date:** February 2023

**L1. Historic and/or Common Name**: West Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 4

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 586697.00 mE / 4126738.00 mN; on the north side of Cox Avenue near Cumberland Drive in Saratoga.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location is a cylindrical concrete vault that is about six inches above the ground (**Photograph 5**). It has a metal cover with hinged access doors. The metal cover is a few inches above the top of the concrete to allow for ventilation. Attached to the top of the cover is a vertical metal pipe. Two elbow joints turn the open end of the pipe downward to prevent foreign particles from entering the pipeline.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes along a railroad right-of-way through a suburban subdivision.

**L8a. Photograph, Map, or Drawing.**

**L7. Integrity Considerations:** The setting has changed somewhat since construction of the pipeline in 1967 with the construction of additional houses in the area.

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 5.** Concrete vault, camera facing west, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): West Pipeline

**L1. Historic and/or Common Name**: West Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 5

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 584762.13 mE / 4128708.14 mN; at the Rainbow Drive crossing east of 7 Springs Lane in Cupertino.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)

At this location is a fence-enclosed yard with two concrete vaults, several electrical control boxes and two small pipes emerging from the ground (**Photograph 6**). The cylindrical concrete vault is approximately five feet in diameter and rises about one foot above grade. It has a metal top with hinged access doors. The metal cover is a few inches above the top of the concrete to allow for ventilation. A rectangular concrete vault, approximately 4 feet x 3 feet, is immediately southeast of the cylindrical vault. It has a hinged metal hatch the sits flush with the top of the concrete. Several metal electrical equipment boxes of varying sizes are grouped on the north side of this yard. Transmittal antennae are attached to two of the boxes. Next to these are two metal pipes that form an inverted U-shape as they come up from and go back down into the ground. A cylindrical equipment house is located immediately east of the cylindrical vault.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)

At this location, the pipeline passes along a railroad right-of-way through a suburban subdivision.

**L8a. Photograph, Map, or Drawing.**

**L7. Integrity Considerations:** The setting has changed somewhat since construction of the pipeline in 1967 with the construction of additional houses in the area. Some of the electrical control boxes do not appear to be original.

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 6.** Vault and equipment yard, camera facing northwest, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): West Pipeline

**L1. Historic and/or Common Name**: West Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 6

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 582880.98 mE / 4132453.48 mN; near intersection of Barranca Drive and Peninsular Avenue in Cupertino.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location, the pipeline emerges from the ground to cross over Stevens Creek via a metal trestle (**Photograph 7**). The pipe is 30 inches in diameter at this location. At the south end is a rectangular access portal with a metal cover at-grade that measures approximately 2 feet x 3 feet.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

a. **Top Width**: n/a
b. **Bottom Width**: n/a
c. **Height or Depth**: n/a
d. **Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes over Stevens Creek and continues through a suburban subdivision.

**L7. Integrity Considerations:** The pipeline appears to have a high degree of integrity at this location.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 7.** Pipeline, camera facing north, February 7, 2023.

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

***NRHP Status Code**: 6Z

***Resource Name or #** (Assigned by recorder): West Pipeline

**L1. Historic and/or Common Name**: West Pipeline

**L2a. Portion Described:** ☐ Entire Resource ☐ Segment ☒ Point Observation **Designation**: Point 7

***b. Location of point or segment:** (Provide UTM coordinates, legal description, and any other useful locational data. Show the area that has been field inspected on a Location Map.) UTM: Zone 10S; 580960.48 mE / 4134201.39 mN; on Granger Avenue north of Larnel Place in Los Altos.

**L3. Description:** (Describe construction details, materials, and artifacts found at this segment/point. Provide plans/sections as appropriate.)
At this location near the terminus of the pipeline is a concrete vault and several electrical equipment boxes (**Photograph 8**). The concrete vault is cylindrical, measures approximately five feet in diameter and rises 1 – 2 feet above grade. It has a metal top with hinged access doors. The top is raised a few inches above the concrete to allow ventilation. Next to the vault are several rectangular, metal electrical equipment boxes of varying sizes.

**L4. Dimensions:** (in feet for historic features and meters for prehistoric features)

- **a. Top Width**: n/a
- **b. Bottom Width**: n/a
- **c. Height or Depth**: n/a
- **d. Length of Segment**: n/a

**L4e. Sketch of Cross-Section** (not to scale) **Facing**:

N/A

**L5. Associated Resources**: None

**L6. Setting:** (Describe natural features, landscape characteristics, slope, etc., as appropriate.)
At this location, the pipeline passes through a suburban subdivision.

**L7. Integrity Considerations:** At this recordation point, it appears that some of the electrical control boxes are not original.

**L8a. Photograph, Map, or Drawing.**

**L8b. Description of Photo, Map, or Drawing:**
**Photograph 8.** Vault and electrical equipment boxes, camera facing southeast, February 7, 2023

**L9. Remarks:**

**L10. Form prepared by:**
Steven J. "Mel" Melvin
JRP Historical Consulting, LLC
2850 Spafford Street
Davis, CA 95618

**L11. Date**: February 2023

## B10. Significance (continued):

**Historic Context**

*The Rise of San José and the Agricultural Economy*

Santa Clara Valley agriculture began to transition from cattle, wheat, and general farming to horticulture and viticulture in the 1870s with the French Prune became the first successful commercial orchard crop. This variety of plum had a low moisture content making it ideal for drying and, hence, ideal for shipping prior to the invention of refrigerated rail cars. In addition to prunes, Santa Clara Valley farmers planted other stone fruit orchards such as apricots, peaches, and cherries. The completion of the transcontinental railroad and railroads built through the valley that connected San José with distant markets during the 1870s further boosted horticulture as it opened the large eastern US markets to local fruit growers. The change from stock raising and grain cultivation to horticulture also increased agricultural land values as orchard crops yielded much higher value per acre than cattle or grain crops. An orchard farm of 20 acres, for example, could generate enough income to support a family. The profitability to acreage ratio prompted many large landholders to cash in by subdividing their property into small farm plots of between five to 50 acres. The technological development of ice-cooled refrigerated rail cars in the 1880s made the transcontinental shipment of fresh fruit possible, further accelerating the trend to horticulture. By 1890, intensive, diversified agriculture had spread to throughout the Santa Clara Valley that had access to water for irrigation.[1]

Expansion of horticulture continued in the greater Santa Clara Valley into the early twentieth century, buoyed by the high market value of fruit and advances in refrigeration and food processing technologies. San José also had an advantageous geographical position relative to transportation, being located at the southern end of San Francisco Bay along two transcontinental railroad lines – Southern Pacific Railroad and Western Pacific Railroad – and branch lines to San Francisco and south down the Santa Clara Valley and beyond. San José's location also made it a convergence point in the nascent state highway system. All of these factors made San José the region's commercial, financial, and transportation hub and led many industries related to horticulture such as farm equipment manufacturers, canning, fruit packing, and fruit dehydration to open plants in the city. These industries came to be a large part of the San José economy, employing thousands of workers and fueling commercial and residential growth from the late nineteenth century well into the twentieth century. During this period of robust growth between 1900 and 1940, the population of San José more than tripled from 21,500 to more than 68,400.[2]

*The San José Region, 1945-1980*

When World War II ended in 1945, agriculture still played a dominant role in the economy of the greater Santa Clara Valley and San José. Profound changes, however, began after the war as the military influence in the region, coupled with an era of state-wide, general economic prosperity, led to the transformation of San José in the second half of the twentieth century from a small city sustained by the agriculture industry to a sprawling metropolis with a varied industrial, financial, and high-tech economic base.[3]

Important to the development of San José were the nearby military and military-related activities. Operations at Naval Air Station Moffett Field in Mountain View during the war helped usher in the high-tech sector to the South Bay region. Activities at Moffett Field included development of new aircraft, a blimp program, and research at Ames Aeronautical Laboratory.

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[1] Stephen Payne, *Santa Clara County: Harvest of Change* (Northridge, CA: Windsor Press, 1987), 78-79; Archives & Architecture, "Historical Overview and Context for the City of San Jose," prepared for the City of San Jose, March 30, 1992, 8-10.
[2] E. T. Sawyer, *History of Santa Clara County, California* (Los Angeles: Historic Record Company, 1922), 135-139; Archives & Architecture, "County of Santa Clara Historic Context Statement," 40, 41; Payne, *Santa Clara County: Harvest of Change*, 69-96; Robert N. Young and Paul F. Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," *Geographical Review*, Vol. 47, No. 3 (July 1957), 396-405; California Department of Finance, Historical US Census Population Data, California Counties and Cities, accessed December 2022 at http://www.dof.ca.gov/research/demographic/; Fairchild Aerial Surveys, Aerial Image, Photo No. c-1456-31, March 13, 1931; Fairchild Aerial Surveys, Aerial Image, Photo No. 5900-70, August 5, 1939.
[3] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," July 2009, Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Young and Griffin, "Recent Land-Use Changes in the San Francisco Bay Area," 396-405; Payne, *Santa Clara County: Harvest of Change*, 167-177.

Numerous high-tech defense contractors incubated by Stanford University also located in the region. The military influence created thousands of high-paying jobs during and after the war as defense spending grew in the Cold War era.[4]

Astute San José business leaders recognized opportunities presented by the changing economy and sought to capitalize on the situation at hand. Soon after the war they launched a successful campaign to attract new non-agricultural related industries to San José, touting the rich high-tech business environment. Among the companies that established plants in San José during the early Cold War era were the International Mineral and Chemical Corporation in 1946, General Electric in the early 1950s, and IBM in 1953. This growth trend in electronic, high-tech, and defense-related industries continued throughout the second half of the twentieth century, such that by the 1980s the region had become known as "Silicon Valley," a reference to processing microchips developed by Apple, IBM, and other local computer companies. These technological industries provided a strong base for the economy and contributed to overall growth in such sectors as retail, construction, and service industries in San José. The population of San José rose as well, jumping from 68,500 in 1940 to 95,000 in 1950, and more than doubling in the next decade, reaching 200,000 in 1960.[5]

An important contributor to San José's expansion in the post-war period was its aggressive campaign of annexation and investment in infrastructure. Proponents for growth reasoned that expanding the city's corporate boundaries was necessary to provide space for industrial, commercial, retail, and residential development. San José civic leaders also recognized the new transportation mode dominated by automobiles, which the central business district could not spatially accommodate, allowed for the promise of unlimited mobility. By annexing county land, the city government had more control to address growth and development, and the added industries, businesses, and residents would contribute to the tax base. Inter-city annexation competition also played a role as San José sought to gain control of land tracts before neighboring cities. Between 1950 and 1970, the City of San José approved 1,400 annexations that expanded city's area from 17 to nearly 140 square miles. By 1970, San José had become California's fourth largest city, with 459,000 residents, which was an increase in population of 381 percent from 1950. In the 1970s, the pace of annexation slowed but did not cease entirely. Growth and development continued on newly annexed tracts, as well as land within the city boundaries such that by 1980, San José's population stood at more than 629,500 people.[6]

The forces that pushed the growth and expansion of San José in the postwar years also affected adjacent cities. Places like Santa Clara, Sunnyvale, Cupertino, Saratoga, Campbell, and Los Gatos similarly experienced spatial growth and population increases, driven by new residential subdivisions and commercial development. As these processes played out in the northern Santa Clara Valley, the southern Santa Clara Valley in the vicinity of Morgan Hill and Gilroy, retained its rural character for a longer period. Abundant open space and agricultural land persisted in the southern Santa Clara Valley until the late 1970s when high-tech firms began locating in Morgan Hill. Further facilitating the development of this region was the improvement of US 101 into a freeway by Caltrans, making commuting to San José and other northern destinations easier. In recent decades, development has accelerated with new residential and commercial developments in the Morgan Hill and Gilroy areas.[7]

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[4] Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Glenna Matthews, "The Los Angeles of the North," *Journal of Urban History* 25, no. 4 (May 1999), 459-461; City of San Jose, Planning Department, "San Jose General Plan, 1975," December 1975, 23-24; Arvin Tarleton Henderson, Jr., "Evolution of Commercial Nucleations in San Jose, California," MA Thesis, University of California, Riverside, July 1970, 26-42; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," prepared for Preservation Action Council of San Jose, June 2009, 26-32.
[5] Basin Research Associates, "Envision San Jose 2040 General Plan," Appendix J, 17-23; Archives & Architecture, "Historical Overview and Context for the City of San Jose," 10; Payne, *Santa Clara County: Harvest of Change,* 167-177; PAST Consulting, LLC, "San Jose Modernism Historic Context Statement," 26-38.
[6] Basin Research Associates, Inc., "Envision San Jose 2040 General Plan," Appendix J, 17-23; PAST Consulting, "San Jose Modernism Historic Context Statement," 26-38, 48; Matthews, "The Los Angeles of the North," 459-461; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979, 16-21; Payne, *Santa Clara County: Harvest of Change*, 182.
[7] USGS, *Morgan Hill Quadrangle*, 15 minute, 1:62,500 (Washington: USGS, 1940); USGS, *Mount Sizer Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1971); USGS, *Morgan Hill Quadrangle*, 7.5 minute, 1:24,000 (Washington: USGS, 1955, 1968, 1973, 1980); Circa, "Historic Context Statement for the City of Morgan Hill," 36-38; Richard Bottarini, "California Annexation Procedures: A Case Study in the City of Mountain View," MA Thesis, San Jose State University, March 1979.

*Santa Clara Valley Water District History*

In the early agricultural period, water for irrigating crops grown in the Santa Clara Valley came from artesian wells augmented by diversions from the many small creeks flowing from the adjacent mountains. In the late-nineteenth century and early twentieth century, however, as horticulture flourished and the demands increased, farmers pumped increasing amounts of groundwater out of the natural aquifers. Pump technology steadily improved, allowing deeper wells and greater volumes of water to be drawn. By the 1920s, this once abundant resource had become endangered; groundwater was being depleted faster than it could be replenished, and groundwater levels steadily dropped. At the same time, the growth of towns and cities in the region increased municipal demands for the same underground water. Measurements taken in 1929 noted a 50-foot drop in the groundwater level since 1925. Not only was this recognized as an unsustainable trend, drop in water table caused the ground to subside in many areas and increased the pumping costs of farmers.[8]

These factors led valley leaders and local engineers to seek a means to reverse this trend and replenish the underground aquifers. Among the leaders of this effort was the Santa Clara Valley Water Conservation Committee formed by a group of prominent Santa Clara Valley citizens. The committee hired prominent northern California hydraulic engineers Fred H. Tibbetts and his partner, Stephen Kieffer, to undertake a study of the valley's water problems and develop a plan. Tibbetts was an established and influential hydraulic engineer in Northern California and designed many important flood-control, reclamation, and irrigation works in the Sacramento Valley, including projects for the Nevada Irrigation District. Tibbetts also served as an advisor to the State of California during development of the State Water Plan in the 1920s. It was Tibbetts and Keiffer who developed the original concept of the Santa Clara Valley Water Conservation District system, and it was Tibbetts who designed six of the seven dams of the system's original phase of construction between 1932 and 1936.[9]

After several years of study, Tibbetts and Kieffer proposed a system of reservoirs, percolation areas, canals, and flood control structures to capture and retain the water of the streams flowing into the valley for the purpose of groundwater recharge. They regarded any water from a creek or stream that made it to San Francisco Bay as "wasted," and the project at this time was called the "Waste Water Salvage Project." To carry out the project, Tibbetts & Kieffer recommended the establishment of a water conservation district to build, own, and manage the system, and which would be supported by taxes levied on the water users in the would-be district. The Santa Clara Valley Water Conservation Committee, and other groups such as the Santa Clara County Citizens' Committee and the Farmers' Committee, enthusiastically supported the plan and in the late 1920s proceeded to lobby for creation of such a district among landowners who would need to vote to approve establishment of a district. Supporters of the plan employed rhetoric to generate support, spelling out the dire conditions and the bleak future if nothing was done. Voters defeated establishment of a water conservation district in 1927 and again in 1928, but as water levels in local wells continued to fall, voters finally approved the measure in 1929 and the Santa Clara Valley Water Conservation District (District) formed on November 12, 1929 "for the primary purpose of salvaging the waste waters of the various streams in the Valley."[10]

With approval of the District and a system plan in place, the District and Tibbets & Kieffer proceeded with design and construction. The system sought to store and distribute water to the best percolation areas in the Santa Clara Valley where it would soak back into the soil and replenish the groundwater. Tibbets & Kieffer final plan consisted of six major dams, along with canals and percolation facilities. The original upstream storage dams in the foothills of the Santa Cruz Mountains and Diablo Range flanking the Santa Clara Valley were Almaden, Calero, Guadalupe, Vasona, Stevens Creek, and Coyote built in

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[8] Fred H. Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project, Including 1931 Waste Water Salvage Report, Appendix I, Project Report 17," May 8, 1934, n.p.; American Society of Civil Engineers, *Historic Civil Engineering Landmarks of San Francisco and Northern California* (San Francisco: Pacific Gas and Electric Company, October 1977), 25.
[9] JRP Historical Consulting, LLC, "Historic Resources Report: Santa Clara Valley Water District Dams," July 2006, 49; American Society of Civil Engineers, *Transactions, Volume 105* (New York: American Society of Civil Engineers, 1940), 1924-1928.
[10] Fred H. Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts, Chief Engineer, Santa Clara Valley Water Conservation District," January 31, 1936, 6-10, on file at the Water Resources Collections & Archives (WRCA); Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," n.p.; J. Robert Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on Revised 1956 Waste Water Salvage Project," December 6, 1956, 2.

1935 and 1936. Coyote Reservoir was the largest in the system. Downstream, the District completed the Coyote Percolation Dam in 1934 on Coyote Creek near Metcalf Road to create an in-stream percolation reservoir. In addition to the Coyote Percolation Reservoir, the District undertook other smaller in-stream improvements to enhance percolation such as constructing low dams in areas naturally conducive to percolation. Three canals rounded out the other original main elements of the system: the Almaden-Calero Canal (1935), Vasona Canal (1936), and Coyote Canal (1936-37). The Almaden-Calero Canal carried excess water four miles from the smaller Almaden Reservoir to the larger Calero Reservoir. The Vasona Canal carried water from Vasona Reservoir on Los Gatos Creek to San Tomas Aquinas Creek where it flowed to in-stream percolation areas. On the opposite side of the valley, the Coyote Canal diverted water from Coyote Creek at a point in present-day Anderson Lake County Park, and conveyed it nine miles to the Coyote Percolation Reservoir. The water carried by the Coyote Canal was stored water released from Coyote Reservoir upstream in the Diablo Range.[11]

Money for the project came in 1934 from a $2 million bond issue passed by the members of the District, which provided funding for the majority of dam construction and the Vasona Canal and a section of the Coyote Canal. A supplemental bond passed in 1936 and federal Public Works Administration funds enabled completion of these early works. The District awarded contracts for the dams to several firms including F.O. Bohnett, D. McDonald Company, Macco Construction, A. Teichert & Son, and Carl N. Swenson Company. When the system was completed, the District boasted that it was the first water conservation system of its type in the state. Other water districts formed in the region during the 1930s through the 1950s.[12]

The efforts of the District proved successful and groundwater levels began to rise. Between 1936 and 1943, the water table rose 76 feet on average. But groundwater pumping increased dramatically in 1947 during a drought and groundwater levels rapidly declined. The drought combined with ever increasing water usage associated with population growth, urban expansion, industrial use, and more year-round irrigation resulted in the District's continued improvement and expansion of its system in the 1950s. This included construction of Anderson Dam (1950), Lexington Dam (1952), Coyote-Alamitos Canal (1953), Alamitos Percolation Pond (1953), Coyote Canal Extension (1954), Evergreen Canal (1954), and the Upper and Lower Page Canals (1954). The District also expanded its service area in the 1950s with the incorporation of about 4,000 acres in the Evergreen area in east San José, and the merger with the Central Santa Clara Valley Water Conservation District, which included land from Coyote south to the southern city limits of Morgan Hill.[13]

Despite the increased storage capacity created by Anderson Dam and Lexington Dam, the District still did not have enough water to satisfy its customers and began importation of water from outside of Santa Clara County via the Hetch Hetchy Bay Division No. 3 Pipeline, which was built around the southern end of San Francisco Bay through northern Santa Clara County in 1952. This was supplemented with water from Hetch Hetchy Bay Division No. 4 Pipeline built in 1973. The Hetch Hetchy water provided water directly to local water retailers in Milpitas, Sunnyvale, Mountain View, and Palo Alto.[14] Population growth and water demand continued unabated, however, and by the early 1960s the District had an acute need for more water. In response, it devised plans to import additional water from the California State Water Project (SWP) through the SWP's South Bay Aqueduct, the first delivery of which occurred in 1965. In the early 1960s, the District also set its sights on Central Valley

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[11] Santa Clara Valley Water Conservation District, "To the Voters of the District," 1936, on file at WRCA; Tibbetts, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District on 1934 Well Replenishment Project," 7; Tibbetts, "Water Conservation Project In Santa Clara County: Outline of Discussion by Mr. Fred H. Tibbetts," 17-20, on file at WRCA; State of California, State Water Resources Board, "Santa Clara Valley Investigation," Bulletin No. 7, June 1955, 49-51; Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2.

[12] Santa Clara Valley Water Conservation District, "This Is Your Santa Clara Valley Water Conservation District," ca. 1957, 2-11; David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for Santa Clara Valley Water District (SCVWD), April 1987, 44-45.

[13] Roll, "Report to the Honorable Board of Directors of the Santa Clara Valley Water Conservation District," 2; Santa Clara Valley Water District, "Groundwater Management Plan," 2012, Appendix A.

[14] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11.

Project (CVP) water from the San Luis Reservoir via the Pacheco Tunnel under Pacheco Pass, yet construction of the delivery system – known as the San Felipe Project – took decades to complete and CVP water did not flow into the District until 1987.[15]

The water added to the district's system in the 1950s, 1960s, and 1970s required additional infrastructure to ensure continued groundwater recharge and deliveries to water retail clients. To manage the new water and make more efficient use of existing in-county sources, the District embarked on a program in the mid-1960s to construct a system of pipelines and its first water treatment plant based on plans prepared by District engineers and the engineering consulting firm of Creegan & D'Angelo.[16]

The District's pipelines were designed to carry either raw water or treated water. The raw water was delivered from imported or local sources to treatment plants or to streams and ponds for groundwater recharge. The treated water came from one of the treatment plants and was sent to water retailers. Major raw water pipelines constructed during this period were the Alamitos Pipeline (1964), Central Pipeline (1965), Rinconada Force Main (1967), Guadalupe Water System (1966), Almaden Valley Pipeline (1966), Stevens Creek Pipeline (1967), and Penitencia Force Main (1974). Pipelines distributing treated water include the West Pipeline (1967), Campbell Distributary (1967), Santa Clara Distributary (1967), Sunnyvale Distributary (1970), East Pipeline (1974), and Penitencia Delivery Main (1974). The District also built the Rinconada Water Treatment Plant (WTP) on the west side of the valley in 1967, the Vasona Pump Station in 1971, also on the west side, and the Penitencia WTP in 1974 on the northeast side of the valley. With the importation of water from outside sources, the District dropped "Conservation" from its name and became the Santa Clara Valley Water District in the 1970s.[17]

During the latter part of the twentieth century, continued demands on the District's system required additional infrastructure. Later facilities built in the 1980s and 1990s include the Cross Valley Pipeline (1980/1985), Calero Pipeline (1990), Snell Pipeline (1987/1988), Graystone Pipeline (1989), Santa Teresa WTP (1989), Mountain View Distributary (1990), and Milpitas Pipeline (1993). Another major development during this period was the long-awaited completion of the San Felipe Project in 1987 that brought CVP water from San Luis Reservoir into the District.[18]

These system expansions coincided with further mergers and acquisitions. In 1968, the District merged with the Santa Clara County Flood Control District, forming one agency to manage the water supply and flood programs for most of the county. Mergers continued in the 1980s with the acquisition by the District of the 34,900-acre Gavilan Water Conservation District (GWCD) in 1987. The GWCD encompasses Gavilan Water District. The Gavilan Water Conservation District organized in 1938 as the South Santa Clara Valley Water Conservation District. The GWCD included the southernmost portion of the Santa Clara Valley from Morgan Hill south to the county line. The GWCD formed to address the problem of groundwater overdraft and to augment water supplies. To achieve these goals, GWCD built the Chesbro Dam in 1956 and Uvas Dam in 1957, which were constructed to regulate the release of water from their respective reservoirs to downstream groundwater recharge areas on Llagas Creek and Uvas Creek. These structures became part of the expanded District system in 1987.[19]

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[15] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 14, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 11; Harry Farrell, "The San Felipe Story," prepared for the Santa Clara Valley Water District, 1987, 1-16, 65, 66.
[16] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 18; Stone & Youngberg, "Water Supply for the North Santa Clara Valley," September 1962, 3, 11, 14-15.
[17] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[18] Santa Clara Valley Water District, "Urban Water Management Plan," April 2001, 11, 12, 17, 18; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1.
[19] David Keith Todd, "Groundwater Management in the Santa Clara Valley," prepared for SCVWD, April 1987, 45. Valley Water, "90 Years of Nourishing the Valley," accessed December 2022 at https://www.valleywater.org/news-events/news-releases.

*History of the West Pipeline*

The West Pipeline is a 9-mile conduit constructed in 1967 to carry treated water to various water retailers on the west side of the Santa Clara Valley. The pipeline was built by the Hood Corporation of Whittier, California on plans drawn by California Pacific Engineers of San José. The West Pipeline begins at the Rinconada Water Treatment Plant, also built in 1967, and runs generally northwest to Permanente Creek in Los Altos. The pipeline was built under the same construction contract that included the Rinconada Force Main, Stevens Creek Pipeline, Campbell Distributary, and Santa Clara Distributary, all of which were completed in 1967 or 1968. Since its construction, the District has undertaken various alterations and improvement to the pipeline including the installation of a cathodic protection system in 1971 to reduce corrosion, installation of six meters at turnout points in 1977, and the rehabilitation of a six-mile segment between Cox Avenue and the Mountain View Distributary in 2010 consisting of the replacement of air release valves, nozzles, flanges, pipe fittings, and blow-off valves.[20]

## Evaluation

The West Pipeline, including its appurtenant structures, does not have important associations with significant historic events, patterns, or trends of development (NRHP Criterion A / CRHR Criterion 1). The District built this pipeline in 1967 to carry treated water to the west side of the District. The West Pipeline is part of the District's vast system of pipelines and other structures that serve to efficiently move, store, and manage the water resources of the District. The District built this pipeline along with several others during a period from the mid-1960s through the late 1970s to accommodate increasing water demands and additional water brought into the District from outside sources. Since the inception of the District in 1929 up to the present, water demands have steadily increased, and the District has responded by building necessary infrastructure, such as the West Pipeline, to meet the demand. The West Pipeline, therefore, is not associated with any historically significant events, patterns, or trends, rather it is associated with the natural evolution, growth, and expansion of the District water system in its mission to provide water to the Santa Clara Valley.

The West Pipeline is not significant for an association with the lives of persons important to history (NRHP Criterion B / CRHR Criterion 2). Research did not find that any individuals directly associated with this property have made demonstrably important contributions to history at the local, state, or national level.

Under NRHP Criterion C / CRHR Criterion 3, this pipeline is not significant as an important example of a type, period, or method of construction, as the work of a master, or for possessing high artistic values. This underground welded steel pipeline is 30 and 84 inches in diameter and 9 miles long. It is of utilitarian design and represents typical materials and methods of construction for its time and use. It is not noteworthy for its length, diameter, function, or any other characteristic. Likewise, all of the appurtenant structures are utilitarian in design and materials. Additionally, research did not find that California Pacific Engineers or the Hood Corporation, the firms that designed and built the pipeline, rise to the level of masters in their respective fields. The West Pipeline, therefore, lacks significance under this criterion.

Under NRHP Criterion D / CRHR Criterion 4, this pipeline is not a significant or likely source of important information about historic construction materials or technologies that is not otherwise available through documentary evidence.

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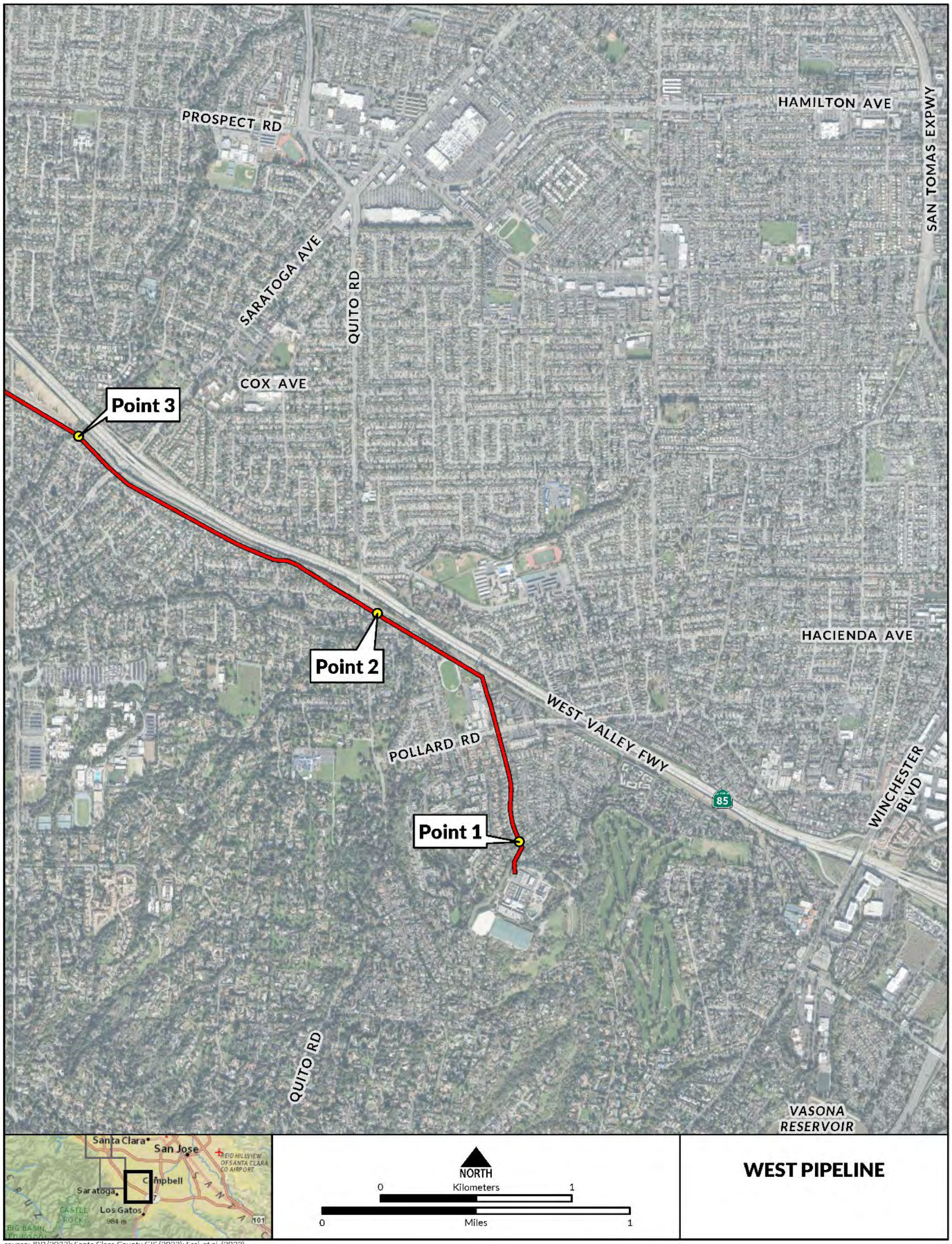
[20] SCVWD, "1976-77 Final Budget," 1976, 62; Panorama Environmental, Inc., "Santa Clara Valley Water District Pipeline Maintenance Program Manual Update," prepared for Santa Clara Valley Water District, June 2022, Table 1; GIS data provided by SCVWD; SCVWD, "Annual Survey Report on Ground Water Conditions: 1967," March 1967, 39-40; SCVWD, "Capital Improvement Plan, 2009-10," 2009, III-71, 72; SCVWD, "Annual Report, 2010," 11; SCVWD, Pipelines Project Delivery Unit, Pipeline Information, March 9, 2023; California Pacific Engineers, "Map and Construction Plans for Rinconada Force Main, West Pipeline, Stevens Creek Pipeline, Santa Clara Distributary, and Campbell Distributary," December 1965; SCVWD, "Specifications and Contract Documents for the Construction of Rinconada Force Main, West Pipeline, Stevens Creek Pipeline, Santa Clara Distributary, and Campbell Distributary," April 1965; California Pacific Engineers, "West Pipeline, General Plan," September 1965; SCVWD, Specifications and Drawings for the Construction of West Pipeline between Homestead Road and Permanente Creek, Unit 1," September 1965.

Primary # ___
HRI # ___
Trinomial ___



***Resource Name or #** (Assigned by recorder): West Pipeline



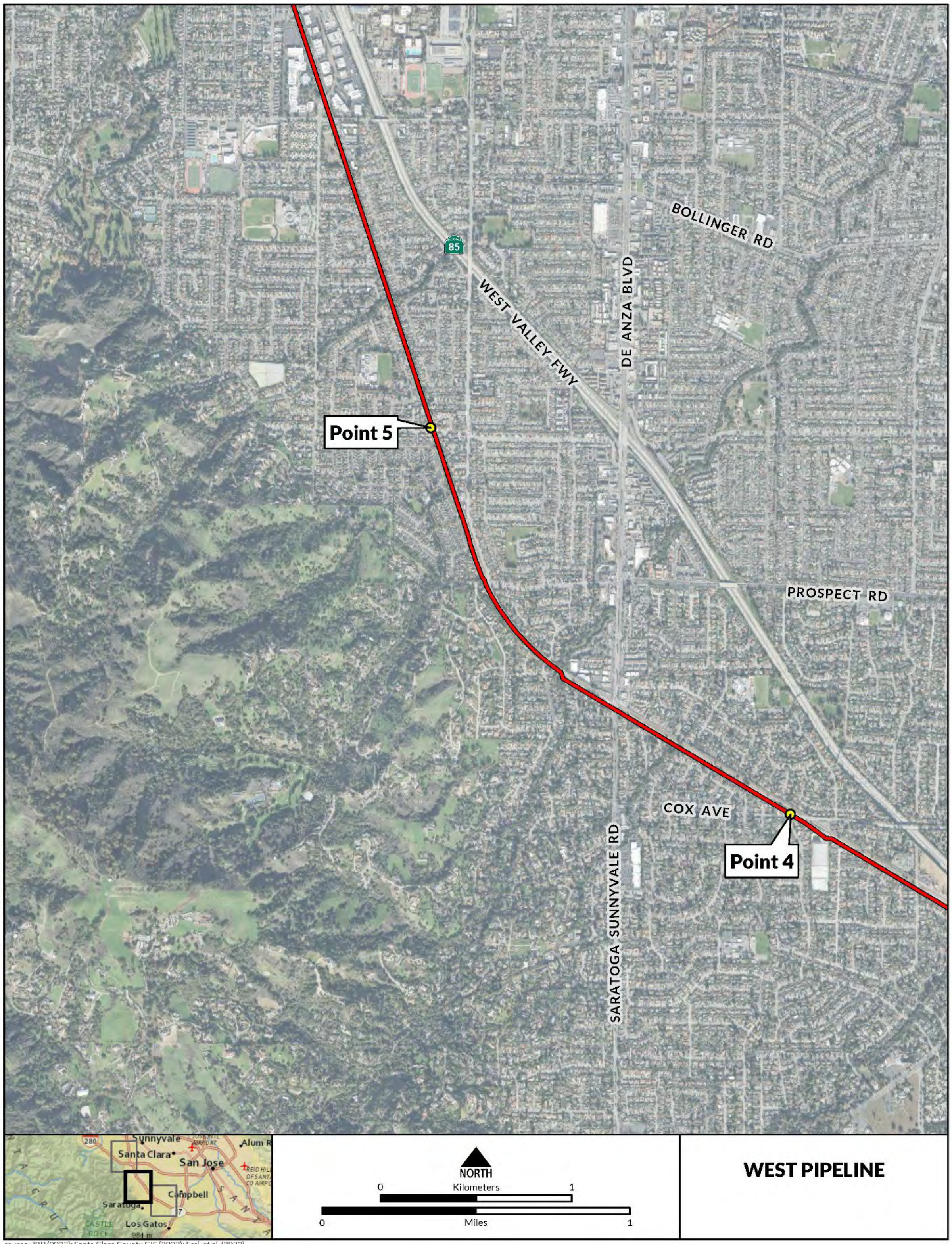

 ***Required Information**

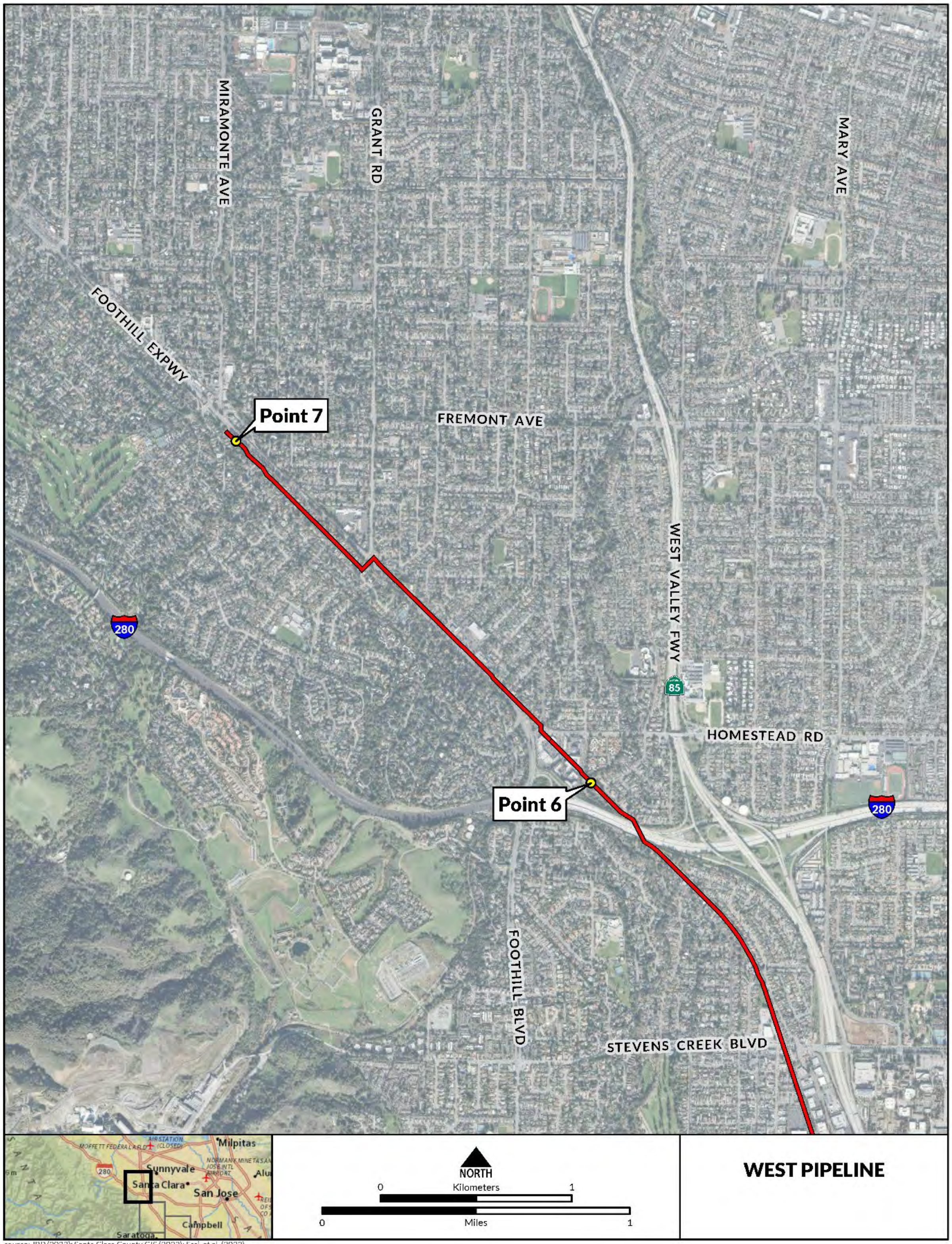
**SKETCH MAP**

Primary # ____
HRI # ____
Trinomial ____



***Resource Name or #** (Assigned by recorder): West Pipeline

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GRANT RD
MARY AVE
FOOTHILL EXPWY
Point 7
FREMONT AVE
WEST VALLEY FWY
280
85
HOMESTEAD RD
Point 6
280
FOOTHILL BLVD
STEVENS CREEK BLVD
Milpitas
Sunnyvale
Santa Clara
San Jose
Campbell
Saratoga
NORTH
0
Kilometers
1
0
Miles
1
WEST PIPELINE
source: JRP (2023); Santa Clara County GIS (2023); Esri. et al. (2023).

# Appendix J

CalEEMod Model Outputs

| | |
|---|---|
| Title: | CalEEMod Defaults and Assumptions |
| Project: | Pipeline Maintenance Program EIR |
| Client: | Valley Water |
| Date: | September 5, 2023 |
| Prepared by: | Jennifer Kidson, Panorama Environmental |
| Workbook purpose: | To provide inputs for air quality and greenhouse gas emissions modeling, to be completed in CalEEMod, for a worst-case scenario PMP activity (i.e., generating most air emissions). The workbook includes generic assumptions of pipeline size and trench width/depth, and CalEEMod default information on construction schedule, equipment, and vehicles. **Valley Water to modify inputs, equipment lists, etc., as desired.** |

| **Tab** | **Description** |
|---|---|
| Footprint and Hauling | Assumptions on pipeline size, trench width/depth, and import/export of materials (these assumptions help determine the defaults that CalEEMod selects) |
| Construction Schedule | Assumption of overall construction duration, with CalEEMod default construction schedule phases and duration. |
| Construction Equipment | CalEEMod default construction equipment assumptions. |
| Vehicle Trips | CalEEMod default vehicle trip assumptions. |

**Pipeline Maintenance Program EIR**
**Footprint and Hauling Assumptions**

| Measurement | Value | Unit | Source |
|---|---|---|---|
| Pipeline length | 1 | mile | Max length of pipeline replacement that would be covered by PMP |
| Pipeline diameter | **78** | inches | Conservative assumption based on range of pipeline sizes covered by PMP (at high end of range, but not absolute largest pipeline) |
| Pipeline diameter | **6.5** | feet | Calculated |
| Trench width | **8.5** | feet | Assumption - pipeline width plus 1 foot on either side |
| Trench depth | **9.5** | feet | Assumption - pipeline diameter plus 3 feet |
| Total trench cross-section area | **80.75** | sq feet | Calculated |
| Pipeline cross-section area | **33.2** | sq feet | Calculated |
| Fill cross-section area | **47.6** | sq feet | Calculated |
| Export volume | **251,153** | cubic feet | Calculated - conservatively assumes no re-use of excavated materials |
| Export volume | **9,302** | cubic yards | Calculated |
| Import volume | **9,302** | cubic yards | Calculated - assumed to be equal to export, assumes no re-use of excavated materials |

**Pipeline Maintenance Program EIR**
**Construction Schedule Assumptions**

Overall duration (work days) 35.2 Assumes replacement averages 150 feet per day.

**CalEEMod Defaults based on overall duration**

| **Phase Name*** | **Start Date**** | **End Date** | **Days Per Week** | **Work Days per Phase** |
|---|---|---|---|---|
| Linear, Grubbing & Land Clearing | 1/1/2024 | 1/6/2024 | 5 | 4 |
| Linear, Grading & Excavation | 1/7/2024 | 1/26/2024 | 5 | 14 |
| Linear, Drainage, Utilities, & Sub-Grade | 1/27/2024 | 2/12/2024 | 5 | 12 |
| Linear, Paving | 2/13/2024 | 2/20/2024 | 5 | 5 |

*Phase names are CalEEMod defaults for linear projects and can be modified or consolidated.
**Assumes generic project start date of Jan 1 2024

**Pipeline Maintenance Program EIR**
**Construction Equipment Assumptions**

| Phase Name* | Equipment Type | Fuel Type | Engine Tier | Number per Day | Hours Per Day | Horsepower | Load Factor |
|---|---|---|---|---|---|---|---|
| Linear, Grubbing & Land Clearing | Crawler Tractors | Diesel | Average | 1 | 8 | 87 | 0.43 |
| Linear, Grubbing & Land Clearing | Excavators | Diesel | Average | 1 | 8 | 36 | 0.38 |
| Linear, Grubbing & Land Clearing | Signal Boards | Electric | Average | 2 | 8 | 6 | 0.82 |
| Linear, Grading & Excavation | Crawler Tractors | Diesel | Average | 1 | 8 | 87 | 0.43 |
| Linear, Grading & Excavation | Excavators | Diesel | Average | 3 | 8 | 36 | 0.38 |
| Linear, Grading & Excavation | Graders | Diesel | Average | 1 | 8 | 148 | 0.41 |
| Linear, Grading & Excavation | Rollers | Diesel | Average | 2 | 8 | 36 | 0.38 |
| Linear, Grading & Excavation | Rubber Tired Loaders | Diesel | Average | 1 | 8 | 150 | 0.36 |
| Linear, Grading & Excavation | Scrapers | Diesel | Average | 2 | 8 | 423 | 0.48 |
| Linear, Grading & Excavation | Signal Boards | Electric | Average | 2 | 8 | 6 | 0.82 |
| Linear, Grading & Excavation | Tractors/Loaders/Backhoes | Diesel | Average | 2 | 8 | 84 | 0.37 |
| Linear, Drainage, Utilities, & Sub-Grade | Air Compressors | Diesel | Average | 1 | 8 | 37 | 0.48 |
| Linear, Drainage, Utilities, & Sub-Grade | Generator Sets | Diesel | Average | 1 | 8 | 14 | 0.74 |
| Linear, Drainage, Utilities, & Sub-Grade | Graders | Diesel | Average | 1 | 8 | 148 | 0.41 |
| Linear, Drainage, Utilities, & Sub-Grade | Plate Compactors | Diesel | Average | 1 | 8 | 8 | 0.43 |
| Linear, Drainage, Utilities, & Sub-Grade | Pumps | Diesel | Average | 1 | 8 | 11 | 0.74 |
| Linear, Drainage, Utilities, & Sub-Grade | Rough Terrain Forklifts | Diesel | Average | 1 | 8 | 96 | 0.4 |
| Linear, Drainage, Utilities, & Sub-Grade | Scrapers | Diesel | Average | 2 | 8 | 423 | 0.48 |
| Linear, Drainage, Utilities, & Sub-Grade | Signal Boards | Electric | Average | 2 | 8 | 6 | 0.82 |
| Linear, Drainage, Utilities, & Sub-Grade | Tractors/Loaders/Backhoes | Diesel | Average | 2 | 8 | 84 | 0.37 |
| Linear, Paving | Pavers | Diesel | Average | 1 | 8 | 81 | 0.42 |
| Linear, Paving | Paving Equipment | Diesel | Average | 1 | 8 | 89 | 0.36 |
| Linear, Paving | Rollers | Diesel | Average | 3 | 8 | 36 | 0.38 |
| Linear, Paving | Signal Boards | Electric | Average | 2 | 8 | 6 | 0.82 |
| Linear, Paving | Tractors/Loaders/Backhoes | Diesel | Average | 2 | 8 | 84 | 0.37 |

**Pipeline Maintenance Program EIR**
**Vehicle Trip Assumptions**

| Phase Name | Trip Type | One-Way Trips per Day |
|---|---|---|
| Linear, Grubbing & Land Clearing | Worker | 10 |
| | Vendor* | 0 |
| | Hauling** | 0 |
| | Onsite truck | 0 |
| Linear, Grading & Excavation | Worker | 35 |
| | Vendor | 1 |
| | Hauling | 86.5 |
| | Onsite truck | 0 |
| Linear, Drainage, Utilities, & Sub-Grade | Worker | 30 |
| | Vendor | 0 |
| | Hauling | 100.9 |
| | Onsite truck | 0 |
| Linear, Paving | Worker | 22.5 |
| | Vendor | 0 |
| | Hauling | 0 |
| | Onsite truck | 0 |

CalEEMod estimates worker trips based on the number of pieces of construction equipment used.
*Vendor trips include trips such as materials deliveries
**Hauling trips includes import/export of soil material. CalEEMod generates default assumptions based on volume of import and export.

## CalEEMod Inputs - Pipeline Replacement

| | |
|---|---|
| Version: | 2022.1.1.18 |
| Project: | Pipeline Maintenace Program EIR |
| Client: | Valley Water |
| Date: | October 4, 2023 |
| Prepared by: | Jen Kidson |
| Reviewed by: | Valley Water |

| | | | | | |
|---|---|---|---|---|---|
| **Project Information** | | | | | |
| Name | PMP Pipeline Replacement | | | | |
| Land Use Scale | Project/Site | | | | |
| Land Use Type | Linear | | | | |
| Land Use Subtype | User Defined Linear | | | | |
| Project Center Point | 37.25645681143072, -121.85927495103579 | | | | |
| | Used a point near the intersection of Hwy 85 and 87 as a general midpoint in the program area | | | | |
| **Location Information** | | | | | |
| Model Defaults (flows to Project Detail page) | | | | | |
| **Characteristics** | | | | | |
| **Project Detail** | | | | | |
| Lead Agency | Valley Water | | | | |
| Locational Context | Suburban | model default | | | |
| Analysis Level for Defaults | County | model default | | | |
| City | San Jose | model default | | | |
| County | Santa Clara | model default | | | |
| Air District | Bay Area AQMD | model default | | | |
| Air Basin | San Francisco Bay Area | model default | | | |
| Windspeed | 3.4 | model default | | | |
| Precipitation days per year | 18.2 | model default | | | |
| CEC Demand Forecast Zone | 1 | model default | | | |
| TAZ | 1925 | model default | | | |
| Start of Construction | 1/1/2024 | | | | |
| Operational Year | 2025 | | | | |
| **Utility Information** | | | | | |
| Electric Utility | PG&E | model default | | | |
| Operations GHG Emission Factors | | model default | | | |
| Gas Utility | PG&E | model default | | | |
| GHG pollutant intensity factors - CO2 | | model default | | | |
| GHG pollutant intensity factors - CH4 | | model default | | | |
| GHG pollutant intensity factors - N2O | | model default | | | |
| **Pollutants** | | | | | |
| Left blank - thresholds are not required to run the model | | | | | |
| | Construction Thresholds | | | Operations Thresholds | |
| Pollutant | Daily (lb/day) | Quarterly | Annual (ton/year) | Daily (lb/day) | Quarterly |
| TOG | | | | | |
| ROG | 54 | | | 54 | |
| NOx | 54 | | | 54 | |
| CO | | | | | |
| SO2 | | | | | |
| PM 10 - Exhaust | 82 | | | 82 | |
| PM 2.5 - Exhaust | 54 | | | 54 | |
| PM 10 - Dust | | | | | |
| PM 2.5 - Dust | | | | | |
| Co2 equivalent | | | | | |
| **Land Use** | | | | | |
| Type | Linear | | | | |
| Subtype | Road Construction | | | | |
| Unit | Mile | | | | |
| Size | 1 | Base assumption about project length | | | |
| Lot Acreage | 1 | Trench width*1 mile | | | |
| Building Square Feet | 0 | model default | | | |
| Landscape Area (sq ft) | 0 | model default | | | |
| Special Landscape Area (sq ft) | 0 | model default | | | |
| Population | blank | model default | | | |
| Description | Pipeline Replacement | Description is optional | | | |
| Predominant soil type | Sand Gravel | This impacts the relative durations of the construction phases - if the ground is harder a greater percentage of the overall project duration will be assigned to site prep | | | |
| **Construction** | | | | | |
| **Construction Phases** | | | | | |
| Linear Land Use Type Construction Workdays | 35 | workdays | | | |
| Phase Name | Start Date | End Date | Days Per Week | Work Days per Phase | See "Construction Schedule" Sheet |
| Linear, Grubbing & Land Clearing | 1/1/2024 | 1/6/2024 | 5 | 4 | |
| Linear, Grading & Excavation | 1/7/2024 | 1/26/2024 | 5 | 14 | |
| Linear, Drainage, Utilities, & Sub-Grade | 1/27/2024 | 2/12/2024 | 5 | 12 | |
| Linear, Paving | 2/13/2024 | 2/20/2024 | 5 | 5 | |

**Project Information (cont.)**

**Off-Road Equipment**

| Phase Name* | Equipment Type | Number per Day | Hours Per Day | |
|---|---|---|---|---|
| Linear, Grubbing & Land Clearing | Crawler Tractors | 1 | 8 | Model default |
| Linear, Grubbing & Land Clearing | Excavators | 1 | 8 | Model default |
| Linear, Grubbing & Land Clearing | Signal Boards | 2 | 8 | Model default |
| Linear, Grading & Excavation | Crawler Tractors | 1 | 8 | Model default |
| Linear, Grading & Excavation | Excavators | 3 | 8 | Model default |
| Linear, Grading & Excavation | Graders | 1 | 8 | Model default |
| Linear, Grading & Excavation | Rollers | 2 | 8 | Model default |
| Linear, Grading & Excavation | Rubber Tired Loaders | 1 | 8 | Model default |
| Linear, Grading & Excavation | Scrapers | 2 | 8 | Model default |
| Linear, Grading & Excavation | Signal Boards | 2 | 8 | Model default |
| Linear, Grading & Excavation | Tractors/Loaders/Backhoes | 2 | 8 | Model default |
| Linear, Drainage, Utilities, & Sub-Grade | Air Compressors | 1 | 8 | Model default |
| Linear, Drainage, Utilities, & Sub-Grade | Generator Sets | 1 | 8 | Model default |
| Linear, Drainage, Utilities, & Sub-Grade | Graders | 1 | 8 | Model default |
| Linear, Drainage, Utilities, & Sub-Grade | Plate Compactors | 1 | 8 | Model default |
| Linear, Drainage, Utilities, & Sub-Grade | Pumps | 1 | 8 | Model default |
| Linear, Drainage, Utilities, & Sub-Grade | Rough Terrain Forklifts | 1 | 8 | Model default |
| Linear, Drainage, Utilities, & Sub-Grade | Scrapers | 2 | 8 | Model default |
| Linear, Drainage, Utilities, & Sub-Grade | Signal Boards | 2 | 8 | Model default |
| Linear, Drainage, Utilities, & Sub-Grade | Tractors/Loaders/Backhoes | 2 | 8 | Model default |
| Linear, Paving | Pavers | 1 | 8 | Model default |
| Linear, Paving | Paving Equipment | 1 | 8 | Model default |
| Linear, Paving | Rollers | 3 | 8 | Model default |
| Linear, Paving | Signal Boards | 2 | 8 | Model default |
| Linear, Paving | Tractors/Loaders/Backhoes | 2 | 8 | Model default |

**Off-Road Equipment Emission Factors**

Model Defaults

**Dust from Material Movement**

| | | |
|---|---|---|
| Water exposed area | On | BAAQMD construction BMP |
| PM10 % Reduction | | model default |
| PM2.5 % reduction | | model default |
| **Material Imported** | Import | |
| Linear, Grading & Excavation | 9302 | calculated based on assumptions approved by VW |
| Linear, Drainage, Utilities, & Sub-Grade | 0 | |
| **Material Exported** | Export | |
| Linear, Grading & Excavation | 0 | |
| Linear, Drainage, Utilities, & Sub-Grade | 9302 | calculated based on assumptions approved by VW |
| Total Acres graded | 0.8 | model default |

| **Trips and VMT** | Trip Type | # one-way trips per day | Notes |
|---|---|---|---|
| Linear, Grubbing & Land Clearing | Worker | 10 | Model default |
| | Vendor | 0 | Model default |
| | Hauling | 0 | Model default |
| | Onsite truck | 0 | Model default |
| Linear, Grading & Excavation | Worker | 35 | Model default |
| | Vendor | 1 | Model default |
| | Hauling | 83 | Model default |
| | Onsite truck | 0 | Model default |
| Linear, Drainage, Utilities, & Sub-Grade | Worker | 30 | Model default |
| | Vendor | 0 | Model default |
| | Hauling | 97 | Model default |
| | Onsite truck | 0 | Model default |
| Linear, Paving | Worker | 23 | Model default |
| | Vendor | 0 | Model default |
| | Hauling | 0 | Model default |
| | Onsite truck | 0 | Model default |

**On-Road Fugitive Dust**

| | | |
|---|---|---|
| Water unpaved roads twice daily | Off | Some of the control strategies are similar to BAAQMD construction BMPs, but I left these turned off to be conservative |
| Apply dust suppressants to unpaved roads | Off | |
| Limit vehicle speeds on unpaved roads to 25 mpl | Off | |
| Sweep paved roads once per month | Off | |

**Architectural Coatings**

Model Defaults

**Paved Area**

| | | |
|---|---|---|
| Paved area (acres) | 1 | model default |
| % Asphalt | 100 | model default |

**Project Information (cont.)**

**Electricty**

Model Defaults

**Vegetation**

| | |
|---|---|
| Land Use Change | none |
| Sequestration | none |

**Climate Risk**

skip all

**Measures**

None selected

**No operation included in the road construction land use type**

Pipeline Maintenance Program EIR
Footprint and Hauling Inputs

| Measurement | Value | Unit | Source |
|---|---|---|---|
| Pipeline length | 1 | mile | Max length of pipeline replacement that would be covered by PMP |
| Pipeline diameter | 78 | inches | Conservative assumption based on range of pipeline sizes covered by PMP (at high end of range, but not absolute largest pipeline) |
| Pipeline diameter | 6.5 | feet | Calculated |
| Trench width | 8.5 | feet | Assumption - pipeline width plus 1 foot on either side |
| Trench depth | 9.5 | feet | Assumption - pipeline diameter plus 3 feet |
| Total trench cross-section area | 80.75 | sq feet | Calculated |
| Pipeline cross-section area | 33.1830724 | sq feet | Calculated |
| Fill cross-section area | 47.6 | sq feet | Calculated |
| Export volume | 251,153 | cubic feet | Calculated - conservatively assumes no re-use of excavated materials |
| Export volume | 9,302 | cubic yards | Calculated |
| Import volume | 9,302 | cubic yards | Calculated - assumed to be equal to export, assumes no re-use of excavated |

**Pipeline Maintenance Program EIR**

**Pipeline Size Inputs (information from project description)**

| Name | Water Type | Diameter (inches) | Length (miles) |
|---|---|---|---|
| Alamitos Pipeline | Raw | 24 | 0.2 |
| Almaden Valley Pipeline | Raw | 72 to 78 | 12.3 |
| Anderson Force Main | Raw | 54 | 0.8 |
| Bayview Golf Course Turnout | Raw | 6 | 0.1 |
| Calero Pipeline | Raw | 78 | 2.6 |
| Campbell Distributary | Treated | 20 | 2 |
| Central Pipeline | Raw | 66 | 13.1 |
| Coyote Discharge Line | Raw | 42 | 0.5 |
| Coyote–Madrone Half Road Pipeline | Raw | 30 | 1.2 |
| Cross Valley Pipeline | Raw | 78 | 7.9 |
| Cross Valley Pipeline Extension | Raw | 36 | 1.3 |
| East Evergreen Pipeline | Treated | 33 to 48 | 6.4 |
| Guadalupe Percolation Pipeline | Raw | 21, 24, and 27 | 0.8 |
| Guadalupe Water System | Raw | 10, 12, 14, and 16 | 0.3 |
| Hetch–Hetchy Intertie | Treated | 42 | 0.2 |
| Main Avenue Pipeline | Raw | 36 and 24 | 1 |
| Kirk Distribution System | Raw | 36 | 0.5 |
| Milpitas Pipeline | Treated | 42 | 4.6 |
| Mountain View Distributary | Treated | 24 | 1.1 |
| Pacheco Conduit | Raw | 120 | 7.9 |
| Page Distribution System | Raw | 24 | 0.5 |
| Parallel East Pipeline | Treated | 54 | 4.1 |
| Penitencia Delivery Main | Treated | 60 | 0.5 |
| Graystone | Treated | 36 | 0.3 |
| Pacheco Tunnel Reach 2 | Raw | 114 | 5.2 |
| Penitencia Force Main | Raw | 66 | 0.3 |
| Rinconada Force Main | Raw | 72 | 1 |
| Santa Clara Conduit | Raw | 66 to 96 | 22.2 |
| Santa Clara Distributary | Treated | 30 to 36 | 4.1 |
| Santa Clara Tunnel | Raw | 116 | 1 |
| Santa Teresa Force Main | Raw | 66 | 0.3 |
| Snell Pipeline | Treated | 60 to 72 | 9.7 |
| South County Recycled Water Pipeline | Recycled | 12 to 36 | 10.8 |
| Stevens Creek Pipeline | Raw | 20 to 37 | 9.8 |
| Sunnyvale Distributary | Treated | 33 | 0.5 |
| Uvas–Llagas Transfer Pipeline | Raw | 27 to 39 | 3.3 |

**Calculations/Updates (to account for size ranges in project description)**

| Diameter (inches) | Length (miles) | Diameter * length ("weighted" diameter) |
|---|---|---|
| 24 | 0.2 | 4.8 |
| 75 | 12.3 | 922.5 |
| 54 | 0.8 | 43.2 |
| 6 | 0.1 | 0.6 |
| 78 | 2.6 | 202.8 |
| 20 | 2 | 40 |
| 66 | 13.1 | 864.6 |
| 42 | 0.5 | 21 |
| 30 | 1.2 | 36 |
| 78 | 7.9 | 616.2 |
| 36 | 1.3 | 46.8 |
| 40.5 | 6.4 | 259.2 |
| 24 | 0.8 | 19.2 |
| 13 | 0.3 | 3.9 |
| 42 | 0.2 | 8.4 |
| 30 | 1 | 30 |
| 36 | 0.5 | 18 |
| 42 | 4.6 | 193.2 |
| 24 | 1.1 | 26.4 |
| 120 | 7.9 | 948 |
| 24 | 0.5 | 12 |
| 54 | 4.1 | 221.4 |
| 60 | 0.5 | 30 |
| 36 | 0.3 | 10.8 |
| 114 | 5.2 | 592.8 |
| 66 | 0.3 | 19.8 |
| 72 | 1 | 72 |
| 81 | 22.2 | 1798.2 |
| 33 | 4.1 | 135.3 |
| 116 | 1 | 116 |
| 66 | 0.3 | 19.8 |
| 66 | 9.7 | 640.2 |
| 24 | 10.8 | 259.2 |
| 28.5 | 9.8 | 279.3 |
| 33 | 0.5 | 16.5 |
| 33 | 3.3 | 108.9 |

| | |
|---|---|
| **Total Weighted Diameter** | 8637 |
| **Total Length** | 138.4 |
| **Average Weighted Diameter** | 62.40606936 |

**Pipeline Maintenance Program EIR**
**Construction Schedule Inputs**

Overall duration (work days) 35.2 Assumes replacement averages 150 feet per day.

**CalEEMod Defaults based on overall duration**

| Phase Name* | Start Date** | End Date | Days Per Week | Work Days per Phase |
|---|---|---|---|---|
| Linear, Grubbing & Land Clearing | 1/1/2024 | 1/6/2024 | 5 | 4 |
| Linear, Grading & Excavation | 1/7/2024 | 1/26/2024 | 5 | 14 |
| Linear, Drainage, Utilities, & Sub-Grade | 1/27/2024 | 2/12/2024 | 5 | 12 |
| Linear, Paving | 2/13/2024 | 2/20/2024 | 5 | 5 |

*Phase names are CalEEMod defaults for linear projects and can be modified or consolidated.
**Assumes generic project start date of Jan 1 2024

**Pipeline Maintenance Program EIR**
**Construction Equipment Inputs**

| Phase Name* | Equipment Type | Fuel Type | Engine Tier | Number per Day | Hours Per Day | Horsepower | Load Factor |
|---|---|---|---|---|---|---|---|
| Linear, Grubbing & Land Clearing | Crawler Tractors | Diesel | Average | 1 | 8 | 87 | 0.43 |
| Linear, Grubbing & Land Clearing | Excavators | Diesel | Average | 1 | 8 | 36 | 0.38 |
| Linear, Grubbing & Land Clearing | Signal Boards | Electric | Average | 2 | 8 | 6 | 0.82 |
| Linear, Grading & Excavation | Crawler Tractors | Diesel | Average | 1 | 8 | 87 | 0.43 |
| Linear, Grading & Excavation | Excavators | Diesel | Average | 3 | 8 | 36 | 0.38 |
| Linear, Grading & Excavation | Graders | Diesel | Average | 1 | 8 | 148 | 0.41 |
| Linear, Grading & Excavation | Rollers | Diesel | Average | 2 | 8 | 36 | 0.38 |
| Linear, Grading & Excavation | Rubber Tired Loaders | Diesel | Average | 1 | 8 | 150 | 0.36 |
| Linear, Grading & Excavation | Scrapers | Diesel | Average | 2 | 8 | 423 | 0.48 |
| Linear, Grading & Excavation | Signal Boards | Electric | Average | 2 | 8 | 6 | 0.82 |
| Linear, Grading & Excavation | Tractors/Loaders/Backhoes | Diesel | Average | 2 | 8 | 84 | 0.37 |
| Linear, Drainage, Utilities, & Sub-Grade | Air Compressors | Diesel | Average | 1 | 8 | 37 | 0.48 |
| Linear, Drainage, Utilities, & Sub-Grade | Generator Sets | Diesel | Average | 1 | 8 | 14 | 0.74 |
| Linear, Drainage, Utilities, & Sub-Grade | Graders | Diesel | Average | 1 | 8 | 148 | 0.41 |
| Linear, Drainage, Utilities, & Sub-Grade | Plate Compactors | Diesel | Average | 1 | 8 | 8 | 0.43 |
| Linear, Drainage, Utilities, & Sub-Grade | Pumps | Diesel | Average | 1 | 8 | 11 | 0.74 |
| Linear, Drainage, Utilities, & Sub-Grade | Rough Terrain Forklifts | Diesel | Average | 1 | 8 | 96 | 0.4 |
| Linear, Drainage, Utilities, & Sub-Grade | Scrapers | Diesel | Average | 2 | 8 | 423 | 0.48 |
| Linear, Drainage, Utilities, & Sub-Grade | Signal Boards | Electric | Average | 2 | 8 | 6 | 0.82 |
| Linear, Drainage, Utilities, & Sub-Grade | Tractors/Loaders/Backhoes | Diesel | Average | 2 | 8 | 84 | 0.37 |
| Linear, Paving | Pavers | Diesel | Average | 1 | 8 | 81 | 0.42 |
| Linear, Paving | Paving Equipment | Diesel | Average | 1 | 8 | 89 | 0.36 |
| Linear, Paving | Rollers | Diesel | Average | 3 | 8 | 36 | 0.38 |
| Linear, Paving | Signal Boards | Electric | Average | 2 | 8 | 6 | 0.82 |
| Linear, Paving | Tractors/Loaders/Backhoes | Diesel | Average | 2 | 8 | 84 | 0.37 |

**Pipeline Maintenance Program EIR**
**Vehicle Trip Inputs**

| Phase Name | Trip Type | One-Way Trips per Day |
|---|---|---|
| Linear, Grubbing & Land Clearing | Worker | 10 |
| | Vendor* | 0 |
| | Hauling** | 0 |
| | Onsite truck | 0 |
| Linear, Grading & Excavation | Worker | 35 |
| | Vendor | 1 |
| | Hauling | 86.5 |
| | Onsite truck | 0 |
| Linear, Drainage, Utilities, & Sub-Grade | Worker | 30 |
| | Vendor | 0 |
| | Hauling | 100.9 |
| | Onsite truck | 0 |
| Linear, Paving | Worker | 22.5 |
| | Vendor | 0 |
| | Hauling | 0 |
| | Onsite truck | 0 |

CalEEMod estimates worker trips based on the number of pieces of construction equipment used.
*Vendor trips include trips such as materials deliveries
**Hauling trips includes import/export of soil material. CalEEMod generates default assumptions based on volume of import and export.

# PMP Pipeline Replacement Summary Report

## Table of Contents

# 1. Basic Project Information

## 1.1. Basic Project Information

| Data Field | Value |
|---|---|
| Project Name | PMP Pipeline Replacement |
| Construction Start Date | 1/1/2024 |
| Lead Agency | Valley Water |
| Land Use Scale | Project/site |
| Analysis Level for Defaults | County |
| Windspeed (m/s) | 3.40 |
| Precipitation (days) | 18.2 |
| Location | 37.25645681143072, -121.85927495103579 |
| County | Santa Clara |
| City | San Jose |
| Air District | Bay Area AQMD |
| Air Basin | San Francisco Bay Area |
| TAZ | 1925 |
| EDFZ | 1 |
| Electric Utility | Pacific Gas & Electric Company |
| Gas Utility | Pacific Gas & Electric |
| App Version | 2022.1.1.20 |

## 1.2. Land Use Types

| Land Use Subtype | Size | Unit | Lot Acreage | Building Area (sq ft) | Landscape Area (sq ft) | Special Landscape Area (sq ft) | Population | Description |
|---|---|---|---|---|---|---|---|---|
| Road Construction | 1.00 | Mile | 1.00 | 0.00 | — | — | — | — |

## 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

# 2. Emissions Summary

## 2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Un/Mit. | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | R | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 4.83 | 3.66 | 39.5 | 35.5 | 0.10 | 1.53 | 3.10 | 4.63 | 1.38 | 0.67 | 2.01 | — | 13,013 | 13,013 | 0.82 | 1.20 | 0.42 | 13,390 |
| Average Daily (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.34 | 0.26 | 2.84 | 2.55 | 0.01 | 0.11 | 0.23 | 0.33 | 0.10 | 0.05 | 0.14 | — | 953 | 953 | 0.06 | 0.08 | 0.48 | 978 |
| Annual (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.06 | 0.05 | 0.52 | 0.47 | < 0.005 | 0.02 | 0.04 | 0.06 | 0.02 | 0.01 | 0.03 | — | 158 | 158 | 0.01 | 0.01 | 0.08 | 162 |
| Exceeds (Daily Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Threshold | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | — | Yes | Yes | — | — | Yes | — | — | Yes | — | — | — | — | — | — | — | — | — |
| Exceeds (Average Daily) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Threshold | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | — | Yes | Yes | — | — | Yes | — | — | Yes | — | — | — | — | — | — | — | — | — |

# 6. Climate Risk Detailed Report

## 6.2. Initial Climate Risk Scores

| Climate Hazard | Exposure Score | Sensitivity Score | Adaptive Capacity Score | Vulnerability Score |
|---|---|---|---|---|
| Temperature and Extreme Heat | N/A | N/A | N/A | N/A |
| Extreme Precipitation | N/A | N/A | N/A | N/A |
| Sea Level Rise | N/A | N/A | N/A | N/A |
| Wildfire | N/A | N/A | N/A | N/A |
| Flooding | N/A | N/A | N/A | N/A |
| Drought | N/A | N/A | N/A | N/A |
| Snowpack Reduction | N/A | N/A | N/A | N/A |
| Air Quality Degradation | N/A | N/A | N/A | N/A |

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

## 6.3. Adjusted Climate Risk Scores

| Climate Hazard | Exposure Score | Sensitivity Score | Adaptive Capacity Score | Vulnerability Score |
|---|---|---|---|---|
| Temperature and Extreme Heat | N/A | N/A | N/A | N/A |
| Extreme Precipitation | N/A | N/A | N/A | N/A |
| Sea Level Rise | N/A | N/A | N/A | N/A |
| Wildfire | N/A | N/A | N/A | N/A |
| Flooding | N/A | N/A | N/A | N/A |
| Drought | N/A | N/A | N/A | N/A |
| Snowpack Reduction | N/A | N/A | N/A | N/A |
| Air Quality Degradation | N/A | N/A | N/A | N/A |

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

# 7. Health and Equity Details

## 7.3. Overall Health & Equity Scores

| Metric | Result for Project Census Tract |
|---|---|
| CalEnviroScreen 4.0 Score for Project Location (a) | 18.0 |
| Healthy Places Index Score for Project Location (b) | 75.0 |
| Project Located in a Designated Disadvantaged Community (Senate Bill 535) | No |
| Project Located in a Low-Income Community (Assembly Bill 1550) | No |
| Project Located in a Community Air Protection Program Community (Assembly Bill 617) | No |

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

## 7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

## CalEEMod Inputs - Backup Generators

| | |
|---|---|
| Version: | 2022.1.1.18 |
| Project: | Pipeline Maintenace Program EIR |
| Client: | Valley Water |
| Date: | October 4, 2023 |
| Prepared by: | Jen Kidson |
| Reviewed by: | Valley Water |

**Project Information**

| | | |
|---|---|---|
| Name | PMP Backup Generators | |
| Land Use Scale | Project/Site | |
| Land Use Type | Linear | |
| Land Use Subtype | User Defined Linear | |
| Project Center Point | 37.25645681143072, -121.85927495103579 | |
| | (Point near the intersection of Hwy 85 and 87 as a general midpoint in the program area) | |

**Location Information**

Model Defaults (flows to Project Detail page)

**Characteristics**

**Project Detail**

| | | |
|---|---|---|
| Lead Agency | Valley Water | |
| Locational Context | Suburban | model default |
| Analysis Level for Defaults | County | model default |
| City | San Jose | model default |
| County | Santa Clara | model default |
| Air District | Bay Area AQMD | model default |
| Air Basin | San Francisco Bay Area | model default |
| Windspeed | 3.4 | model default |
| Precipitation days per year | 18.2 | model default |
| CEC Demand Forecast Zone | 1 | model default |
| TAZ | 1925 | model default |
| Start of Construction | blank | |
| Operational Year | 2025 | |
| Quantify emissions for: | operations only | |

**Utility Information**

| | | |
|---|---|---|
| Electric Utility | PG&E | model default |
| Operations GHG Emission Factors | | model default |
| Gas Utility | PG&E | model default |
| GHG pollutant intensity factors - CO2 | | model default |
| GHG pollutant intensity factors - CH4 | | model default |
| GHG pollutant intensity factors - N2O | | model default |

**Pollutants**

Left blank - thresholds are not required to run the model

**Land Use**

| | | |
|---|---|---|
| Type | Industrial | |
| Subtype | User Defined Industrial | |
| Unit | User Defined Unit | |
| Size | 1 | Placeholder |
| Lot Acreage | 0 | Placeholder |
| Building Square Feet | 0 | model default |
| Landscape Area (sq ft) | 1 | Placeholder |
| Special Landscape Area (sq ft) | 0 | model default |

**Operations**

**Mobile Sources**

| | | |
|---|---|---|
| Vehicle data | 0 | all trips and VMT |
| Fleet Mix | all values | model default |
| Vehicle EF | all values | model default |
| Road Dust | all values | model default |

**Area Sources**

| | | |
|---|---|---|
| Hearths | leave blank | |
| Consumer Products | 0 - all values | no net change in consumer products use |
| Architectural Coatings | 0 | reapplication rate per year - no net change |
| Landscape Equipment | blank | |

**Energy**

| | | |
|---|---|---|
| Energy Use | 0 - all values | energy use captured in stationary source info |

**Water**

| | | |
|---|---|---|
| Water and wastewater | 0 - all values | no water or WW use |

**Project Information (cont.)**

| | | |
|---|---|---|
| **Solid Waste** | | |
| Solid waste generation rate | 0 | no solid waste generation |
| **Refrigerants** | blank | |
| **Off-Road Equipment** | blank | |
| **Off-Road Equipment EF** | blank | |
| **Emergency Generators and Fire Pumps** | | |
| Emergency Generator | | |
| Fuel Type | diesel | |
| # Per day | 20 | per VW estimate of total number of generators to be installed |
| Hours/Day | 0 | modeling only annual emissions and average daily emissions, so no hours/day input |
| Hours/Year | 150 | BAAQMD recommendation of 100 hours per year of emergency use, plus 50 hours/year assumed for testing. |
| Horsepower | 27 | VW estimated 15-20 kV. 20 kV equals approximately 17 BHP |
| Load Factor | 0.73 | model default |
| Description | Emergency Generator - Diesel (25-50 HP | auto-populated by CalEEMod |
| **Generators + Pumps EF** | all values | model defaults |
| **Process Boilers** | blank | |
| **Boilers EF** | blank | |
| **User Defined** | blank | |
| **Vegetation** | | |
| Land Use Change | none | |
| Sequestration | none | |
| **Climate Risk** | | |
| skip all | | |
| **Measures** | | |
| None selected | | |

# PMP Backup Generators Summary Report

## Table of Contents

# 1. Basic Project Information

## 1.1. Basic Project Information

| Data Field | Value |
|---|---|
| Project Name | PMP Backup Generators |
| Operational Year | 2025 |
| Lead Agency | Valley Water |
| Land Use Scale | Project/site |
| Analysis Level for Defaults | County |
| Windspeed (m/s) | 3.40 |
| Precipitation (days) | 18.2 |
| Location | 37.25645681143072, -121.85927495103579 |
| County | Santa Clara |
| City | San Jose |
| Air District | Bay Area AQMD |
| Air Basin | San Francisco Bay Area |
| TAZ | 1925 |
| EDFZ | 1 |
| Electric Utility | Pacific Gas & Electric Company |
| Gas Utility | Pacific Gas & Electric |
| App Version | 2022.1.1.20 |

## 1.2. Land Use Types

| Land Use Subtype | Size | Unit | Lot Acreage | Building Area (sq ft) | Landscape Area (sq ft) | Special Landscape Area (sq ft) | Population | Description |
|---|---|---|---|---|---|---|---|---|
| User Defined Industrial | 1.00 | User Defined Unit | 0.00 | 0.00 | 1.00 | — | — | — |

### 1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

# 2. Emissions Summary

### 2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

| Un/Mit. | TOG | ROG | NOx | CO | SO2 | PM10E | PM10D | PM10T | PM2.5E | PM2.5D | PM2.5T | BCO2 | NBCO2 | CO2T | CH4 | N2O | R | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily, Summer (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Daily, Winter (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Average Daily (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.40 | 0.36 | 1.90 | 1.47 | < 0.005 | 0.16 | 0.00 | 0.16 | 0.16 | 0.00 | 0.16 | 0.00 | 186 | 186 | 0.01 | < 0.005 | 0.00 | 187 |
| Annual (Max) | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — | — |
| Unmit. | 0.07 | 0.07 | 0.35 | 0.27 | < 0.005 | 0.03 | 0.00 | 0.03 | 0.03 | 0.00 | 0.03 | 0.00 | 30.8 | 30.8 | < 0.005 | < 0.005 | 0.00 | 30.9 |

# 6. Climate Risk Detailed Report

### 6.2. Initial Climate Risk Scores

| Climate Hazard | Exposure Score | Sensitivity Score | Adaptive Capacity Score | Vulnerability Score |
|---|---|---|---|---|
| Temperature and Extreme Heat | N/A | N/A | N/A | N/A |
| Extreme Precipitation | N/A | N/A | N/A | N/A |

| | | | | |
|---|---|---|---|---|
| Sea Level Rise | N/A | N/A | N/A | N/A |
| Wildfire | N/A | N/A | N/A | N/A |
| Flooding | N/A | N/A | N/A | N/A |
| Drought | N/A | N/A | N/A | N/A |
| Snowpack Reduction | N/A | N/A | N/A | N/A |
| Air Quality Degradation | N/A | N/A | N/A | N/A |

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

## 6.3. Adjusted Climate Risk Scores

| Climate Hazard | Exposure Score | Sensitivity Score | Adaptive Capacity Score | Vulnerability Score |
|---|---|---|---|---|
| Temperature and Extreme Heat | N/A | N/A | N/A | N/A |
| Extreme Precipitation | N/A | N/A | N/A | N/A |
| Sea Level Rise | N/A | N/A | N/A | N/A |
| Wildfire | N/A | N/A | N/A | N/A |
| Flooding | N/A | N/A | N/A | N/A |
| Drought | N/A | N/A | N/A | N/A |
| Snowpack Reduction | N/A | N/A | N/A | N/A |
| Air Quality Degradation | N/A | N/A | N/A | N/A |

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

# 7. Health and Equity Details

## 7.3. Overall Health & Equity Scores

| Metric | Result for Project Census Tract |
| --- | --- |
| CalEnviroScreen 4.0 Score for Project Location (a) | 18.0 |
| Healthy Places Index Score for Project Location (b) | 75.0 |
| Project Located in a Designated Disadvantaged Community (Senate Bill 535) | No |
| Project Located in a Low-Income Community (Assembly Bill 1550) | No |
| Project Located in a Community Air Protection Program Community (Assembly Bill 617) | No |

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

## 7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.